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 BRADLEY TO INTERROGATORIES OF FLORIDA GIFT FRUIT SHIPPERS ASSOCIATION (FGFSA/USPS-T13-1-10, 12-16, 18-19, 21-24, 25(a), 26-29, 30(b) and (c), 31-35, AND 36(a))

The United States Postal Service hereby provides responses of witness Bradley to the following interrogatories of Florida Gift Fruit Shippers Association: FGFSA/USPS-T13-1-10, 12-16, 18-19, 21-24, 25(a), 26-29, 30(b) and (c), 31-35, and 36(a), filed on July 28, 1997. Interrogatories T13-11, 17, 20, 25(b), and 30(a) were redirected to witness Nieto, and interrogatories T13-36(b) and 37-39 were redirected to the Postal Service.

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

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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Response of United States Postal Service Witness Bradley
to
Interrogatories of Florida Gift Fruit Shippers Association

FGFSA/USPS-T-13-1 Please refer to LR-H-82 and describe how the data contained in HCSS (discussed in your testimony at page 12) relate to the data in the file used to develop the sample frames for the four TRACS highway transportation accounts in TRACS.DESIGN(HWY1).

a. Are the contracts in the HCSS and the routes served by those contracts (as indicated by HCRID) identical to the routes used to create the TRACS sample design in the program TRACS.DESIGN(HWY1)? If not, please give a full description of all differences and explain why they differ.

b. Is the highway cost account for each contract in HCSS identical to the information which identifies routes in TRACS.DESIGN.(HWY1)? If not, please explain all differences and why they differ.

FGFSA/USPS-T-13-1 Response:

a. Neither the research required for calculating volume variabilities nor the preparation of my testimony required me to be familiar with Library Reference LR-H-82 or the TRACS highway transportation sample frames. The development of volume variabilities for purchased highway transportation does not require TRACS data. As a general matter, however, I would expect the highway routes covered by HCSS and by the TRACS sampling frame to be broadly consistent. Both are designed to take a look, from different angles, at the purchased highway transportation network. It is my understanding that the TRACS sample frame is taken from NASS, which is a transportation planning system. HCSS is a new system of contract management and, as you know, TRACS predates HCSS. Thus, the TRACS sample frame does not depend upon the information contained in HCSS.

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As I indicate on page 18 my testimony, HCSS does not contain route information, it contains contract information. A given contract, as indicated by an HCRID, may contain several routes. Because there is no route information in HCSS, there is no way to compare its route information to any route information in TRACS.

b. I understand that the highway cost accounts and the rules for assigning an individual contract's cost to a particular cost account are the same for HCSS and NASS. I am not familiar with the assignment of individual contracts to cost accounts in the TRACS system, but I am told that such information exists in the TRACS documentation. As indicated in my workpapers, the HCSS contract cost segments are assigned to cost account groups by the following classification of account numbers:[1]

COST ACCOUNT GROUPING	ACCOUNT NUMBERS
Intra-SCF	53121, 53123
Inter-SCF	53124, 53126
Intra-BMC	53127, 53129
Inter-BMC	53131, 53133
Plant Load	53134, 53135

[1] See Workpaper WP-4 of Michael D. Bradley to Accompany Docket No. MC97-2 USPS-T-4 "Estimation of Plant-Load Econometric Equation and Variability," at 10 and Workpaper WP-3 of Michael D. Bradley to Accompany Docket No. MC97-2 USPS-T-4, "Re-Estimation of Commission R87-1 Purchased Highway Transportation Models," at 10, 44, 60, and 77.

Response of United States Postal Service Witness Bradley
to
Interrogatories of Florida Gift Fruit Shippers Association

As I indicate on page 18 my testimony, HCSS does not contain route information, it contains contract information. A given contract, as indicated by an HCRID, may contain several routes. Because there is no route information in HCSS, there is no way to compare its route information to any route information in TRACS.

b. I understand that the highway cost accounts and the rules for assigning an individual contract's cost to a particular cost account are the same for HCSS and NASS. I am not familiar with the assignment of individual contracts to cost accounts in the TRACS system, but I am told that such information exists in the TRACS documentation. As indicated in my workpapers, the HCSS contract cost segments are assigned to cost account groups by the following classification of account numbers:[1]

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Response of United States Postal Service Witness Bradley
to
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FGFSA/USPS-T-13-2 In your testimony, page 19, Table 3, it is noted that some contracts specify multiple vehicle capacities.

a. Are different capacity vehicles used on the same route on different days? If so, does the difference in capacity relate to the volume of mail?

b. Are vehicles of different capacities regularly used on different segments on the same route?

b. Tor (sic) those contract cost segments with multiple vehicle capacities (Table 3) does the ability to use different size vehicles increase the variability of purchased transportation costs?

FGFSA/USPS-T-13-2 Response:

As indicated in my testimony, the incidence of contract cost segments with multiple vehicle sizes is very small (e.g., in Intra-SCF there are 183 contract cost segments with multiple vehicle sizes out of a total of 13, 323 contract cost segments). Thus, I would be hesitant to draw broad conclusions based upon such a small portion of the contract cost segments.

a. A route, or route trip, is defined by its highway routing and its frequency. As a general matter, a given route trip will have a single capacity vehicle. The few contract cost segments that have multiple sized vehicles will have several route trips, each with its own vehicle capacity.

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b. No, different capacity trucks are not regularly used on different segments (or links) on the same route trip.

c. In general, contracts can specify different sized vehicles in response to increases in volume. The ability to used different sized vehicles in response to volumes would lead to a lower, not higher, volume variability. In this regard, contract cost segments with multiple sized vehicles are no different from contract cost segments with single sized vehicles.

Response of United States Postal Service Witness Bradley
to
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FGFSA/USPS-T-13-3

Please confirm that, in HCSS, the data for route length is actual highway miles, rather than great circle distance miles, and that you use highway miles in your analysis.

FGFSA/USPS-T-13-3 Response:

Confirmed.

Response of United States Postal Service Witness Bradley
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FGFSA/USPS-T-13-4. At page 49 of your testimony you recommend that the commission (sic) use the variebilities (sic) calculated on the data set with the unusual observations removed.

a. Are these variabilities shown in Table 15?

b. If the Commission were to adopt your recommendation, would you also recommend that the TRACS system develop separate samples for Intra\SCF Vans and Trailers, and for Inter-SCF vans and Trailers, thereby reflecting the separate variabilities shown in your Table 15?

