

UNITED STATES OF AMERICA  
Before The  
POSTAL RATE COMMISSION  
WASHINGTON, D.C. 20268-0001

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Postal Rate and Fee Changes

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Docket No. R2000-1

ANSWERS OF THE OFFICE OF THE CONSUMER ADVOCATE  
TO INTERROGATORIES OF THE UNITED STATES POSTAL SERVICE  
WITNESS: MARK EWEN (USPS/OCA-T5-30-37)  
(July 7, 2000)

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The Office of the Consumer Advocate hereby submits the answers of Mark Ewen to interrogatories USPS/OCA-T5-30-37, dated June 27, 2000. Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,



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ANSWERS OF OCA WITNESS MARK EWEN  
TO INTERROGATORIES USPS/OCA-T5-30-37

USPS/OCA-T5-30. Please refer to your response to USPS/OCA-T5-2(c) where you state:

In covering a previously uncovered stop, I presume the carrier engages in typical mail loading activities. As such, a certain increment of the total load time required to complete these activities will be dependent upon the volume delivered at the stop. The elemental load time variability analysis captures this proportion.

- a. Please list in detail each and every "typical mail loading activity" in which the carrier engages at a previously uncovered stop. For each activity, indicate whether the time is volume related or not volume related.
- b. Please confirm that you are stating that "a certain increment of total load time required to complete these activities" is dependent on the volume delivered at the stop. If you do not confirm, please explain the precise meaning of the second sentence of this quotation.
- c. Please confirm that the incontrovertible logic of this statement is that "a certain increment of total load time required to complete these activities" is not dependent upon the volume delivered at the stop. If you do not confirm please explain and justify the use of the words "a certain increment" in the second sentence of this quotation.
- d. Please confirm that in this quotation you identify the activities dependent upon the volume delivered at the stop as being captured by the "elemental load time variability analysis." If you do not confirm please explain the sentence that states "The elemental load time variability analysis captures this proportion."
- e. Please confirm that this must mean that the activities not dependent upon the volume delivered at the stop are not captured by the elemental load time variability analysis.
- f. Please confirm that the total volume variable load time at a stop is the sum of the elemental and volume-variable coverage-related load time at that stop. If you do not confirm, please indicate the source of additional volume variable load time at a stop.
- g. Please confirm that the sum of elemental and volume-variable coverage-related load time at a stop is less than the total accrued load time at that stop. If you do not confirm, please explain why the load time variability is less than 100 percent.

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RESPONSE TO USPS/OCA-T5-30:

- (a) I have performed no studies or reviews of the specific activities of letter carriers at various types of stops, nor is such an undertaking necessary or relevant for my conclusions.
- (b) Confirmed.
- (c) Not confirmed. Depending upon the characteristics of the stop, the increment of load time dependent upon volume at the stop may or may not represent all the total load time incurred at the stop.
- (d) I confirm that the elemental load time variability analysis develops a statistical estimate of the volume-related and non-volume-related load time activities for stops with different volume and non-volume characteristics.
- (e) Not confirmed. The regression analysis that underpins the elemental load time variability analysis estimates the effects of both volume-related and non-volume-related characteristics.
- (f) Confirmed, to the extent that elemental and coverage related costs are relevant at the stop level. However, because aggregate elemental load time is derived from elasticities that are computed using the mean values of the independent variables, the elemental load time at an individual stop is not particularly relevant for cost attribution.
- (g) Not confirmed. In addition to the previous response, I note that the sum of attributable coverage-related and elemental load costs for a particular stop depends on the characteristics of the stop. See response to part (c) above.

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USPS/OCA-T5-31. Please refer to your response to USPS/OCA-T5-2(c) where you state:

The remaining increment of time, commonly referred to as coverage-related load time, may be in part influenced by system-level volume effects or other non-volume-related factors (e.g. receptacle type)

- a. Please confirm that this quotation implies that coverage-related load time is not influenced by volume at the stop, although it may be influenced by system volume. If you do not confirm, then please answer the following:
  - (1) Please explain the operational basis for concluding that coverage-related load time is influenced by volume at the stop.
  - (2) Please show how the effect of volume on coverage-related load time at the stop is different than the effect of volume on elemental load time at the stop.
- b. Please confirm that the total load time on a route is the total load time on the stops on that route. If you do not confirm, please explain how the total load time on a route can be greater than or less than the sum of the load times of the stops on that route.
- c. Please confirm that system-level volume can influence the load time on a route as well as the load time at an individual stop.
- d. Please confirm that the way that system-wide volume can influence coverage-related load time is through creating a covered stop that was previously uncovered. If you do not confirm, please explain in detail the way in which system-wide volume influences coverage-related load time. Please recognize that stating, "Understanding exactly how coverage-related load-time manifests itself in the act of loading mail is not necessary" is not responsive to this interrogatory.

RESPONSE TO USPS/OCA-T5-31:

- (a) Confirmed, with the proviso that the elemental and coverage-related costs for a specific stop are not particularly relevant for cost attribution.
- (b) I confirm that total load time on a route is equal to the sum of load times at each stop on that route.

