

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

Postal Rate and Fee Changes, 2006)

Docket No. R2006-1

RESPONSES OF OFFICE OF THE CONSUMER ADVOCATE
WITNESS J. EDWARD SMITH TO INTERROGATORIES OF
UNITED STATES POSTAL SERVICE (USPS/OCA-T3-13-23)
(October 16, 2006)

The Office of Consumer Advocate hereby submits responses of J. Edward Smith to interrogatories USPS/OCA-T3-13-23, dated October 2, 2006. Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

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RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-13. This interrogatory deals with the possible presence of Sundays and national holidays in the analysis database derived from DOIS data that you used to estimate an econometric equation for street time.

- (a) Please confirm that the Postal Service does not routinely provide delivery of non-Express Mail on letters, flats and parcels on Sundays. If you do not confirm, please provide documentation or evidence supporting your contention that the Postal Service provides regular Sunday delivery.
- (b) Please confirm that November 24, 2002 fell on a Sunday. If you do not confirm please indicate what day of the week occurred on November 24, 2002.
- (c) Please confirm that data from November 24, 2002 are included in your econometric equations that use DOIS data in the program entitled "ND1.SAS." If you do not confirm please provide the computer code that eliminates the data for November 24, 2002 from the analysis data set.
- (d) Please confirm that the Postal Service does not provide delivery of non-Express Mail letters, flats and parcels on federal holidays. If you do not confirm, please provide documentation or evidence supporting your contention that the Postal Service provides regular delivery on national holidays.
- (e) Please confirm that in 2002, Washington's Birthday, also known as President's Day, a national holiday, fell on February 18. If you do not confirm, please provide the date for that holiday in 2002.
- (f) Please confirm that data from February 18, 2002 are included in your econometric equations that use DOIS data in the program entitled "ND1.SAS." If you do not confirm please provide the computer code that eliminates the data for February 18, 2002 from the analysis data set.

RESPONSE TO USPS/OCA-T3-13.

- (a) Confirmed.
- (b) Confirmed.
- (c) Confirmed.
- (d) Confirmed.
- (e) Confirmed.
- (f) Confirmed.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-14. This interrogatory relates to your preferred estimation method.

- (a) Please confirm that you did not estimate any “fixed effects” models of delivery time.
- (b) If you do not confirm, please provide the results of any “fixed effects” regressions.
- (c) If you do confirm, please explain why you did not estimate any “fixed effects” regressions and chose instead to estimate only “pooled” econometric models.

RESPONSE TO USPS/OCA-T3-14

(a) Confirmed.

(b) Not Applicable.

(c) Problems associated with the estimation of fixed effects models were documented in Docket No. R2005-1. Limited time availability precluded investigating such problems as related to the current database and performing subsequent analysis if appropriate.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-15. Please refer to Table 1 on pages 10 and 11 of your testimony.

- (a) Please confirm that all of your econometric models are estimated using data sets that have “ZIP Code -- Days” as the individual observation. If you do not confirm, please indicate which of these regression models are not estimated on ZIP CODE days, and please provide the unit of observation on which they are estimated.
- (b) Please confirm that you did not estimate any econometric models using “route – day” observations.
- (c) If you do not confirm part b., please provide the results from estimation of econometric models at the “route-day” level.
- (d) If you do confirm part b., please explain why you did not estimate any econometric models using “route-day” observations.
- (e) Please confirm that estimation of econometric models using ZIP Code-Day data implies that the optimization process you envision on pages 5 and 6 of your testimony is taking place at the ZIP Code. If you do not confirm, please provide a mathematical basis for justifying a simultaneous optimization at a different level of the delivery process and an econometric estimation at the “ZIP-Day” level.

RESPONSE TO USPS/OCA-T3-15

(a) Confirmed.

(b) Confirmed.

(c) Not applicable.

(d) Problems associated with the estimation of route-day models were documented in Docket No. R2005-1. Accordingly, before undertaking such estimation it would be necessary to decide whether such an approach would be appropriate. Given the limited time available for analysis, this was not work that could have been accomplished even if found to be appropriate.

(e) The estimation of econometric models using ZIP Code-Day data is consistent with optimization taking place at the ZIP Code level. Whether a better or different model could be developed and how such a model would be estimated has not been determined.

RESPONSE OF OCA WITNESS SMITH
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USPS/OCA-T3-16. Let $g(x, y)$ be a differentiable function that is concave, increasing and homogenous of degree one in x , and non-decreasing in y . Let $g(x, y) \geq 0$ for all $x \geq 0$ and $g(\bar{x}, y) \geq 0$ for some $\bar{x} \geq 0$ and all $y \geq 0$.

- (a) Do you agree that there exists a monotonic, input regular, and convex family of input requirement sets $V^*(y)$ such that $g(x, y) = \min_x w \cdot x$ s.t. $x \in V^*(y)$?
- (b) If you do not agree, please provide the mathematical basis for your disagreement.

RESPONSE TO USPS/OCA-T3-16

- (a) I agree.
- (b) Not applicable.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-17. Please refer to your discussion of isoquants and isocost lines on page 5 of your testimony.

- (a) Please confirm that both isoquants and isocost lines are graphical representations of underlying mathematical conditions. If you do not confirm, please explain how the isoquants and isocost lines can be constructed without underlying mathematical conditions.
- (b) Please confirm that the associated underlying mathematical conditions associated with cost minimization are known at the first-order necessary conditions. If you do not confirm, please explain fully.
- (c) Please confirm that these first order conditions can be solved for the conditional factor demand equations. If you do not confirm, please explain fully.
- (d) Please confirm that the cost minimization process you describe on pages 5 and 6 of your testimony is an example of constrained optimization. If you do not confirm, please explain why a firm producing output faces no constraints.