FGFSA/USPS-T-13-4 Response:

a. Yes.

b. The development of additional detail in a sampling system is justified only if the benefit of any additional accuracy overcomes the additional sampling cost. I am not sufficiently familiar with the costs of sampling in the TRACS system to make any such recommendation. I would note however, that such disaggregation would only be relevant if the Postal Service has separate accrued costs at a level more detailed than the cost account. Because these further breakdowns in accrued costs do not exist, the Postal Service currently applies a weighted variability at the cost account grouping level. As presented in Exhibit USPS-13B to my testimony, the separate Inter-SCF Van and Trailer variabilities are combined, for example, to calculate the overall variability for the Inter-SCF cost pool.

Response of United States Postal Service Witness Bradley
to
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FGFSA/USPS-T-13-5 Please provide the total number of contracts in force which are included in your analysis, with a breakdown between Inter SCF, Intra BMC and Inter BMC. Confirm that these contract [sic] were in force in August, 1995, or, if you do not confirm, explain the period of time which the contracts were in force.

FGFSA/USPS-T-13-5 Response:

The total number of contracts included in my analysis is 14,781. The breakdown of these contracts by account type is given below:

INTRA-SCF	11,963
INTER-SCF	1,844
INTRA-BMC	348
INTER-BMC	179
PLANT LOAD	447

Please note that the number of contracts in my analysis is smaller than the number of observations in my HCSS data extract for two reasons. First, some contracts in the HCSS extract are for things like domestic inland water transportation that are not included in my analysis. Second, some contracts have multiple cost segments causing the number of observations to exceed the number of contracts.

It is my understanding that these contracts were in force in August 1995.

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FGFSA/USPS-T-13-6. Provide a copy of the BASIS (sic) SURFACE TRANSPORTATION SERVICES CONTRACT GENERAL PROVISIONS in use during August, 1995. See the form provided in Docket No. R80-1, TR 17,870.

FGFSA/USPS-T-13-6 Response:

The Basic Surface Transportation Service Contract - General Provisions (PS Form 7407), with amendments, has been provided in my response to [Docket No. MC97-2] OCA/USPS-T4-9. Please see that interrogatory response for the document.

Response of United States Postal Service Witness Bradley
to
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FGFSA/USPS-T-13-7 When each contract is being negotiated or renegotiated:

a. How is the capacity being purchased related to the needed capacity for each Contract Route?

b. What projections of volume is used to ascertain the capacity to be purchased?

c. Is there any analysis made of actual capacity utilized by the day and week?

d. Is the capacity purchased for each Contract Route based on estimates of average volumes to be carried each day of a normal week?

e. What period(s) are used for the preparation of estimates of average capacity utilization on each Contract Route?

FGFSA/USPS-T-13-7 Response:

a.-e. When a contract is about to be bid, transportation requirements personnel contact the relevant administrative officials to a make a determination of the need for a change in capacity. In the case of rebidding an existing contract, the historical experience with the contract is used and based upon that experience a determination is made whether the requirements need to be adjusted. In the case of new service, there is a "forecast" required, but this forecast is developed informally and on a case-by-case basis. In other words, the formation of the "forecast" differs by the situation in each case and there is a not a standard formula for determination of transportation capacity. In addition, there are a variety of possible responses to changing or specifying capacity. Additional capacity can be

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added not only by a larger truck but also by adding trucks, reconfiguring routes, or increasing the frequency with which trips are made.

Also, it is important to recognize that the transportation network is not rigid and can be adjusted easily as volume changes. As the Commission stated:[1]

> The record supports witness Mandrot's conclusion that very little time elapses between the Postal Service's recognition of a volume change and taking appropriate action.

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[1] See PRC Op., R84-1, at p. 233.

Response of United States Postal Service Witness Bradley
to
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FGFSA/USPS-T-13-8 Describe the investigation made to determine the capacity being purchased, as related to actual or anticipated volume of mail for the Contract Route over a period of time.

FGFSA/USPS-T-13-8 Response:

The total capacity required on a contract is specified on a local basis to ensure that service standard commitments can be made. Transportation specialists will confer with mail processing experts to determine the capacity of transportation required. The Postal Service does not contract on the basis of amount of mail hauled. Rather, the Postal Service contracts for an entire truck and makes payment on that basis.

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to
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FGFSA/USPS-T-13-9 How does the capacity purchased for each Contract Route respond to changes in the volume of mail actually transported over the Contract Route?

FGFSA/USPS-T-13-9 Response:

As the volume on a contract route rises on a sustained basis, the capacity on that route rises. Depending on the type of transportation, the additional capacity can be added through a variety of changes. It can be added, for example, by specifying a bigger truck, adding additional route trips, increasing the frequency of existing route trips, or adding additional trucks.

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to
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FGFSA/USPS-T-13-10 How is the underutilization of purchased capacity taken into account at the time of negotiation for replacement contracts?

FGFSA/USPS-T-13-10 Response:

The Postal Service attempts to acquire sufficient transportation capacity to ensure it meets its service requirements. At the same time, it attempts to minimize the cost of acquiring that transportation, given its requirements. If a smaller amount of capacity would permit a material cost saving and would still allow the Postal Service to meet its requirements, then a smaller amount of capacity would be specified in a contract.

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to
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FGFSA/USPS-T-13-11 Provide the volume profile - pieces, weight and cubic feet - of each class and subclass of mail using the purchased capacity by type of Contract Route for the fiscal year covered by your analysis.

This interrogatory has been redirected.

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to
Interrogatories of Florida Gift Fruit Shippers Association

FGFSA/USPS-T-13-12 *In the contracting process, what volume projections are used* to ascertain how much capacity should be purchased for each Contract Route?

FGFSA/USPS-T-13-12 Response:

Please see my responses to FGFSA/USPS-T-13-7 and FGFSA/USPS-T-13-8 for a description of the capacity specification process.

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to
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FGFSA/USPS-T-13-13 Describe the investigation made to determine the behavior of capacity purchased as related to actual and projected volume of mail over a period of time.

FGFSA/USPS-T-13-13 Response:

Please see my responses to FGFSA/USPS-T-13-7 and FGFSA/USPS-T-13-8 for a description of the capacity specification process.

