

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

POSTAL RATE AND FEE CHANGES, 2006)

Docket No. R2006-1

RESPONSES OF VALPAK DIRECT MARKETING SYSTEMS, INC. AND
VALPAK DEALERS' ASSOCIATION, INC.
WITNESS JOHN HALDI TO INTERROGATORIES OF
UNITED STATES POSTAL SERVICE (USPS/VP-T2-13-23)
(October 18, 2006)

Valpak Direct Marketing Systems, Inc. and Valpak Dealers' Association, Inc.

("Valpak") hereby submit responses of witness John Haldi to the following interrogatories of the United States Postal Service: USPS/VP-T2-13-23, filed on October 4, 2006. Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

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USPS-VP-T2-13.

Please refer to your testimony, VP-T-2 at 24, lines 8-10, where you claim that “[e]conomies of scale... refers to how cost changes after the organization has had full opportunity to make all requisite adjustments to a change in volume.”

- a. Please confirm that the elasticity of scale measures how output varies as the “input bundle is multiplied by a scalar.” See, e.g., Robert G. Chambers, *Applied Production Analysis* (Cambridge University Press, 1989) at 22. If you do not confirm, please explain.
- b. Please confirm that your definition is of long-run cost adjustments, i.e., “long run” costs reflect firms carrying out “all requisite adjustments,” and not a definition of economies of scale. If you do not confirm, please reconcile your definition of “economies of scale” with the definition of the elasticity of scale in the economic literature.

Response:

- a. Confirmed. Note, however, that “economies of scale” discussed in my testimony and “elasticity of scale” referenced in this interrogatory are not the same thing; see Chambers, the reference which you cite, pages 72-73.
- b. Not confirmed. Economies of scale reflect movement to the cost-minimizing point on higher level isoquants, not movement along a scalar to higher level isoquants. As Chambers points out (p. 72):

Many discussions use the terminology of “increasing (decreasing) returns to scale” and “returns to size” interchangeably. However, they are not the same thing even though the most convenient measures of these phenomena coincide at cost-minimizing points ... the elasticity of scale measures how output responds as one moves out along a scale line from the origin in input space. The elasticity of size measures the cost response

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associated with movements along the locus of cost-minimizing points in input space, that is, the *expansion path*. By necessity, therefore, the two measures are generally based on different input combinations.
(Emphasis in original.)

It is the *expansion path* that reflects all requisite adjustments, not movement along a scalar line from the origin. Economies of scale and elasticity of scale will correspond only when subsequent cost minimizing points are on the scalar line, and this will be the case only when the production function, $f(x)$, is homothetic. For further discussion on this point, see Chambers, pages 72-73; for a definition of homotheticity, see Chambers, pages 37-40.

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USPS/VP-T2-14.

Please refer to your response to USPS/VP-T2-1b.

- a. Please confirm that a result of the “dual” economic theory of production and cost is that the cost elasticity in UPSS/VP-T2-1b [sic] (sometimes called the “elasticity of size”) and the elasticity of scale are “closely related,” specifically, the former is the inverse of the latter. See, e.g., Robert G. Chambers, *Applied Production Analysis* (Cambridge University Press, 1989) at 71. If you do not confirm, please explain fully.
- b. Given your answer to part (a), please explain the theoretical basis for your statement that “Consequently, any empirical study of labor demand based on this model is not likely to develop any insight as to whether larger plants are subject to economies or diseconomies of scale.” In particular, please explain why inferences on cost elasticities are “not likely to develop any insight” on quantities such as scale elasticities to which they are theoretically related.

Response:

- a. Confirmed.
- b. The “dual” economic theory of production and cost states that when sufficient information on the cost of inputs is available, the cost function can be used to resurrect all the economically relevant information about the technology, or production function, of a firm that produces product X (where X could be a vector of outputs, such as an oil refinery that produces gasoline, kerosene, heating oil, etc.) typically in a single facility.

In order to study economies of scale, however, one needs to define more than a single production function. What is required is to determine the production function

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for plants of different sizes, and then ascertain whether the *elasticity of scale* () is less than, equal to, or greater than one over the range of plant sizes studied (see Chambers, p. 22, equation 1.7, for a formal definition of the elasticity of scale). As Chambers notes (p. 23), is interpretable as measuring how accurately the distance between isoquants in input space reflect the distance in output space. In order to discuss the distance between isoquants in either input or output space, one first needs to estimate two, three or more isoquants over the relevant range (*e.g.*, for small, medium, and large size plants).

