DOCKET SECTION

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

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—8–11)

The United States Postal Service hereby provides responses of witness Baron to the following interrogatories of Advo, Inc.: ADVO/USPS–T17—8–11, filed on September 16, 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 30, 1997

ADVO/USPS-T17-8. On page 16 of your testimony, 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. This increase in load time might occur even if total volume delivered to the entire stop remains constant."

(a) Do you envision a load time per stop/actual deliveries relationship similar to the USPS run time/actual stops relationship developed from the FAT/CAT data base (*i.e., as actual stops/actual deliveries increase, actual run-time/load-time increase* also)? Please explain.

(b) Do you view an increase in actual deliveries as a cause for increased load time on a stop (separate from increased load time resulting from increased volume on already covered deliveries)? Please explain.

(c) Refer to your calculation of a separate deliveries volume variability through the chain rule on page (6) of your testimony. Do you base this calculation on your view that volume is the indirect cause of additional "accesses" to delivery points (i.e., actual deliveries) and therefore the additional load time required? Please explain.

(d) Are the estimated "delivery effect" variabilities in Tables 6 and 7 intended to reflect the variability of load time with respect to actual deliveries? Please explain.

RESPONSE:

a. The relationship is similar in certain ways. The load time per stop/actual deliveries relationship can be viewed as the deliveries effect - the increase in time resulting from the accessing of a new delivery at an existing stop. This effect is similar to the run-time/actual stops relationship, which can be viewed as the increase in carrier time that results solely from accessing a whole new stop. Both effects are measuring the additional time of just the new access, and they do not depend on the amount of mail going to that new access.

b. Yes. Accessing a new delivery at a given stop takes some amount of time that is independent of how much total mail volume is ultimately loaded at that new delivery.

c. This calculation is measuring the elasticity of load-time with respect to volume specifically through the effect of a marginal increase in volume on actual deliveries. Thus, the calculation is explicitly accounting for only that increase in actual deliveries caused by volume growth.

d. They are intended to be estimates of the elasticity of load time with respect to an increase in volume strictly through the positive effect of that increase on actual deliveries.

ADVO/USPS-T17-9. Please consider the functional specification G(D(V),V) which explains load time on a multiple delivery stop as a function of the number of actual delivery points on the stop (D) and volume on the stop (V). Actual deliveries are also explained by volume through the function D(V).

(a) Under these assumptions and ignoring variables for containers and receptacles, do you accept that load time on the stop can be explained fully by stop volume through the following function:

$$L = G(D(V),V)$$

Please explain your response.

(b) Consider another function H(V) such that L=H(V) = G(D(V),V). Please confirm that the marginal load time cost with respect to volume is then:

$$\begin{aligned} dL/dV &= dH(V)/dV \\ &= dG(D,V)/dV \\ &= [(\partial G / \partial D) * d(D) / dV] + (\partial G / \partial V). \end{aligned}$$

If not, please explain why not.

(c) Please confirm that load time volume variability is then given by:

$$\begin{aligned} (dL/dV)*(V/L) &= (dH(V)/dV)*V/H(V) \\ &= (dG(D,V)/dV)*V/G(D,V) \\ &= [(\partial G/\partial D)*d(D)/dV]*V/G+(\partial G/\partial V)*V/G. \\ &= [(\partial G/\partial D)*D/G]*[(d(D)/dV)*V/D]+(\partial G/\partial V)*V/G. \end{aligned}$$

If not, please explain why not.

(d) From (c) above, do you agree that the following two load time volume variability expressions are equivalent?

$$(dH(V)/dV)*V/H(V) = [(\partial G/\partial D)*D/G]*[(d(D)/dV)*V/D] + (\partial G/\partial V)*V/G.$$

If not, please explain why not.

(e) Please confirm that adding the term [(∂G/∂D)*D/G)*D/G]*[(d(D)/dV)*V/D] to both sides of the expression in (d) inflates load time variability for the multiple delivery stop by double counting the term. If you cannot confirm, please explain.

RESPONSE:

(a) Confirmed. This is a valid functional representation of the load time – volume relationship. However, I reserve judgement as the validity of any explicit specification of the function or any regression estimates based on this specification.

(b) Confirmed.

(c) Confirmed.

(d) Confirmed.

(e) Confirmed. Please note that no such double counting occurs in my calculations of MDR and BAM load-time volume variabilities. The expression shown in (d) is equivalent to equation (7) at page 18 of my testimony.