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FGFSA/USPS-T-13-14. What effect do changes in volume have on unused capacity of purchased transportation?

FGFSA/USPS-T-13-14 Response:

A temporary or one-time increase in volume, if it comes at the right time, could cause a temporary or one-time decrease in unused capacity. A sustained increase in volume would be likely to cause a sustained increase in unused capacity. For a discussion of the effect of volume on unused capacity please see PRC, Op., R80-1, at paragraph 0412 and PRC Op., R84-1, at paragraph 3289.

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to
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FGFSA/USPS-T-13-15 Describe how the capacity being purchased is a function of estimates of mail volumes.

FGFSA/USPS-T-13-15 Response:

Please see my responses to FGFSA/USPS-T-13-7 and FGFSA/USPS-T-13-8 for a description of the capacity specification process. As a general matter, the more mail that must be transported, the larger the capacity that is required.

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FGFSA/USPS-T-13-16. Your testimony is that the "general nature of the highway transportation network is basicly (sic) the same as in 1986" (p.7, l.22) You also state that "approximately the same number of contracts is in force" and that operational changes "have not had a major impact on the purchased transportation network". Please describe the "changes in network capacity" as those words are used in your footnote 6 on page 8 of your testimony.

FGFSA/USPS-T-13-16 Response:

My footnote 6 states:

> This is not to say that the same amount of mail was transported over the purchased highway transportation network in 1996 as in 1986. All else being equal, as mail volume grows, so does the capacity of the highway network. The Commission's Docket No. R87-1 analysis was designed to capture the cost response to changes in network capacity. Thus, it is an appropriate framework for investigating the effects of capacity growth.

In this footnote, the term "changes in network capacity " refers to changes in cubic foot-miles.

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to
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FGFSA/USPS-T-13-17 Quantify - pieces, weight and cube - added to the highway transportation network as a result of the efforts of the Postal Service to divert First Class Mail, as well as other preferential mail. Quantify by type of surface transportation - Intra SCF, Inter SCF, Intra BMC and Inter BMC.

This interrogatory has been redirected.

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to
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FGFSA/USPS-T-13-18. Was your analysis designed "to measure the impact of volumes on cost"? If so,

(a) What mail volumes did you take into account?

(b) How are mail volumes taken into account in your analysis?

FGFSA/USPS-T-13-18 Response:

As stated on page 2 of my testimony:

> The purpose of my testimony is to update and refine the analysis of purchased highway transportation done by the Postal Rate Commission ("the Commission"). The Commission performed its analysis in Docket No. R87-1 and both the Commission and the Postal Service currently use it in calculating volume-variable purchased highway costs.

My testimony is *part* of the analysis that measures the volume variable purchased transportation cost of classes and subclasses of mail and special services. In this way it contributes to the measurement of the impact of cost. The analysis used by the Commission and the Postal Service to measure the volume variable purchased transportation cost is an application of the "volume variability/distribution key" method. I described this method, and its application to purchased highway transportation costs in my

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Docket No. R94-1 testimony:[1]

> In the CRA approach to determining attributable cost-per-piece, intermediate variables, known as *cost drivers* are often used to measure the relationship between volume and cost.[2] In these circumstances, increases in volume cause increases in the Postal Service's need for the cost driver. For example, in purchased highway transportation, increases in volume induce increases in cubic foot-miles of transportation. As the amount of the driver is increased, cost rises and attributable cost per piece is found by measuring both the cost/driver relationship and the driver/volume relationship. In purchased highway transportation, the former is estimated through econometric equations and the latter is found through TRACS sampling.[Footnote in original.]

My analysis in this case is concerned with measuring the cost/driver relationship through estimating the response in cost to changes in the cost driver, cubic foot-miles of transportation.

a. & b. My part of the analysis does not explicitly deal with mail volumes. That is done in the distribution step using TRACS information.

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[1] See "Testimony of Michael D. Bradley on Behalf of United States Postal Service," USPS-T-5 Docket No. R94-1, at page 20.

[2] See Michael D. Bradley, Jeffrey L. Colvin and Marc A. Smith, "Measuring Product Costs for Ratemaking," in Regulation and the Nature of Postal and Delivery Services, Michael A. Crew and Paul Kleindorfer, eds., Kluwer, Boston: 1993, pp 133-157.

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to
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FGFSA/USPS-T-13-19 .Do the cubic foot miles which you use in your analysis represent the calculated capacity of all purchased transportation contracts? How are the cubic foot miles determined by you related to mail actually transported under the contracts?

FGFSA/USPS-T-13-19:

The cubic foot-miles in my analysis represent the calculated capacity of the purchased highway transportation network. The cubic foot-miles in my analysis are directly related to mail volume. A sustained increase in mail volume will cause cubic foot-miles to increase, and a sustained decrease in mail volume will cause cubic foot-miles to decrease. The relationship between cubic foot-miles and volume has been eloquently described by the Commission:[1]

> The Postal Service does not have information on the values of mail carried in the individual contracts. Therefore, a proxy for volume is needed. The Postal Service uses cubic foot-miles because information can be obtained and is closely tied to volume of mail. The parties addressing this question agree that cubic foot-miles is a reasonable proxy. See e.g. Tr. 34/17, 767; Tr. 24/11,891. We conclude that cubic foot-miles is an appropriate proxy for analysis.

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[1] See PRC Op., R84-1, at 240.

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to
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FGFSA/USPS-T-13-20 Provide the actual mail volumes transported in each of the 5 contract types listed in your Table 3 in 1990 and 1995.

This interrogatory has been redirected.

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to
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FGFSA/USPS-T-13-21 On page 21 of your testimony you state that the HCSS data are suitable "for estimating the variability of purchased transportation costs". Please explain to what the "variability" relates. If "variability" relates to mail volume, provide the mail volumes which you took into account.

FGFSA/USPS-T-13-21 Response:

In that section of my testimony I am comparing the HCSS data extract with the data set used by the Commission in Docket No. R87-1:

> The data used by the Commission in Docket No. R87-1 were carefully scrutinized and judged to be valid. As the Commission stated:[1]
>
> > All parties agree that the data presented by the Postal Service in this case are suitable for estimating the variability of purchased transportation costs.
>
> The HCSS data set is similar in form and more extensive than the data set used in Docket No. R87-1. The HCSS data set essentially represents the population from which the Docket No. R87-1 data were drawn. If estimation of the Commission's model on the HCSS data set provides generally similar results, then it stands to reason that the HCSS data set is also suitable for estimating the variability of purchased transportation costs. [Footnote in original].