Thus, in order to study economies of scale, one needs a model that, at a minimum, seeks to and is capable of distinguishing between plants of different sizes. A model that aggregates MODS cost pools across all plants, from smallest to largest, and does not contain explicit variables for facility size is not geared to provide insight to economies of scale. Consequently, until witness Bozzo either disaggregates and analyzes his data according to plant size, or introduces explicit variables for plant size, inferences on cost elasticities developed by witness Bozzo are not likely to provide insight on quantities such as scale elasticities.

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USPS/VP-T2-15.

Please refer to your response to USPS/VP-T2-2.

- a. You indicate that you are not familiar with the paper Dr. Bozzo cites in relationship to the distinction between economies of “density” and economies of “scale.” Please describe your familiarity with any economic literature related to the Caves, Christensen, and Tretheway paper pertaining to measurement of “density” and “scale” elasticities.
- b. If your response to part (a) indicates that you are not familiar with the related economic literature, what is the basis for your discussion of “density” and “scale” economies in VP-T-2 at pages 17-31?

Response:

- a. Prior to reading Dr. Bozzo’s response to VP/USPS-T12-4, Tr. 10/2656, I was not familiar with the term economies of “density,” or the literature dealing with airline economics which appears to be the subject of the Caves, Christensen, and Tretheway paper he cites.
- b. The basis for my discussion which you cite is what I would describe as a common sense interpretation of the term economies of “density” within the context in which it is invoked by Dr. Bozzo. His responses to VP/USPS-T12-4 and 6 state explicitly that neither the costs nor the magnitude of the costs that he considers fixed are related to the size or scale of the facility — *i.e.*, they do not reflect economies of scale — yet implied savings (*i.e.*, “economies”) are to be had from spreading his non-volume variable costs over larger volumes. These implied savings, or economies of “density,” are alleged to arise within the size

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parameters of all existing postal facilities with MODS cost pools included in Dr. Bozzo's study, and do not require (i) growth or expansion in the size or capacity of any existing facility, or (ii) concentration of mail processing from smaller facilities into larger facilities with greater capacity, in order for such economies of "density" to be realized.

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USPS/VP-T2-16.

Please refer to your response to USPS/VP-T2-4(c), where you confirm that the long-run average cost curve is the “lower envelope” of the short-run average cost curves. Please confirm that this implies that long-run average cost does not exceed short-run cost. If you do not confirm, please explain.

Response:

Confirmed.

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USPS/VP-T2-17.

Please refer to your response to USPS/VP-T2-5(b).

- a. Is it your understanding that the Postal Service accepts substantial volumes of non-machinable letters, flats, and parcels? Please explain any negative response.
- b. Please confirm that the data you provide cannot distinguish the use of manual operations to handle non-machinable pieces and automation rejects from other possible uses of manual operations. If you do not confirm, please explain fully.

Response:

- a. It is my understanding that the Postal Service accepts all mail properly tendered to it, provided the applicable postage and fees have been paid. It also is my understanding that mail which is accepted consists of letters, flats, and parcels, some of which are non-machinable. Non-machinable Standard mail pays a higher rate than machinable mail of the same shape and weight. Within First-Class, some non-machinable mail pays a non-machinable surcharge (*e.g.*, square letters, or 1 ounce flats), but I am aware that some of this mail nevertheless may be processed on the Postal Service's existing sortation equipment even though postage paid for such pieces is at the non-machinable rate. I have not seen, nor am I aware of, any data which break out the volume of non-machinable mail, either *in toto*, or by shape. Further, even if such data were made available to me, I would not know what threshold the volume would

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have to exceed in order to meet the threshold which you would classify as “substantial.”

- b. Confirmed. The Postal Service’s manual cost pool data cited in my response to USPS/VP-T2-5(b) do not identify the various reasons why various letters, flats and parcels are processed manually.

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USPS/VP-T2-18.

Please refer to your response to USPS/VP-T2-7. Since your response redefines the “unit” to a larger quantity of mail, is your response appropriately summarized as confirming that “a larger increment of volume [would] normally be required.”

Response:

USPS/VP-T2-7 did not define the term “single-unit” or specify whether the term was an unusual way of simply saying a “single piece” of mail. Such phraseology is entirely new to me. (Are we henceforth to refer to the annual volume of single-piece First-Class Mail as X million “units” instead of as X million “pieces”?) It was not my intent to “redefine” what I consider to be an ambiguous term. For clarity, I will repeat here what now appears to be the more salient part of my answer:

If by single-unit you intend a single piece of mail, my answer is: No, in general I would not expect just one additional piece of Standard Mail to be sufficient to cause a facility to cease merging the processing.