ADVO/USPS-T17-10. On page 16 of your testimony you state:

> "The only reason possible deliveries instead of actual deliveries appears on the right hand side of equation (3) is that the 1995 study that produced the data to estimate the load time equations recorded only possible deliveries."

(a) Please compare two multiple delivery stops, A and B, with the same volume level and actual number of deliveries. However, possible deliveries on stop B are twice those on stop A. Would you expect load time on each of the stops to be the same? Please explain fully.

(b) Please confirm that the number of possible stops per FAT/CAT route is included as a variable in FAT/CAT run time regressions to account for the possibility of greater stop time and distance covered in delivering mail as possible stops increase. If you cannot confirm, please explain fully.

(c) Please confirm that delivery volume on a stop does not cause possible deliveries at that stop but does cause actual deliveries. If you cannot, please explain fully.

RESPONSE:

(a) No. Note, however, that this hypothetical is rarely observed in the actual FY 1996 CCS data. For both MDR and BAM stops, actual deliveries are highly correlated with possible deliveries. See my response to UPS/USPS-T17-7(a).

(b) Not confirmed. The number of **actual** stops per FAT/CAT route is included as a variable in FAT/CAT running time regressions to account for the greater stop time and distance covered in delivering mail as actual stops increase. Please see page 46 of my testimony. However, possible stops could serve as an effective proxy for actual stops in estimating a running time regression, if actual stops data were not available, since possible and actual stops are also highly correlated.

(c) Confirmed. Volume growth will not cause possible deliveries to increase, but it will cause some previously uncovered possible deliveries to become actual deliveries.

ADVO/USPS-T17-11. In your response to ADVO/USPS-T17-1 you state:

> "... there are two differences in marginal cost and elasticity calculations between the two programs... First, LOAD2.ELAST.CNTL calculates marginal cost and elasticities of MDR and BAM load time with respect to actual deliveries... Second, in order to derive marginal costs and elasticities with respect to actual deliveries, LOAD2.ELAST.CNTL sets the deliveries variable equal to actual deliveries... In contrast, LOAD2OLD.ELAST.CNTL sets the deliveries variable equal to average possible deliveries."

(a) Please confirm that the LTV model was estimated using possible deliveries rather than actual deliveries. If you cannot, please explain why.

(b) Please confirm that if actual deliveries instead of possible deliveries data were used to develop the load time cost/volume functions, this procedure would have changed coefficient estimates for all variables in the LTV model. If you cannot, please explain why.

(c) Please confirm that estimated load time is less when estimated using average actual deliveries than when using average possible deliveries. If you cannot, please explain why.

(d) Please confirm that estimated average shape volume load time (as used in the shape variability calculations) is less when estimated with average actual deliveries than when estimated with average possible deliveries. If you cannot, please explain why.

(e) Please confirm that the marginal shape volume load time (as used in the shape variability calculations) is not changed by the use of actual deliveries instead of possible deliveries. If you cannot, please explain why.

(f) Please confirm that the increase in the shape volume variabilities appearing in TABLES 6 and 7 of your testimony over the shape volume variabilities appearing in TABLES 10 and 11 is completely due to your substitution of average actual deliveries per stop for average possible deliveries per stop in the total per stop load time calculation for SDR and BAM stop types. If you cannot, please explain why.

RESPONSE:

(a) Confirmed.

(b) Confirmed. If actual deliveries data were available, and if those data were used to estimate the load-time regressions, the resulting coefficients for the right-hand-side variables would be slightly different. However, the possible deliveries variable is highly correlated with actual deliveries, and serves as an effective proxy for actual deliveries.

Therefore, the effect on coefficient estimates from using possible deliveries rather than actual deliveries is likely to be quite small.

(c) Confirmed.

(d) Confirmed. However, I am assuming here that there is no difference between "estimated load time" as defined in part (c) to this question, and "estimated average shape volume load time," as defined in this part of the question.

(e) Not confirmed. The marginal shape volume load times are changed by the use of actual deliveries instead of possible deliveries because the squared deliveries variables on the right-hand-sides of both the MDR and BAM regressions make marginal load times dependent upon the value assigned to deliveries.

(f) Confirmed. Please see my response to NAA/USPS-T17-6, parts (a) through (d).

DECLARATION

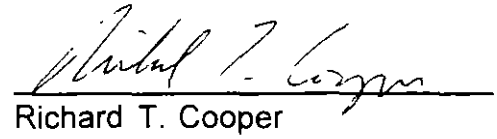
I, Donald M. Baron, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.

Donald M. Baron

Dated: 1-30-97

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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