RESPONSE TO USPS/OCA-T3-17

- (a) Confirmed.
- (b) Confirmed.
- (c) Confirmed.
- (d) Confirmed.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-18. Please refer to page 6 of your testimony where you state, inter alia, that types of mail and delivery points are “clearly” outputs. Please provide a clear, unambiguous decision rule for determining when a variable is an output of the Postal Service.

RESPONSE TO USPS/OCA-T3-18

Although I do not have an unambiguous decision rule at this time, I will stand by the statement.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-19. Please refer to page 22 of your testimony in which you state: "I have not made an adjustment for autocorrelation: a variety of possible adjustments were attempted and yielded unsatisfactory results.

- (a) Please provide a complete and detailed list of all attempted adjustments for autocorrelation.
- (b) Please provide all computer programs, computer logs, and outputs for these attempts.
- (c) Please explain why or why not these results should be considered part of your "choice trail," as that term is defined in the Commission's rules, and reported accordingly.
- (d) Please provide the basis for the determination that the results were "unsatisfactory."
- (e) Please provide the criteria for establishing when autocorrelation adjustments are satisfactory. Please provide citations to the econometrics literature where these criteria have been used.

RESPONSE TO USPS/OCA-T3-19

(a) Other than a simple PROC AUTOREG command in SAS I made no list of attempted adjustments.

(b) They were not retained, given that they were of minimal consequence, and given that witness Bradley had not referenced the subject.

(c) The results were referenced, but their value was *de minimis*, and the issue was not examined. They should be considered as possible issues for future consideration. I have not indicated that autocorrelation will or will not ultimately prove to be an issue. I have indicated that I have not considered it in any meaningful sense. The same can be said for witness Bradley's presentation.

(d) There did not seem to be any meaningful output.

(e) One would find an adjustment satisfactory if appropriately made and providing meaningful results. When one obtains meaningless results, it is appropriate to conclude that either the technique and variables considered are not appropriate, or, alternatively, that one is not conducting the analysis correctly.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-20. Please refer to the DOIS data set that you use to estimate econometric equations presented in your testimony.

- (a) Please confirm that the DOIS data set that you used in you econometric analysis was produced by the Postal Service in response to a request from the Office of Consumer Advocate. If you do not confirm, please indicate who, other than the Office of Consumer Advocate, requested these data.
- (b) Please confirm that the structure of the data set, described by you on page 22 of your testimony as “16 discontinuous sets of observations over a period of four years,” was specified by the Office of Consumer Advocate. If you do not confirm, please indicate who, other than the Office of Consumer Advocate, requested the data set be constructed in this way?
- (c) Please confirm that you individually formulated the requested structure.
- (d) If you confirm part c, please explain why you requested “16 discontinuous sets of observations over a period of four years.”
- (e) If you do not confirm part c, please indicate who formulated the structure of the DOIS data set requested by the Office of Consumer Advocate.
- (f) If you do not confirm part c., please indicate if you participated in the formulation of the structure of the DOIS data set requested by the Office of Consumer Advocate.
- (g) In the case that no individual formulated the structure of the DOIS data set requested by the Office of Consumer Advocate, please explain how the request was formulated, please indicate all of those who participated in its formulation, please provide all documents that relate to its formulation, please explain when the formulation was first made, and please explain the motivation behind requesting a data set of this structure.

RESPONSE TO USPS/OCA-T3-20

- (a) Confirmed.
- (b) Confirmed.
- (c) Not confirmed.
- (d) Not applicable.
- (e) Members of the Office of the Consumer Advocate.

RESPONSE OF OCA WITNESS SMITH
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(f) I participated.

(g) This was a group consideration. The motivation behind requesting a data set of this structure was to obtain a data set without imposing an inordinate drain on the resources of the Postal Service. Obviously economists and analysts prefer to request as much data as can be conceivably obtained. It was decided to request what appeared to be an adequate amount of data. Whether the amount obtained was adequate has not been determined.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-21. When did you first start working on estimation of city carrier street time equations for the Office of Consumer Advocate?

RESPONSE TO USPS/OCA-T3-21

I began a review of the theoretical and estimation procedures associated with the estimation of city carrier street time equations shortly after witness Bradley's testimony was filed in Docket No. R2005-1. Prior to that time I had also reviewed and developed a modest familiarity with the Postal Service's previous estimation efforts.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-22. Did anyone else at the Office of Consumer Advocate, or on behalf of the Office of the Consumer Advocate, start working on city carrier street time equations before you did? If so, please indicate who they were, when they worked on those equations, and whether you relied upon their work in formulating your approach.

RESPONSE TO USPS/OCA-T3-22

No.

RESPONSE OF OCA WITNESS SMITH
TO INTERROGATORIES USPS/OCA-T3-13-23

USPS/OCA-T3-23. Please refer to pages 22 and 23 of your testimony, in which you refer to the need for future work in the area of city carrier street time costs. What plans does the Office of Consumer Advocate have for future work in this area?

RESPONSE TO USPS/OCA-T3-23

We expect to continue to review the insight and information developed in the current case, to review emerging concepts in the Postal literature, to consider whether and how possible theoretical alternatives to the modeling of Postal delivery are appropriate, to continue our consideration of alternatives in estimation procedures, and to conduct such data analysis as may be appropriate.