If you now are defining “unit” to mean unambiguously a single “piece” of mail (as opposed to some agglomeration of pieces), then the remainder of my previous answer would need to be amended to read as follows:

If we assume that some volume of Standard Mail already exists and is being merged with First-Class Mail, (i) for flats I would say that the chances are at least 1 in 3,000 that one additional “piece” might be sufficient, and (ii) for letters I would say that the chances are better than 1 in 6,000 that an additional “piece” would be sufficient to cause a facility to cease merging the processing and sort the Standard Mail separately.

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With definition of the term “unit” clarified, and my response thus clarified to correspond with the definition which you apparently intended, I agree that your above-proposed summary could be described either as reasonable or appropriate. For further discussion concerning changes associated with a single piece of mail and changes associated with volumes larger than a single piece of mail, see my response to USPS/VP-T2-19.

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USPS/VP-T2-19.

Please refer to your response to USPS/VP-T2-8. What is your understanding of the treatment of inframarginal costs in the Postal Service's incremental cost model?

Response:

My understanding of the treatment of inframarginal costs in the Postal Service's incremental cost model derives from the discussion of incremental costs in USPS-LR-L-1, Appendix I, the testimony of witness Pifer, USPS-T-18, in this docket, and the testimony of Prof. Baumol in Docket No. R87-1, USPS-T-3.

In theory, the incremental costs of a postal product or service consists of (i) the marginal cost of providing the product or service, and (ii) all other costs that would cease to exist if the product or service ceased to exist (all of these "other costs" being the inframarginal costs in the Postal Service's cost model). Confusion can arise, however, when the term marginal cost is not always used in a uniform manner.

For instance, the marginal cost of a product is usually thought of, or "defined," as the change in cost that occurs when the volume of mail changes by a single piece. This is as close as one can get to the infinitesimally small change envisioned in differential calculus. Some postal costs may be able to change by increments that can be considered equivalent to infinitesimally small; *e.g.*, time worked by an individual clerks can vary by seconds and minutes. Thus, as the volume of mail handled by a facility changes, the time worked by clerks may increase or decrease in a continuous manner — *i.e.*, by seconds, minutes, hours, etc.

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Not all postal costs vary in such small increments, however. As volume changes, other costs will change in a “non-continuous” manner. As one example, in response to a volume-driven change in number of hours worked by clerks and mailhandlers, **at some point** size of the supervisory staff will increase or decrease by one supervisor. In comparison to the cost of handling a single piece of mail, the costs incurred or saved, respectively, from increasing or decreasing the supervisory staff by a single person would be a discontinuous change in cost. In an organization as large as the Postal Service, however, the change in costs by having one more or one less supervisor may seem like an almost continuous change. Any small discontinuity problem is handled conveniently and reasonably by including costs of immediate supervision among costs that are volume variable and treated as continuous.

As another example, when mail is being sorted at a facility and the volume of Standard mail is not large, it may be merged with First-Class Mail. Increasing or decreasing the volume of Standard mail by one piece is unlikely to change whatever operating procedure is in effect; see my response to USPS/VP-T2-18. With a larger increase (decrease) in volume, however, **at some point** the facility may incur (eliminate) the costs of a separate sort scheme for Standard mail. In comparison to the change in costs when volume changes by only one piece of mail, the costs incurred by adding or eliminating a single sort scheme would be a discontinuous change in cost. Again, in an organization as large as the Postal Service, the change in total costs from having one more or one less sort scheme may seem like an almost continuous change.

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So long as sort scheme costs are treated as volume variable, the discontinuous nature of such costs can be ignored and the costs treated as continuous. If all sort scheme costs are to be treated as fixed costs, however, then to paraphrase your quotation from Prof. Baumol in USPS/VP-T2-8, many of these fixed sort scheme costs would be eliminated if a particular service such as First-Class Mail were (hypothetically) discontinued and they should be included in the “incremental cost” of that service. This is why many of the sort scheme costs, if they are to be treated as non-volume variable, also should be treated as fixed intrinsic costs and attributed to the appropriate class of mail.

The point of the discussion in my response to USPS/VP-T2-8 was that some of these fixed costs that are properly included in incremental costs (such as fixed intrinsic scheme costs) will be eliminated by reductions in volume that fall far short of (hypothetical) elimination of the service, and those costs that would be eliminated by a pertinent change in volume (i) can be considered avoidable costs, and (ii) have a role to play in decision making. For example, it would be reasonable to include any such avoidable costs in the computation of workshare discounts.

