

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

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OFFICE OF THE SECRETARY

POSTAL RATE AND FEE CHANGES, 1997

Docket No. R97-1

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS BRADLEY
(USPS-T-14) TO INTERROGATORIES OF
DIRECT MARKETING ASSOCIATION, INC.
(DMA/USPS-T14-35-42, 44 AND 45)

The United States Postal Service hereby provides responses of witness
Bradley to the following interrogatories of Direct Marketing Association, Inc.:
DMA/USPS-T14-35-42, 44 and 45, filed on September 12, 1997. Interrogatory
DMA/USPS-T14-43 was redirected to the Postal Service.

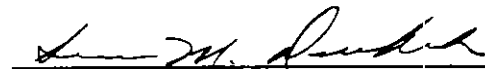
Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

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September 26, 1997

Response of United States Postal Service Witness Bradley
to
Interrogatories of DMA

DMA/USPS-T14-35. Please refer to Library Reference H-148 and to your responses to interrogatories DMA/USPS-T14-16-18.

- a. Please explain whether allied operation productivity can be calculated from the data set VVMPN.DATA.
- b. If so, please explain the process, in a manner similar to the processes shown in interrogatories DMA/USPS-T14-16-18, by which one could calculate the annual productivity for each allied operation in the data set VVMPN.DATA. If one general method can be applied to the calculation of productivity for all allied operations, simply provide this general method.

DMA/USPS-T14-35 Response:

- a. A productivity could be calculated on VVMPN.DATA, but I would recommend calculating the productivity on the completely scrubbed data. Please note that the outlier scrub for allied operations is performed in each of the econometric programs for the allied activities.
- b. One could calculate a measure of allied labor productivity as the ratio of the sum of direct piece handlings (across OCR, BCS, LSM, FSM, manual letter and manual flat) activities to the hours in the relevant allied labor activity. Please keep in mind that this is an indirect measure of productivity because these piece handlings are not direct measures of workload in the allied activities.

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DMA/USPS-T14-36. Please refer to Table 1 on page 9 of your testimony. Please confirm that the elasticities shown in that table are cost elasticities, and that a cost elasticity is the percentage change in cost associated with a percentage change in volume or workload.

DMA/USPS-T14-36 Response.

Confirmed.

Response of United States Postal Service Witness Bradley
to
Interrogatories of DMA

DMA/USPS-T14-37. Please refer to Table 1 on page 9 of your testimony.

- a. Please confirm that the table shows that the cost elasticities you estimate range from a high of 100 percent for remote encoding to a low of 15 percent for registry.
- b. Can you explain the wide variation in the elasticities as a function of the activities that are performed in each of them? Is so, please do so.

DMA/SUSP-T14-37 Response:

- a. Confirmed.
- b. Yes. Each of the elasticities presented in Table 1 is for an individual mail processing activity. The estimated variability reflects the characteristics of that activity relative to variations in volume. Please see pages 54-60 of my testimony for a detailed description of the factors that explain the range of variabilities. As explained there, the factors include the degree of economies of scale in the activity, the technology of production in the activity, and the way the activity is used in the mail processing flow. The very low variability for the Registry activity reflects the fact that this is primarily an administrative-type function.

Response of United States Postal Service Witness Bradley
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DMA/USPS-T14-38. Please refer to Table 1 on page 9 of your testimony.

- a. Please confirm that the table shows a cost elasticity of 80 percent for manual letters, of 87 percent for manual flats, and of 40 percent for manual parcels.
- b. Please explain how the variation in the elasticities for these operations reflects the work elements that are performed in each of them.

DMA/USPS-T14-38 Response.

- a. Confirmed.
- b. The manual letter and flat variabilities are less than those from the mechanized and automated operations, reflecting the characteristic of human-paced operations to be subject to economies of scale. As I state on page 59 of my testimony:

The variabilities for the manual letter and flat variabilities are, on average, lower than those for the machine-based activities. These lower variabilities reflect the human component of the activities and their use as backstop technologies.