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- (c) Confirmed.
- (d) Confirmed that one way that system-wide volume can influence coverage-related load time is through its effect on the overall number of stops covered.

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USPS/OCA-T5-32. Please refer to your response to USPS/OCA-T5-1 where you confirm that:

If a variable X is independent of another variable Y, then X is fixed with respect to changes in Y

Please also refer to USPS/OCA-T5-3 where you state:

It is this disconnect that invalidates Witness Baron's leap from coverage-related load time being "independent of" volume at a stop to it being "fixed with respect to" this volume.

Please assume that the variable Y represents the volume at a stop and the variable X represents the coverage related load time at that stop. Confirm that if X (coverage related load time at the stop) is independent of Y (volume at the stop) then X (coverage related load time at the stop) is fixed with respect to changes in Y (volume at the stop). If you do not confirm, please provide a definition both intuitive and mathematical of independence that allows X to be independent of Y but still vary with respect to Y.

RESPONSE TO USPS/OCA-T5-32:

Confirmed.

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USPS/OCA-T5-33. Please refer to USPS/OCA-T5-8 where you state:

I do not know exactly what mix of load-related activities a carrier might engage in that would represent coverage-related load time. However, this knowledge is not necessary to effectively implement the Commission's approach.

- a. Do you know any load-related activities a carrier might engage in that would represent coverage-related load time?
- b. Please provide a list of load activities you do know of that the carrier might engage in that would represent coverage-related load time, even if this list is not "exact." Please show how these coverage-related load time activities differ from the elemental load time activities.

RESPONSE TO USPS/OCA-T5-33:

I have performed no studies or reviews of the specific activities of letter carriers at various types of stops, nor is such an undertaking necessary or relevant for my conclusions. The distinction between elemental and coverage-related load time for a particular stop, to the extent that distinction has any relevance for cost attribution, is not activity based—it is based on a statistical regression analysis.

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USPS/OCA-T5-34. Please refer to USPS/OCA-T5-4 where you state:

Understanding exactly how coverage-related load-time manifests itself in the act of loading mail is not necessary, since the Commission has adopted the technique of attributing coverage-related load-time using single subclass stop ratios.

- a. Confirm that it is your testimony that the use of single subclass ratios precludes the need for understanding how coverage-related load time is generated from the act of loading mail. If you do not confirm, please explain in detail how coverage-related load time is generated from the act of loading mail.
- b. Is it your testimony that the use of statistical measurement methodology (like single subclass stop ratios) precludes the need for understanding the process generating the costs being measured?

RESPONSE TO USPS/OCA-T5-34:

- (a) Confirmed that cost attribution for load time costs does not require knowledge of the specific activities involved in loading the mail. It is not necessary to prepare time-and-motion studies to directly measure the volume-variable component of load time costs—both the Commission's method and Mr. Baron's method rely on a statistical analysis. Similarly, it is not necessary to understand the specific activities associated with those costs that are not volume variable—it is only necessary to know that, for proper cost attribution, all costs at single subclass stops should be assigned to that subclass. Under Mr. Baron's methodology, wherein the sum of coverage-related costs and elemental costs is less than total load time, some costs associated with single subclass stops are not fully attributed.
- (b) Yes, to the extent that you mean that volume-variable load time requires a detailed computation from time and motion or other industrial engineering

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studies. However, a statistical study such as the LTV regression requires some basic understanding of the process being modeled for proper hypothesis testing.

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USPS/OCA-T5-35. Please refer to USPS/OCA-T5-9 where, in referring to "the requirement that the elemental and coverage-related components within load time must be regarded as 'distinct, separately identified' actions," you state:

In contrast, the established Commission approach does not need to incorporate this requirement into the estimation of load-time variability, since the statistical procedure employed implicitly captures the mix of activities occurring during a load and accurately estimates how they are influenced by volume.

- a. Is the "statistical procedure" you refer to the estimating of the SDR, MDR, and BAM regression models? If not, please precisely define what "statistical procedure" you are referring to.
- b. Please demonstrate mathematically how the statistical procedure you refer to "implicitly captures the mix of activities occurring during a load and accurately estimates how they are influenced by volume."
- c. Please provide the criteria by which you established that the statistical procedure accurately estimates how the "mix of activities" is influenced by volume. Please include both the standards of accuracy you used in this evaluation and the evidence confirming that the statistical procedure meets or exceeds this standard.
- d. Did you review the statistical properties of the load time regression models?
- e. Consider the following simple example.

Five pieces of mail are loaded at a single delivery residential stop. The elemental load time variability with respect to these pieces is 50%, and total load time at the stop is 10 seconds. Further, suppose that 1 more (additional) piece is now delivered at this stop.

- i. Please explain within the context of the following simple numerical example how the statistical procedure employed by the established Commission approach implicitly captures the mix of activities occurring during a load and accurately estimates how these activities are influenced by volume.
- ii. What is the effect on elemental load time of delivering this additional piece?
- iii. What is the effect on coverage-related load time of delivering this additional piece?