The variability that I am referring to and that the Commission was referring to in its

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[1] See PRC Op., R87-1, App. J, CS XIV, at 4.

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Recommended Decision is the variability of cost with respect to cubic foot-miles. As explained in detail in my answers to FGFSA/USPS-T-13-18 and FGFSA/USPS-T-13-19, the use of cubic foot-miles as the cost driver for purchased highway transportation is well established.

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to
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FGFSA/USPS-T-13-22 Explain "exceptional" and "emergency" contracts and the differences between these terms.

FGFSA/USPS-T-13-22 Response:

These terms are explained on pages 21 and 22 of my testimony:

> Emergency contracts are temporary in the sense that they can last from one day up to sixty days. However, the Postal Service can extend them up to 1 year. Emergency contracts are just like regular contracts in all other respects. In fact, an emergency contract is sometimes used as a quick replacement for a regular contract and takes on all of the specifications of a regular contract.[1] [Footnote in original.]

The term "emergency" in "emergency" contracts refers more to the nature of the contracting process than the nature of the transportation. The term "exceptional" contract is used to describe contracts let to cover transportation emergencies.

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[1] The term "exceptional" is used for contracts that cover what is typically thought of as emergency service (a truck breaks down, a truck driver is ill, etc.). The costs for these contracts are in another account and are not included in this analysis. The variability for these costs is assumed to be one hundred percent. This treatment is identical to how both the Postal Service and the Commission treated these contracts in Docket No. R87-1.

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to
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FGFSA/USPS-T-13-23 Explain why the variability of the cost of exceptional contracts is "assumed to be one hundred percent". (p.22, fn.12) When these contracts replace a break down of equipment or driver illness, is the cost of the basic contract reduced? Is the cost of exceptional contracts "attributable"? If so, to what mail is the cost attributed?

FGFSA/USPS-T-13-23 Response:

The assumption of 100 percent variability is made because the cost for exceptional contracts is small and they are thus handled on a "terms of incurrence" approach.

Yes, If a contractor fails to perform service, the Postal Service reduces the payment to the contractor.

If the volume variability of exceptional service is 100 percent, then these costs, in their entirety, are distributed to products. The cost for any exceptional service is distributed to the classes of mail in the underlying account grouping. For example, the cost for intra-SCF exceptional service is distributed to the classes of mail that generate intra-SCF regular service.

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to
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FGFSA/USPS-T-13-24 In your Table 2 (page 17), 13.67% of Inter SCF observations were for emergency, 3.7% of Intra BMC observations were for emergency and 7.6% of Inter BMC observations were for emergency. Explain the reason for this wide difference in the emergency contracts.

FGFSA/USPS-T-13-24 Response:

I get lower percentages. I believe that you calculated emergency observations as a percentage of regular observations rather than as a percentage of total observations.

	Regular	Emergency	Total	% Emergency
INTRA-SCF	11,678	645	12,323	5.2%
INTER-SCF	1,725	227	1,952	11.6%
INTRA-BMC	351	13	364	3.6%
INTER-BMC	171	13	184	7.1%

While beauty is always in the eye of the beholder, I don't see these differences as "wide." I would expect there to be differences across accounts as there is a differential need for replacing existing contracts or specifying new contracts. Some parts of the transportation network, like inter-SCF may be the areas in which new service is most often needed. Other factors such as the stability of existing contractors will vary over different parts of the network.

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FGFSA/USPS-T13-25. Where there is an imbalance between the out-bound mail volume and the in-bound mail volume, a portion of the capacity on the in-bound, or backhaul, movement will be empty. Do you believe that an empty backhaul is merely a part of the cost of the out-bound haul?

(a) Do you believe that, if the out-bound haul varies with volume, that the backhaul similarly varies with volume and is attributable to the same volume changes that caused the changes in the costs of the out-bound haul? Please explain your answer.

(b) Has there been a change in the volume of mail for the in-bound haul (that is, for Intra BMC transportation, the haul to the BMC) due to the changes in the pattern of mail entry points to take advantage of destination entry discounts? If so, quantify the change.

FGFSA/USPS-T13-25 Response:

The question seems to presume that the Postal Service is required to contract for point-to-point round-trip transportation. That is not so. The Postal Service is free to contract for one-way transportation and can specify route/trips that are circular in nature. In fact, the concept of inbound and outbound transportation is only loosely defined in the postal transportation network.

Consider an intra-SCF contract that both starts and ends at the SCF. Suppose that it visits eight associate offices along its route. At what point does the route/trip become inbound? The truck may well both drop off and pick up mail at the first facility as well as at the last facility. Alternatively, suppose that the sixth associate office is the largest recipient of mail.

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In the question, the "backhaul" would presumably begin after the truck visited this facility and started to "return" to the SCF. Yet, the first associate office could be the largest recipient of mail. Does this mean that the "backhaul" starts after the first associate office? Finally, the phenomenon known as "tailgating" in which the back part of the truck is used to transport mail among the intermediate facilities on a given route trip further clouds the definition of inbound and outbound volume. For the postal transportation network, I view the cost of a contract being jointly determined by the cost of serving all of the legs on all of the route/trips on the contract.

a. The cubic foot-mile capacity set on a contract reflects the joint requirements of moving mail over the postal network and that the total contract cost should not be allocated to any individual leg on the contract. In other words, the cost of transportation on a contract varies with changes in the *total* cubic foot-miles specified in the contract and is not directly allocable to any specific leg. Moreover, contract specifications are set by the Postal Service in its attempt to minimize highway transportation costs subject to reliably meeting service standards.

b. This part of the interrogatory has been redirected.

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to
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FGFSA/USPS-T13-26. Do you agree that over time the Postal Service can change the size (capacity) of trucks to accord with the underlying secular changes in the volume of mail on particular routes?

FGFSA/USPS-T13-26 Response:

If the term "secular changes in the volume of mail" refers to sustained changes in volume, then I agree that, within limits imposed by physical restrictions like dock size, the Postal Service can vary the cubic capacity of trucks specified on a contract. I would note that an increase in the cubic capacity of the truck is just one way that the Postal Service can expand capacity. It can, for example, add trucks, increase the number of route/trips, increase the frequency with which trips are made or reconfigure the routes.