In addition, the manual parcel and manual Priority Mail activities in MODS offices are very small, and thus would not be large enough to capture the economies associated with manual letter and flat operations. As I explain on pages 59 and 60 of my testimony:

Because the manual Priority and parcel activities are manual activities, we would expect them to have relatively low variabilities. In addition, because they are relatively small

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activities, they have not yet achieved the economies associated with other manual activities.¹ This will lower the variability further. Finally, all sites must be prepared to sort parcels on a daily basis, even though volumes in these activities are low. Most sites, in addition, do not have a mechanized parcel sorting activity.² Thus, the manual parcel sorting activity serves as both a gateway activity and a reserve capacity activity. It is the combination of all these factors occurring in one activity that gives the activity its low variability.

¹ The parcel sorting activities in MODS offices are small because of the relatively small size of the parcel mail stream and because most parcel sorting takes place in the BMCs.

² Only six MODS sites reported having the mechanized parcel sorting activity.

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DMA/USPS-T14-39. Please assume that there are two different operations within a multi-activity firm (each with a production function where labor is the only variable input), that initially their cost elasticities are identical, and that there is no excess labor in the firm. Please further assume that at some later time, excess labor arises in the firm and is assigned to one of the operations but not to the other. Both operations then experience a small increase in volume. Please confirm that at the operation without excess capacity, processing the increased volume would require a percentage increase in staffing approximately equal to the product of the cost elasticity and the percentage increase in volume. Please also confirm that at the operation with excess capacity, processing the increased volume would require a percentage increase in staffing less than the product of the initial cost elasticity and the percentage increase in volume.

DMA/USPS-T14-39.

I confirm that for the operation without excess capacity, the increase in hours would equal the variability times the percentage increase in hours.

If the question is assuming that the excess capacity is fixed and does not vary with volume, then I can confirm that the actual variability for the operation with excess capacity is less than initial variability. As such, the initial variability overstates the actual variability and, as you indicate, multiplying it times the percentage increase in volume would overstate the increase in hours.

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DMA/USPS-T14-40. Please assume that one activity within a growing multi-activity firm has always been staffed with the excess labor of the firm. Further assume that the amount of work to be performed at this activity is increasing and the amount of excess labor is growing at a slower rate than the activity to which it is assigned. If one collected time series data on staffing and work load in the over-staffed activity, and then estimated a cost elasticity for it using these data, how would the estimated elasticity for the over-staffed activity compare to the elasticity one would have estimated had the activity been efficiently staffed? How would your answer differ if the amount of excess labor were growing at a faster rate than the activity to which it is assigned?

DMA/USPS-T14-40 Response.

If the percentage response of excess labor to increases in volume is less than the percentage response of "regular" labor to the increase in volume, then estimated variability for actual hours would be less than the estimated variability for hours in an efficiently staffed activity.

If the percentage response of excess labor to increases in volume is greater than the percentage response of "regular" labor to the increase in volume, then estimated variability for actual hours would be greater than the estimated variability for hours in an efficiently staffed activity.

Response of United States Postal Service Witness Bradley
to
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DMA/USPS-T14-41. Please refer to your responses to DMA/USPS-T14-20(a) and DMA/USPS-T14-21(a)-(d), where you propose a broadly inclusive definition of the term "sort."

- a. Is your use of the term "sortation" in your response to DMA/USPS-T14-19 consistent with this definition? That is, when you say that "a piece handling is defined by the sortation of [a single piece of] the relevant shape of mail by the relevant technology," may one infer that a single piece handling consists of ancillary activities such as bringing mail to a sorting machine or device, setting up a sort scheme, and sweeping bins, as well as running the mail through the machine or device? If not, please explain fully.
- b. Regardless of your answer to subpart (a), if separate work hours and work load data were gathered on each component activity of sortation listed therein, and separate variabilities estimated for each using your methodology, would you expect the estimated volume variabilities for these components to vary significantly? For example, since a sort scheme must be set up any time an OCR is used to sort mail, regardless of the number of pieces to be sorted, would you expect it to have a lower cost elasticity than running the mail through the OCR?

