

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

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POSTAL RATE COMMISSION
OFFICE OF THE SECRETARY

POSTAL RATE AND FEE CHANGES, 1997

Docket No. R97-1

RESPONSE OF UNITED STATES POSTAL SERVICE
WITNESS BARON TO INTERROGATORIES OF
ADVO, INC.
(ADVO/USPS-T17-1-6)

The United States Postal Service hereby provides responses of witness Baron to the following interrogatories of Advo, Inc.: ADVO/USPS-T17-1-6, filed on August 14, 1997.

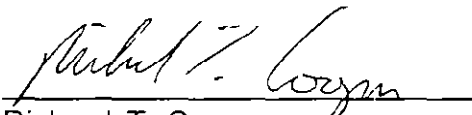
Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr.
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August 28, 1997

Response of Witness Baron to Interrogatories of Advo, Inc.

ADVO/USPS-T17-1. Within USPS LR-H-137, please specify the lines of code in LOAD2OLD.ELAST.CNTL and LOAD2.ELAST.CNTL which describe the following:

- (a) Entry of CCS96 shape volume data into the elasticity calculations.
- (b) All differences in model coefficient estimation between the two programs.
- (c) All differences in marginal cost and elasticity calculations between the two programs.

RESPONSE:

(a) The following table summarizes the lines of code in these two programs that enter CCS 96 shape volume data into elasticity calculations:

SAS PROGRAM	STOP TYPE	LINE NUMBERS WHERE CCS 96 DATA ARE ENTERED
LOAD2.ELAST.CNTL	SDR	271-310
LOAD2.ELAST.CNTL	MDR	365-415
LOAD2.ELAST.CNTL	BAM	462-510
LOAD2OLD.ELAST.CNTL	SDR	271-310
LOAD2OLD.ELAST.CNTL	MDR	365-413
LOAD2OLD.ELAST.CNTL	BAM	460-505

(b) There are no differences in model coefficient estimation between the two programs.

(c) There are two differences in marginal cost and elasticity calculations between the two programs. Both differences apply only to the MDR and BAM analyses. First, LOAD2.ELAST.CNTL calculates marginal costs and elasticities of MDR and BAM load time with respect to actual deliveries.

LOAD2OLD.ELAST.CNTL derives neither these estimates; nor does it derive marginal costs or elasticities with respect to possible deliveries.

Thus, the sections of LOAD2.ELAST.CNTL that perform the marginal cost and elasticity calculations - lines 403-415 for MDR and lines 498-510 for BAM - include lines that define the variables MC_PDS (lines 409 and 503), AVCPDS (lines 415 and 510), and ELASTPDS (also lines 415 and 510). The sections of LOAD2OLD.ELAST.CNTL that perform marginal cost and elasticity calculations - lines 403-413 for MDR and lines 496-505 for BAM - do not include these definitions.

Second, in order to derive marginal costs and elasticities with respect to actual deliveries, LOAD2.ELAST.CNTL sets the deliveries variable equal to average actual deliveries. This is done at lines 205 and 356 for the MDR analysis, and at lines 213 and 453 for the BAM analysis. In contrast, LOAD2OLD.ELAST.CNTL sets the deliveries variable equal to average possible deliveries. This is again done at lines 205 and 356 for MDR. For BAM, the lines are 213 and 451.

ADVO/USPS-T17-2. On page 9, you state that the stops effect is: "the additional time resulting from the conversion of a previously uncovered stop into a covered stop. The activity encompassed by this time increment includes all the work that a carrier performs to prepare for loading receptacles and collecting mail." You describe this as a "preparatory activity" or "preloading activity" that can be "viewed as a constant amount [of time] per stop." Are there non-preloading (e.g., post-loading) activities that may also be view as causing a constant time per stop – such as closing the receptacle after inserting mail, checking for undelivered or misdelivered mail or collection mail, or reviewing the remaining mail in the mailbag or the geographic position on the route to identify the location of the next covered stop? Please discuss your response.

RESPONSE:

I have been told in discussions with city carrier delivery experts that fixed-time at stop is the time taken to prepare for the beginning of the loading and collection activities. Note that even the upper-bound estimates of this time interval, presented in table 1 of my testimony (page 12), show that the fixed-time activity lasts only about one second. Some analysts believe the time period is even shorter. Such a limited time interval obviously greatly constrains the scope of activities conducted. Moreover, recall that fixed-time at stop is independent of the amount of volume loaded. It is the same whether 1 piece or 50 pieces are handled. *These factors are inconsistent with the view that fixed-time at stop can include any additional "post-loading carrier functions" beyond pre-loading work.* One second is not long enough to accomplish all of these multiple activities.

Finally, note also that for purposes of my analysis, it doesn't really matter when the activities measured by fixed-time at stop take place. The only important issue is whether the method used to measure fixed-time at stop produces an estimate that is truly independent of the total volume loaded and collected at each actual stop. The traditional measure of coverage-related load time - defined as the initial accrued load time minus the product of accrued load time and the aggregate elasticity of load time with respect to the five volume terms - is not independent of total volume loaded at each actual stop. The new measure of fixed time at a stop **is** independent of total volume loaded.