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FGFSA/USPS-T13-27. As a hypothetical, assume that on a particular Intra-BMC route the volume of mail **outbound** from the BMC greatly exceeds the volume **inbound** to the BMC on a regular basis, including peak days.

a. Do you agree that the volume of outbound mail determines the appropriate size (capacity) of the truck for that route? Explain fully any disagreement.

b. If the volume of outbound mail exhibits secular growth, do you concur that the size of the truck could be expanded, up to the maximum size van, to accommodate that growth in volume. Explain fully any disagreement.

c. Assume than on a particular Intra-BMC route the Postal Service has in fact increased the capacity of the truck to accommodate an expanded volume of mail **outbound** from the BMC. Do you agree that the Postal Service can not dispatch a large truck to carry the **outbound** volume, but have a much smaller vehicle return to the BMC with the much smaller volume of **inbound** mail? Explain fully any disagreement.

d. In your opinion, is the substantial excess capacity on the **inbound** trip to the BMC caused more by the small volume on the **inbound** trip, or is the excess capacity more causally related to the large **outbound** volume? Please explain fully.

FGFSA/USPS-T13-27 Response:

a. The volume of outbound mail certainly helps to determine the capacity of the truck, but it is not the only determinant. Other factors like the size of docks, the need for tailgating, or the distance between facilities go into determining how a given amount of cubic foot-miles of transportation is configured.

b. An increase in the size of the truck is one way that an increase in transported volume can cause an increase in cubic foot-miles. Other ways include

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adding additional route trips, increasing the frequency of existing route trips, reconfiguring routes or adding additional trucks.

c. No. The Postal Service can specify its transportation network in any way it wishes subject to physical and legal restrictions. If it were cheaper to contract for a one-way trip outbound with a large truck and a one-way trip inbound with a small truck, then the Postal Service is free to do so.

d. Because capacity is jointly determined by a variety of factors, causality is jointly shared by those factors. The large volume of outbound mail might lead to a larger truck, but it might not. For example, an increase in outbound volume could lead to the reconfiguration of the route with more trips and smaller trucks.

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FGFSA/USPS-T13-28. Do you agree that at any particular point in time, the amount of capacity in a particular route is fixed? If so, please explain.

FGFSA/USPS-T13-28 Response:

Capacity on a route cannot be fixed at a point in time, because capacity on a route is not a "stock variable" that can be measured at a point in time. In reality, capacity on a route is measured by cubic foot-miles and it is a "flow variable" that can only be measured relative to time.[1] Cubic foot-miles is a measure of moving capacity and is calculated by multiplying cubic feet and the miles traveled over a period of time. This makes it a flow variable that can only be measured relative to a unit of time. For example, the contracts in my analysis specify the cubic foot-miles per year provided by each contract.

[1] See, for example, Roger A. Arnold, Macroeconomics, 3rd ed., West Publishing Co., Minneapolis/St. Paul, 1996 at page 113: "A flow variable is a variable that can only be meaningfully measured over a period of time. . . . A stock variable is a variable that can be meaningfully measured at a moment in time."

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FGFSA/USPS-T13-29. In Docket No. R80-1, the Postal Service stated that the amount of capacity purchased for a given route is matched to the expected average weekly peak-day volume on that route.

a. Is it your understanding that capacity purchased on a highway route is still matched to the expected average weekly peak-day volume? Explain fully any negative answer.

b. Consider an Intra-BMC roue (sic) that consists of a round-trip, the first portion being outbound from the BMC and the return portion being inbound to the BMC. For purposes of purchasing capacity, would the peak-day volume consist of (i) the heaviest daily volume in both directions combined, or (ii) the heaviest daily volume in one direction only? Please explain your answer.

FGFSA/USPS-T13-29 Response:

a. Please see my responses to FGFSA/USPS-T-13-7 and FGFSA/USPS-T-13-8 for a description of the current capacity specification process. As those answers indicate, it is my understanding that a variety of factors are used in determining the capacity specified on a particular contract. Moreover, even in Docket R80-1, the Postal Service testimony was that sizing for the peak was only one of a variety of factors that determined capacity:[1]

> Testimony has been offered that is critical of the practice of purchasing enough capacity on a weekly basis to cover the average weekly peak volume on particular routes. Actually, this statement of the practice is fairly simplistic, since any particular route may exhibit a wide variety of volumetric patterns on different days of the week.

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[1] See, Rebuttal Testimony of James Orlando on Behalf of the United States Postal Service, USPS-RT-6, Docket No. R80-1 at page 33.

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b. I do not believe that there is an established definition of peak day volume in the Postal Service purchased highway contracting process.

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FGFSA/USPS-T13-30. In Docket No. R80-1, the Postal Service said that excess capacity is caused by a complex set of factors, including irregularity of demand, *inflexibilities in the supply of transportation and intermediate stops on routes.* (USPS-T-6, pp. 17-18, cited at ¶ 0408 in the Op. & RD.)

a. To your knowledge, does the Postal Service continue to have unused capacity on its highway trucks much of the time? Please explain any negative answer.

b. Suppose that on an Intra-BMC route the Postal Service needs to send a large capacity truck outbound from the BMC because of the outbound volume. That same truck must travel back to the BMC, even if the inbound volume is very light, and the truck has much unused capacity. Would the need to have the same truck return to the BMC be an example of an inflexibility in the supply of transportation? In the event your answer is negative, please supply an example of an "inflexibility in the supply of transportation."

c. Please articulate and explain all economic principles of which you are aware that causally relate the volume of mail actually found on a largely empty return trip (or back haul) to the empty capacity on the truck, and the cost of returning that empty capacity to the BMC.

FGFSA/USPS-T13-30 Response:

a. This part of the interrogatory has been redirected.

b. No. There is no reason that the truck must return to the BMC. The Postal Service could specify one-way transportation if is was the cheapest way to transport the mail. Moreover, as both UPS witness Lester Kloss testified in Docket No R84-1 and as Postal Service witness Lion and I testified in Docket No. R87-1, the postal

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highway transportation network is quite flexible.[1]

> Similar to other companies and industries that purchase highway transportation, the Postal Service has significant flexibility in meeting its transportation needs. Throughout the contracting process — from negotiating initial contracts to contract renewals, contract adjustments and contract terminations — the Postal Service is able to continuously provide, and modify as necessary, its transportation system in order to effectively and economically obtain the highway transportation it requires.