DMA/USPS-T14-41 Response:

- a. Yes, the terms are consistent. A piece handling is the placement of piece of mail in the relevant bin, case, sack, or container. Accomplishing this piece handling may require all of the functions described in your question.
- b. I have not studied variabilities at a functional level, so I cannot comment of the variation in variabilities at that level. Hypothetically, however, if you consider two functions, one with zero variability and the other with unit variability, then the

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composite operation consisting of those two functions will have a 'true' variability between zero and one. The estimated variability based upon data for the composite operation should also be between zero and one. On the face of it, the results of my analysis are consistent this type of scenario.

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DMA/USPS-T14-42. Please refer to your response to DMA/USPS-T14-26.

- a. Please explain and quantify whether, and the extent to which, MODS data was misreported. Has the Postal Service conducted any statistical studies (either full or pilot) of the accuracy and reliability of MODS data? If so, please identify, describe and produce such study or studies. If not, are any such studies planned for this purpose?
- b. Please explain how you identified the "data problems" with parcel and priority activities: specify what indicator(s) you relied on to determine that problems existed in these data, and quantify them relative to the "data problems" in other activities. Please also specify whether the parcels with "data problems" include Standard (A) parcels.
- c. Please explain fully the reasons that the Postal Service chose MODS to calculate volume variable costs for mail processing. When was MODS chosen as the appropriate data system? If the decision to rely on MODS for this purpose was a process that occurred over a period of time, when was it first considered, and when was the final decision made?
- d. Were any other alternative data systems considered by the Postal Service? If so, please describe all alternative data systems the Postal Service considered, and the reasons that these alternative systems were not chosen.
- e. In assessing the pros and cons of the alternative data systems considered in subpart (d), if any, did the Postal Service perform any cost variability analyses using the data derived from alternative systems? If so, please provide the results of these studies.
- f. Please describe all characteristics and information that the Postal Service considered essential when deciding on a data set to calculate the volume variability of mail processing labor costs (including, but not limited to, the inclusion of observations on mail volume and work hours).

Response of United States Postal Service Witness Bradley
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DMA/USPS-T14-42 Response:

- a. I have no quantitative information on the degree or frequency of misreporting of MODS data. The only studies that I am aware of relating to MODS data are contained in Library References H-220 and H-236.
- b. I identified data problems by examining Table 1 in Library Reference H-148. I examined the number of observations lost to the various scrubs and based my answer upon that. I do not have any information relative to specific classes of mail covered by these scrubs.
- c. MODS was chosen to calculate volume variable costs for mail processing labor for several reasons. First, it is an operational data system, meaning that the product costs would be based upon operational data, providing a closer link between operational reality and those costs. Second, piece handlings are the cost driver for mail processing labor, and MODS records both piece handlings and hours. Third, MODS data can be organized in a way which reflects the mail flows on the workroom floor. This provides insight into the nature of cost generation in mail processing. Fourth, MODS is a "live" data system that captures new operations (like remote bar coding) as they come on line. It thus represents a way to provide

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a flexible model of mail processing costs that will adjust product costs as the actual operating costs change. Fifth, MODS data are collected at many sites and are available on the corporate data base at an accounting period frequency. This means that a large data set could be assembled and the data could be organized as a panel.

MODS was chosen as the appropriate data system from the outset.

- d. No.
- e. No. Alternative systems (for the Registry and remote encoding activities) were used only when MODS data were not available.
- f. I would say that the essential characteristics were having data available on hours and piece handlings (the cost driver), and having sufficient data to permit econometric estimation of the variabilities.

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DMA/USPS-T14-43. Please refer to your response to DMA/USPS-T14-32 and explain precisely which data requested therein do not exist.