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- f. Confirm that it is your testimony that the use of statistical procedure eliminates the need for understanding the underlying operational activities that gives rise to the cost being measured.

RESPONSE TO USPS/OCA-T5-35:

- (a) Yes.
- (b) The statistical models estimate load time for different types of stops by computing coefficients that estimate the relationship between load time and various volume and non-volume characteristics. When applied to the characteristics of an individual stop (to the extent that this is relevant for cost attribution), the regression coefficients can be used to determine the volume-related and non-volume-related components of the load time for that stop. Such an approach is, by inspection, more accurate than simply assuming that every stop has an identical fixed time component associated with it, regardless of the stop characteristics.
- (c) I did not conduct a quantitative assessment of the statistical procedure, nor develop an explicit standard for judging its accuracy. I based this conclusion on the fact that the SDR, MDR, and BAM regressions have been in use for a number of rate cases, and have been thoroughly debated before the Commission. Please see response to part (b).
- (d) I did not perform a review of the statistical properties of the load time regression models as part of my testimony.

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- (e)(i) The statistical procedure is used to define the elemental load time; in this example, 5 seconds. If this example represents a single subclass stop, then the Commission's method defines coverage related costs as the difference between total load time and the elemental load time, to ensure that all costs for the stop are assigned to that sub-class.
- (e)(ii and iii) The change in elemental load time and coverage-related time in this example that are associated with an individual letter increase is indeterminate without the underlying statistically-estimated load time equation.
- (f) See response to USPS/OCA-T5-34(a).

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USPS/OCA-T5-36. Please refer to your response to USPS/OCA-T5-4. This interrogatory asked you to explain fully the engineering concept to which the Commission's residual measure of coverage-related load time corresponds. In your answer, you state that you "presume that the term, engineering concept, in this context correlates with the 'activity-based functional approach' witness Baron refers to in allocating total accrued street-time costs across major street-time activities." For purposes of this follow-up interrogatory, please now presume that the term, "engineering concept" means what you thought it meant when, quoting the Commission at page 11, lines 2-3 of your testimony, you claim that witness Baron's fixed-time at stop measure "does not correspond to any engineering concept, operational reality, or empirical data that witness Baron can identify."

- a. Given the meaning of the term "engineering concept" as used in this citation from page 11, lines 2-3 of your testimony, please explain fully the engineering concept, if any, to which the Commission's residual measure of coverage-related load time corresponds. (Note: this residual measure is accrued load time minus elemental load time).
- b. Does the meaning of the term "engineering concept" as used in the citation from page 11, lines 2-3 of your testimony "correlate with the activity-based functional approach?" Please explain fully.

RESPONSE TO USPS/OCA-T5-36:

- a) It is Witness Baron who establishes the standard that coverage-related costs must have some specific, engineering or activity based, rationale. As stated in my responses to USPS/OCA-T5-30, -33, -34, and -35, the Commission's methodology does not require such a standard.
- b) No. The referenced citation relates to sub-components of load time; the activity-based functional approach applies to segregating costs between load time and other activities.

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USPS/OCA-T5-37. Please refer to your response to USPS/OCA-T5-7. You state:

In addition, the LTV study collected detailed data at the stop level on load time, stop type, receptacle/container type, shape/volume components, and possible deliveries. This information is sufficient to estimate how load time varies with respect to these variables. Used in concert, the ES and LTV studies capture the direct and indirect effects of volume changes, which is the prerequisite for their use for ratemaking purposes.

Please show how the ES and/or LTV studies—either alone or in concert—quantify the effects of variations in “shape/volume components” on the residual measure of coverage-related load time. Please include in this demonstration answers to the following:

- a. Do the ES and/or LTV studies show that the residual measure of coverage-related load time per piece varies by shape category? For example, do the studies show that coverage-related load time per piece is higher for flats than for letters, and higher for parcels than for flats? If so, please present specific results showing how coverage-related load time per piece varies by shape, and how the residual measure of coverage-related load time “captures” this variation.
- b. Does the single-subclass stop method of distributing coverage-related load time costs across mail subclass capture the effect of variation in shape/volume components on coverage-related load? If yes, please explain how this single subclass method captures this effect.

RESPONSE TO USPS/OCA-T5-37:

- (a) I have not testified that the ES or LTV studies show specifically how coverage-related load time, as derived by the Commission, varies by shape category, overall volume at stop, or other factors affecting load time. The LTV regressions estimate how load time varies with respect to certain stop characteristics (e.g., stop type, receptacle type) and shape/volume factors. The coefficients for the shape/volume factors are used to derive the elasticities of load time with respect to volume, which are then applied to the ES load time proportion to derive

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elemental load time. The residual, or coverage-related load time is the portion of the total load time proportion (as yielded by the ES study) that remains.

- (b) Yes. The single subclass stop attribution method, combined with the residual computation of coverage-related load, ensures that all costs at single-subclass stops are properly attributed.

CERTIFICATE OF SERVICE

I hereby certify that I have this date 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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Washington, DC 20268-0001  
July 7, 2000