An example of an inflexibility that can not be easily adjusted is the placement of mail processing and delivery facilities.

c. The primary principles are minimization of cost subject to constraints and the nature of common production. Here, the application is the minimization of purchased transportation cost subject to the physical and service standard constraints of the network. In addition, what you describe as the transportation of inbound mail is often produced in common with the transportation of outbound mail.

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[1] See Direct Testimony of Lester K. Kloss on Behalf of United Parcel Service. Docket No. R84-1, Tr. 29/15, at 325.

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FGFSA/USPS-T13-31. Please refer to equation (1) at p. 6 of your testimony, and your statement that "[t]he value of the β_1 coefficient is the variability."

a. Would it be more correct to say that (I) the value of the coefficient estimates the variability of cost with respect to changes in cubic foot miles (CFM) of capacity, than (ii) the coefficient estimates the variability of cost with respect to changes in the volume of mail? Please explain your answer.

b. Are you interpreting the coefficient β_1 as a proxy for estimating the variability of cost with respect to changes in the volume of mail? Please explain your view of the linkage between variability of highway transportation costs with respect to changes in the volume of mail and the variability of transportation costs with respect to changes in cubic foot miles of capacity.

c. For intra-BMC highway transportation, do the data which you use for cubic foot miles (CFM) in your equation (1) reflect (I) the round-trip mileage on an Intra-BMC route, or (ii) the one-way mileage, either inbound or outbound?

FGFSA/USPS-T13-31 Response:

a. Both would be correct as one is part of the other. As I explain in my response to FGFSA/USPS-T-4-21, my analysis is part of the overall measurement of volume variable highway transportation cost. The Postal Service and Postal Rate Commission costing methodology makes use of a cost driver, cubic foot-miles. My analysis measures the relationship between cubic foot-miles and cost. The TRACS system measures the relationship between mail volume and cubic foot-miles of transportation. When the two of them are combined, the volume variable costs of purchased highway transportation are produced.

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b. Please see my answer to FGFSA/USPS-T-13-21 and a. above.

c. For intra-BMC highway transportation, I use the total annual miles traveled as specified on the contract. To the extent this includes round trip movements, I would include those miles. To the extent it includes one-way movements, I would include those miles.

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FGFSA/USPS-T13-32.

a. As a hypothetical, assume that (I) on the outbound leg of a particular Intra-BMC route the load factor outbound from the BMC averages X thousand cubic feet, (ii) the average load factor on the return or inbound leg is 0.8X thousand cubic feet, (iii) over both directions the volume averages 1.8X thousand cubic feet, and (iv) the load factor fluctuates by as much as ±40 percent of the average on both the outbound and inbound legs. In your opinion, would the capacity of the truck required for this route be determined chiefly by the volume of mail on the outbound leg, the inbound leg, or the volume moving in both directions? Please explain the reasoning that underlies your answer.

b. For the hypothetical route described in preceding part a, assume further that, as the result of various changes, such as a secular growth in the volume of mail plus a significant increase in the volume of mail drop shipped to the BMC (*e.g.*, in response to the introduction of dropship discounts), the average volume of mail on the outbound leg from the BMC increases to 1.3X thousand cubic feet, while the volume in the inbound direction diminishes to 0.5X thousand cubic feet (over both directions, the total volume still averages 1.8X thousand cubic feet). Daily fluctuations in volume still range up to ±40 percent of the average daily volume. In your opinion, what is the likelihood that the Postal Service would need to increase the capacity of the truck to accommodate the additional volume of mail on the outbound leg?

c. Further assume that a shift such as that described in preceding part b were to occur systemwide. (I) Isn't it likely that the data in your equation (1) would show a change in capacity, as well as a corresponding change in cost, even though there was no change in the total cubic foot miles of mail actually transported? (ii) Would you describe such a systemwide shift as a change in operating structure? If not, how would you describe it?

d. Following a systemwide shift such as that described in preceding part c, in your opinion, is the mail that happens to travel on the inbound leg to the BMC causally responsible for the empty capacity usually found on the inbound leg? If affirmative, please provide a full explanation.

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FGFSA/USPS-T13-32 Response:

This hypothetical is well beyond the bounds of my testimony, which investigates the response in cost to changes in cubic foot-miles. I will do my best, nevertheless, to answer the questions.

a. In this hypothetical question, the amount of outbound mail is greater than the amount of inbound mail. If the hypothetical is restricted to a one-trip route that simply goes between two facilities, and the contract for that route is restricted to only one truck, then it would seem logical that the larger volume would determine the truck size. However, even this simple (and extremely unrealistic) hypothetical must be further qualified with an assumption about alternative methods of moving the mail on large volume days. For example, is the Postal Service free to add another trip with a smaller truck for the heavier days? If so, it may size the truck to fit the average volumes and pick up the peak days with a second trip.

b. In this part, the imbalance between the inbound and outbound volumes has been increased. The question asks for the likelihood that the truck capacity would be increased. The answer depends upon several factors. Is the truck

already at or near maximum size? Will the facilities be able to handle a larger truck? Could the additional outbound volume be handled with an additional set of trips? Could an additional but smaller truck be added to the contract to handle the additional outbound volumes? Given the uncertainty surrounding the answers to these questions, I cannot provide a value for the requested likelihood.

c. (i.) The Postal Service's purchased transportation network is more flexible than the hypothetical presupposes. Because of the many avenues of possible response to changes in volume flows, it is not clear that total cubic foot-miles would rise under the hypothesized volume shifts. For example, the Postal Service may be able to reconfigure its entire network of trips to capture some of the additional output volume on a different route trips, so a smaller truck could be used for the round trip.

c. (ii.) Whether or not the hypothesized volume change represents a structural shift depends in large part upon its size. As I say in my testimony at page 9:

> When mailers dropship their mail at destination facilities, less Postal Service transportation is required. The growth in dropshipping thus holds the potential to

> reduce the size of certain parts of the purchased highway transportation network. Because the dropship discounts do not apply to all classes of mail, the effects of dropshipping will not necessarily be spread evenly across all accounts. However, unless the effects of dropshipping are severe, they can be handled within the Commission's framework. The effect of dropshipping is to limit growth in those parts of the network that are subject to diversions. That is, dropshipping will retard the growth in the amount of mail transported by the Postal Service network in those areas in which private sector transportation is used.

d. As indicated in my response to part (c.), I do not necessarily concur that your hypothetical represents a structural shift. In general, however, after a structural shift, the Postal Service will reconfigure its network to reduce cost while maintaining service standards. After this reconfiguration, the capacity on the network will be jointly determined by the mail that must be transported across that network. The causal responsibility for any empty capacity is thus shared.