- (a) Please describe how the data relating to volumes (piece handlings) in each MODS operation are recorded by the offices that submit volume data to the "corporate data base."
- i. At what frequency are the data initially recorded by the office?
 - ii. Are they aggregated or otherwise transformed by the office? If so, once such aggregations or transformations are performed, are the initial data primitives retained?
 - iii. At what frequency are piece handlings data transmitted to the corporate data base?
 - iv. Are they aggregated or otherwise transformed once in the corporate data base? If so, once such aggregations or transformations are performed, are the initial data received from the reporting offices retained?
 - v. In the corporate data base, do piece handlings data by office and MODS operation exist (a.) by AP, (b.) by week, (c.) by day of the week, and/or (d.) by hour of the day? For each affirmative answer, specify the years for which these data are available at this level of specificity, and produce these data for the most recent fiscal year, and at least the two previous years if possible. For each negative answer, indicate the reason(s) why these data do not exist (e.g., were the data not collected, were the data collected but not retained, or some other reason?) Please explain fully.
- (b) Please describe how the data relating to work hours in each MODS operation are recorded by the offices that submit hours data to the "corporate data base."
- i. At what frequency are the data initially recorded by the office?

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- ii. Are they aggregated or otherwise transformed by the office? If so, once such aggregations or transformations are performed, are the initial data primitives retained?
 - iii. At what frequency are work hours data transmitted to the corporate data base?
 - iv. Are they aggregated or otherwise transformed once in the corporate data base? If so, once such aggregations or transformations are performed, are the initial data received from the reporting offices retained?
 - v. In the corporate data base, do work hours data by office and MODS operation exist by (a.) AP, (b.) by week, (c.) by day of the week, and/or (d.) hour of the day? For each affirmative answer, specify the years for which these data are available at this level of specificity, and produce these data for the most recent fiscal year, and at least the two previous years if possible. For each negative answer, indicate the reason(s) why these data do not exist (e.g., were the data not collected, were they collected but not retained, or some other reason?) Please explain fully.
- (c) When an employee "clocks into" or "clocks out of" a mail processing operation, how is the employee's time recorded in the MODS system? For example, is the actual time of day recorded or is the time interval worked recorded? Is this information retained in the data system at the facility level? If so, is the data retained once the data are transmitted to the corporate data base?

DMA/USPS-T14-43 Response:

This interrogatory has been redirected.

Response of United States Postal Service Witness Bradley
to
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DMA/USPS-T14-44. Please assume that, in addition to the problem of adjusting staffing levels at a mail processing facility to labor requirements within a given mail processing operation, there is also an *overall* constraint operating in mail processing, such that Postal management faces short-term rigidities in its ability to match the overall number of clerks and mail handlers it employs at a facility to the total mail processing labor requirements across all MODS operations at that facility. How would your methodology for estimating volume variabilities of mail processing labor costs change, if at all?

DMA/USPS-T14-44. Response:

My methodology for estimating volume variabilities would not change because a volume variability is the response in the real labor input to a sustained increase in volume. My analysis thus allows for short-term rigidities in the mail processing workforce. I would not expect there to be long-term rigidities of this sort in response to a sustained increase in volume.

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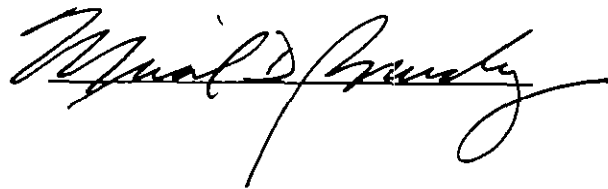
DMA/USPS-T14-45. Please refer to your response to DMA/USPS-T14-16 and confirm that applying the process described in interrogatory DMA/USPS-T14-16(a) to VVMPO.DATA yields a FY 1993 productivity for optical character readers of 5.03 and that this productivity is in thousands of total piece handlings per work hour.

DMA/USPS-T14-45.

Confirmed.

DECLARATION

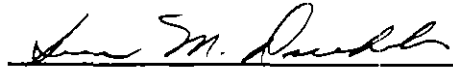
I, Michael D. Bradley, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.

A handwritten signature in cursive script, reading "Michael D. Bradley", written over a horizontal line.

Dated: Sept. 26, 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.

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September 26, 1997