ADVO/USPS-T17-3. Please consider the fixed stop times for each stop type in Table 1.

- (a) Do you consider these to be "reasonable proxies" for the average of preloading time for each stop? If not, please clarify your definition of what these times represent.
- (b) Please explain whether or not you assume that fixed stop time varies, within a stop type, with type of carrier, type of container, type of receptacle, or position of stop on the carrier's route (e.g. beginning or end of loop).

RESPONSE:

(a) Yes.

(b) Fixed stop time is assumed not to vary, within a stop type, with type of carrier, type of container, type of receptacle, or position of stop on the carrier's route. These factors may affect time spent in activities handling mail or mail-related equipment, which is time that therefore varies with the total mail volume being loaded and collected. Fixed stop time, however, is invariant with respect to total volume loaded. Please see my responses to NAA/USPS -T17-2a and 3c.

ADVO/USPS-T17-4. On pages 16-19, you describe a "new interpretation" of equation (3), particularly with respect to the possible deliveries variables. You state: "Possible deliveries appears as an additional explanatory variable in equation 3 to account for the increase in load time per stop that occurs when the number of deliveries accessed by carriers at a given stop increases. . .possible deliveries operates as an effective proxy for actual deliveries.

- (a) Please explain fully your understanding of the "old interpretation" (or any other alternative interpretation) of the possible deliveries variables.
- (b) Please state whether the interpretations discussed in (a) also apply to the squared and cross-product possible deliveries variables.

RESPONSE:

(a) The old interpretation viewed the possible deliveries variables as control variables only, added to the right hand side of the equations to ensure that the effects of differences in numbers of deliveries across MDR or BAM stops would not be erroneously attributed in the regressions to the five volume variables. This old interpretation did not use the estimated coefficients of the delivery variables to measure the "delivery-coverage" effect of a volume-induced increase in deliveries accessed at a given stop. See my testimony at pages 17-18.

(b) Confirmed. The old interpretation does not use any of the coefficients of the single order, squared, or cross-product terms that include the possible deliveries variable to measure the effects of volume-induced changes in actual deliveries on load-time. However, the old interpretation does use the cross-product coefficients to estimate elasticities of load time with respect to the volume terms.

ADVO/USPS-T-17-5. Referring to equation (3), please confirm the following interpretations. If you cannot, please fully explain your response.

- (a) LT is load time per stop (average actual delivery time at the stop multiplied by number of actual deliveries for at the stop).
- (b) V_k is volume of k shape per stop (average volume per delivery at the stop multiplied by number of actual deliveries at the stop).
- (c) B_k and B_{kk} describe the impact of V_k on both:
 - (1) Average time per actual delivery on the stop, and
 - (2) Number of actual deliveries per stop.

RESPONSE:

- (a) Confirmed. LT is load time per stop.
- (b) Confirmed. V_k is volume for k shape mail per stop.
- (c) Not confirmed. B_k and B_{kk} measure the **change** in total load time at the stop that results from a change in V_k , holding all other volumes and actual deliveries constant.

ADVO/USPS-T-17-6. You describe the “volume effect” on page 6 as “the direct effect of volume on carrier time: as volume increases at deliveries that had already been receiving mail, more load time is required to enter the mail into and to collect mail from containers.” Please confirm the following or fully explain your response if you cannot confirm.

- (a) The elasticity of load time with respect to the k th volume term is the volume effect to which you refer on page 6.
- (b) B_k and B_{kk} are used to calculate $\partial LT/\partial V_k$ (“marginal load time with respect to a change in volume for the k th volume term”) in equations (2) and (7) which, in turn, is used to calculate the elasticity of load time with respect to the k th volume term.
- (c) B_k and B_{kk} are used to calculate the “volume effect.”

RESPONSE:

(a) Not confirmed. See my testimony at page 19, lines 1-3. The volume effect referred to on page 6 is the **sum** of the five elasticities of load time with respect to letters, flats, parcels, accountables, and collections.

(b) Confirmed in the sense that $\partial LT/\partial V_k$ is used, **along with** the predicted load time, LT , and the mean value of V_k , to derive an elasticity of load time with respect to the k th volume term.

(c) Confirmed in the sense that B_k and B_{kk} are used **along with** comparable coefficients for the other volume terms, the mean values of all the right-hand side variables in the regression, and the predicted load time to derive the volume effect, which is the sum of the five elasticities with respect to volume.

Note also that the above question quotes a sentence from page 6, lines 1-3 of my testimony. This sentence contains an error. The word “containers” at the end of the sentence (line 3) is incorrect; it should be replaced with the word “receptacles.”

DECLARATION

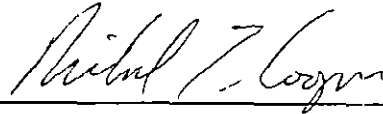
I, Donald M. Baron, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.

Donald M. Baron

Dated: 8-28-97

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.



Richard T. Cooper

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