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FGFSA/USPS-T13-33.

a. Please describe fully your familiarity with the TRACS programs described in LR-H-82 and LR-H-84 which are used to develop the distribution keys for attributable highway costs. In your answer, please state explicitly whether you are knowledgeable about the methodology, procedures and formulas used by TRACS (I) to expand sampled mail volume up to the container level, (ii) to expand sampled mail volume from the container level up to the whole truck or van, and (iii) to compute cubic foot miles of transportation service for each class and subclass of mail.

b. Are you familiar with and knowledgeable about the way the TRACS sample is selected? For Intra-BMC routes, would you know how many TRACS samples are taken of trucks outbound from the BMC, and how many samples are taken of trucks inbound to the BMC (including samples taken at the BMC itself)?

c. Have you ever used any of the data contained in the CDs in LR-H-82 or LR-H-83 for any kind of analysis, or any other purpose? If so, please describe the nature of such analysis.

FGFSA/USPS-T13-33 Response:

a. I am familiar, in a general way, with the goals and methods of the TRACS system. In Docket No. MC91-3, I used TRACS data to examine the distance taper in the transportation of second-class mail. I am not familiar with any of the specific programs in LR-H-82 or LR-H-84 as I have never seen the library reference or the programs contained therein.

b. No.

c. No.

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FGFSA-USPS-T-13-34

Please provide a list of all your publications that deal with the subject of transportation and transportation economics, including all expert witness testimony .

FGFSA-USPS-T-13-3:

To ensure a complete response, I am providing a list of all of my academic publications. In particular I draw your attention to the articles in the Canadian Transportation Research Forum and the Journal of the Transportation Research Forum. In addition to my academic work, I submitted testimony on purchased transportation in Docket No. R87-1 and in Docket No. MC 91-3. I also provided testimony before the International Trade Commission on a demand model for tires, but I am not aware if the work was published.

"Some Evidence on Consistent Expectations," Proceedings of The American Statistical Association, Business and Economics Statistics Section, December 1983.

"Federal Deficits and the Conduct of Monetary Policy," Journal of Macroeconomics, Vol. 6, No. 4, Fall 1984. Condensed and Reprinted in The CFA Digest, Vol. 16, No. 1, Winter 1986.

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"International Debt Crisis, Rhetoric vs. Reality," Journal of Social, Political and Economic Studies, Vol. 9, No. 4, Winter 1984, with J. R. Barth and N. D. Manage.

"Efficiency of the Treasury Bill Futures Market: Some Alternative Test Results," Federal Home Loan Bank Board Research Paper #114, November 1984, with J. R. Barth and R. A. Stucky.

"The State of the Federal Budget and the State of the Economy: Further Evidence," Economic Inquiry, Vol. 23, No. 1, January 1986, with S. M. Potter.

"Federal Reserve Operating Procedure in the Eighties: A Dynamic Analysis," Journal of Money, Credit and Banking, Vol. 18, No. 3, August 1986, with D. W. Jansen.

"Government Spending or Deficit Financing: Which Causes Crowding Out?" Journal of Economics and Business, Vol. 38, No. 3, August 1986.

"Some Microeconomic Analysis of Income-Sharing Firms," Advances in the Economic Analysis of Participatory and Labor-Managed Firms, Vol. 2, 1987, with S. C. Smith.

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"Deposit Market Deregulation and Interest Rates," Southern Economic Journal, Vol. 53, No. 3, October 1986, with D. W. Jansen.

"Understanding International Debt Crises," Journal of International Law, Vol. 19, No. 1, Winter 1987, with J. R. Barth and P. Panayotacos.

"Stylized Facts About Housing and Construction Activity During the Post World War II Period," in Real Estate Market Analysis: Method and Applications, J. Clapp and S. Messner eds., Prager Press, Westport, CT, 1988, with J. R. Barth, J. McKenzie and G. S. Sirmans.

"On Illyrian Macroeconomics," Economica, Vol. 55, No.2, March 1988, with S. C. Smith.

"Employment, Prices and Money in the Share Economy: An Alternative View," Advances in the Economic Analysis of Participatory and Labor Managed Firms, Vol. 3, 1988, with S. C. Smith.

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"Informational Implications of Money, Interest Rate and Price Rules," Economic Inquiry, Vol. 26, No. 3, July 1988, with D. W. Jansen.

"Measuring Canada Post's Costs: Lessons from the U.S. Experience," Canadian Transportation Research Forum, Vol. 26, May 1988, with A. R. Robinson.

"On Interest Rates, Inflationary Expectations and Tax Rates," Journal of Banking and Finance, Vol. 12, No. 2, June 1988, with J. R. Barth.

"Determining the Marginal Cost of Purchased Transportation," Journal of the Transportation Research Forum, Vol. 30, No. 1, November 1988, with A. R. Robinson.

"Price Rules, Indexing, and Optimal Monetary Policy," Journal of Macroeconomics, Vol. 10, No. 4, Fall 1988, with D. W. Jansen.

"Government Size, Productivity and Economic Growth: The Post-War Experience," Public Choice, Vol. 61, 1989, with E.A. Peden.

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"The Optimality of Nominal Income Targeting when Wages are Indexed to Price," Southern Economic Journal, Vol. 56, No. 1, 1989 with D.W. Jansen.

"Evidence on the Real Interest Rate: Effects of Money, Debt and Government Spending," Quarterly Review of Economics and Business, Vol 29, No.1 Spring 1989, with J.R. Barth.

"New Classical Models, Policy Effectiveness, and the Money Rule/Interest Rate Debate," Journal of Economics, Vol 13, Fall 1989, with D.W. Jansen.

"Computing the Impact of Profit Sharing: Econometric Issues and Evidence from the U.S. Computer Sector," Proceedings of the AISEC, Vol. 6, No.1. 1989, with S.C. Smith.

"Understanding Nominal GNP Targeting," Review, Federal Reserve Bank of St. Louis, Vol. 71, No. 6, Nov./Dec. 1989., with D.W. Jansen.

"Analyzing Large Post Office Costs: An Application of Classical Optimization, Proceedings of the Advanced Technology Conference, Vol. 4, Nov. 1990, with D.M. Baron

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"*Financial Repression and Real Output: Macroeconometric Evidence from Yugoslavia*," China Economic Review, Vol. 2, No. 2, 1991, with S.C. Smith.

"The Role of Revenue Sharing in Optimal Stabilization Policy," Quarterly Journal of Business and Economics, Vol 24, No.2, Spring 1992, with D.W. Jansen

"The Comparative Institutions of Profit Sharing: The U.S. Computer Industry," Journal of Economic Issues, May 1992, with S.C. Smith

"Differential Information and The Optimality of Feedback Policy in New Classical Models," Journal of Macroeconomics, Vol 15, No. 2, Spring 1993, with D.J. Jansen.

"Measuring Product Costs for Ratemaking: The U.S. Postal Service," in Regulation and the Evolving Nature of Postal and Delivery Services, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1992, with J. Colvin and M. Smith.

"Measuring Performance of a Multiproduct Firm: An Application to the U.S.Postal System," Operations Research, June 1993, with D.M. Baron.

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"Imperfect Information and the Instrument-Choice Problem" Journal of Economics, Fall 1993, with D.W. Jansen

"Firm Size and the Effects of Profit Sharing," The Journal of the Institute of Public Enterprise, Vol. 18, No.1, January 1995, with S.C. Smith.

"An Econometric Model of Postal Delivery," in Competition in Postal and Delivery Services: National and International Perspective, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1995, with J. Colvin.

"Stabilizing Inflation in the Open Economy," Southern Economic Journal, Vol. 61, No1., July 1995, with D.W. Jansen.

"STAR Modelling for Stocks and Currencies," The Journal of International Fund Management, July/Aug., 1995, with Amy Henderson. Reprinted in Applying Quantitative Discipline to Asset Allocation, B. Putnam, ed., Euromoney Publications, 1995.

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"Unit Roots and Infrequent Large Shocks: New International Evidence on Output Growth," Journal of Money, Credit and Banking, Vol. 27, No. 3, August 1995, with D. W. Jansen.

"Nonlinear Business Cycle Dynamics: Cross-Country Evidence on the Persistence of Aggregate Shocks," Economic Inquiry, forthcoming, with D.W. Jansen

"Issues in Measuring Incremental Cost in a Multi-Function Enterprise," Managing Change in the Postal and Delivery Industries, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1997 with J. Colvin and J.C. Panzar

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FGFSA/USPS-T-13-35

Please list all courses in transportation and/or transportation economics that you have taught.

FGFSA/USPS-T-13-35 Response:

I have not taught any of these specialized courses. In fact, they are not offered by my university.

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FGFSA/USPS-T-13-36

For each Intra-BMC and Inter-BMC highway transportation routes, please provide the interior vehicle dimensions and cubic foot capacity for the 3 most commonly used vehicles.

a. For each of the 3 vehicles, indicate the approximate proportion of total cubic foot capacity which those vehicles represent.

b. For each of the 3 vehicles, please indicate the maximum weight capacity of the lading in the vehicle. If the maximum weight varies from state to state, indicate the lowest maximum weight capacity and identify the state with such limitation

FGFSA/USPS-T-13-36 Response:

The following information is based upon my analysis data sets as presented in my [Docket No. MC97-2] Workpaper WP-7. In the following table, I present the three trailer sizes that are most commonly specified on contract cost segments in the Intra-BMC and Inter-BMC categories. For each trailer size, I present two numbers:

1. The number of contract cost segments on which the trailer size was specified.

2. The approximate percent of the relevant account category's total cubic capacity made up by the most common trailer sizes.

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Trailer Size	# of Contract Cost Segments	% of Total Cube
Intra-BMC		
2400	28	8.0%
2700	122	47.2%
2918	60	9.6%
Inter-BMC		
2400	6	2.8%
2700	53	34.9%
3000	93	50.4%

The interior dimensions for the trailers are as follows:

Trailer Cube	Height	Width	Length
2400	8'	7'	45'
2700	8'	7'	48'
2918	8'	7'	52'
3000	8'	7'	53'

a. The requested proportions are provided in the table above.

b. This part of the interrogatory has been redirected.

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FGFSA/USPS-T-13-37

If a trailer used in Inter-BMC transportation is fully bed-loaded with Bulk Rate Regular Standard B mail, will the over-the-road weight limit of the loaded vehicle restrict or limit the cubic feet of the mail that can be loaded on the trailer? In your response, please provide the cubic foot capacity of the trailer (give the height, width and length measurements) and the weight limit of the lading in the trailer which you take into account.

FGFSA/USPS-T-13-37 Response:

This interrogatory has been redirected.

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FGFSA/USPS-T-13-38

Confirm that the maximum allowable density of a trailer used in postal highway transportation can be properly calculated by dividing the cubic feet capacity of the trailer by the over-the-road weight limit of the lading of the trailer. If you do not confirm, please fully explain.

FGFSA/USPS-T-13-38 Response.

This interrogatory has been redirected.

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FGFSA/USPS-T-13-39.

If the density of a sub-class of mail transported in highway transportation exceeds the maximum allowable density of the vehicle transporting the mail:

a. Do you agree that the excess density of this sub-class of mail could limit or restrict the quantity of other mail that might be loaded in the trailer? Fully explain your response.

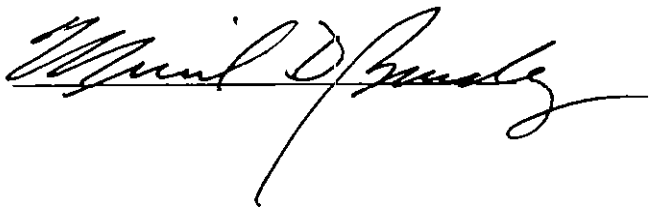
b. Do you agree that it would be reasonable and appropriate to reflect the excess density of this sub-class of mail, along with actual cubic feet, in determining the allocation of the costs of the highway transportation? Fully explain your response.

FGFSA/USPS-T-13-39 Response:

This interrogatory has been redirected.

DECLARATION

I, Michael D. Bradley, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.



Dated: August 11, 1997

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.

Susan M. Duchek

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August 11, 1997