It is neither reasonable nor a good precedent to treat a discontinuous, fixed incremental cost as though it were volume variable. A nomenclature problem then can arise when a rate-induced volume change is described as a “marginal” change in volume, and the resulting change in costs is described as the “marginal cost” of the “marginal” change in volume. From a practical operating perspective, a rate-induced volume change describes the situation of concern to Postal Service managers and

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Commission decision makers. Neither is concerned with a marginal change in volume that consists of only one piece of mail. Under a situation such as this, where the change in volume obviously is far greater than a single piece of mail, it probably could be described better, or more accurately, as an *incremental* change in volume, with all references to a marginal change in volume restricted to the most infinitesimal change possible — *i.e.*, a single piece of mail. All references to marginal cost and marginal volume then would be consistent.

The change in cost from such an incremental change in volume properly includes all changes in costs caused by the volume change (that is, marginal cost **plus any fixed costs**), and these may well include some of the discontinuous, inframarginal — *i.e.*, fixed *incremental* — costs discussed above. Note that when such fixed costs are part of the incremental cost associated with a rate-induced volume change, the average incremental cost associated with a volume change will not equal the marginal cost when “marginal cost” is defined as the change in cost resulting from a single piece of mail. In other words, when the Postal Service has costs which are fixed at the margin of a single piece of mail, but some of which vary with infra marginal changes in volume — *i.e.*, they are “semi-fixed” or “semi-variable” costs discussed in my response to USPS/VP-T2-8 — references to “marginal costs” need to be unambiguous. Attempting to have it both ways, where “marginal cost” refers to (i) the change in cost that occurs when the volume of mail changes by a single piece, **AND** (ii) average incremental cost over some larger but finite change in volume, is likely to create unnecessary confusion.

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USPS/VP-T2-20.

Please refer to your response to USPS/VP-T2-12, where you draw an analogy between the treatment of the Priority Mail cost pool and your scenario in which First-Class Mail and Standard Mail are processed together at a facility whose volume is insufficient to justify running a separate Standard Mail scheme.

- a. Please confirm that, in the treatment of Priority Mail operations, it is assumed that parallel non-Priority Mail operations pre-exist to handle non-Priority Mail pieces in the Priority Mail operations. If you do not confirm, please explain.
- b. Do you agree that if the parallel non-Priority Mail operations did not already exist and would need to be set up in the absence of the Priority Mail product, then the setup costs would be, at least in part, non-avoidable? If not, please explain.
- c. Please confirm that in your scenario referenced in USPS/VP-T12-12, there is by assumption no pre-existing Standard Mail scheme. If you do not confirm, please explain.
- d. If, in this scenario, a Standard Mail scheme would need to be added in the absence of First-Class Mail, how are the setup costs avoidable?

Response:

- a. Treatment of the cost of Priority Mail operations is described in the testimony of witness Michael D. Bradley, USPS-T-22, in Docket No. R2000-1, and I am not aware that Dr. Bradley stated explicitly his assumptions about the existence or non-existence of other operations (at that time a significant volume of Priority Mail then was processed in dedicated facilities, known as PMPCs). In the absence of an explicit statement concerning his assumptions, I am unable to divine what implicit assumptions Dr. Bradley did or did not make concerning the pre-existence of parallel non-Priority Mail operations. If “parallel non-

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Priority Mail operations pre-exist to handle non-Priority Mail pieces in the Priority Mail operations,” as your question presupposes, it is not clear why those non-Priority Mail pieces were not sent to the pre-existing non-Priority Mail operations for processing (instead of being processed in the Priority Mail operation).

- b. If parallel non-Priority Mail operations did not exist within a facility with a Priority Mail operation, that would be a reasonable explanation for why non-Priority Mail pieces would be processed in the Priority Mail operation (see my response to part a). In the absence of both (i) parallel non-Priority Mail operations and (ii) Priority Mail product, then in order to process some (incidental) volume of non-Priority Mail pieces (that otherwise might be processed in a Priority Mail operation if there were one), the Postal Service presumably would need either to incur some setup costs or else take the (incidental) volume of non-Priority Mail pieces to another (nearby) facility for processing. To the extent that the Postal Service elects to process such “incidental” volumes in a facility with no Priority Mail product and no parallel non-Priority Mail operation, then I would agree that setup costs would be, at least in part, non-avoidable.
- c. Confirmed. In the scenario where small volumes of Standard letters are sorted concurrently with First-Class Mail (which must be sorted on a

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preferential basis), the Postal Service is assumed to have opted for the concurrent sorting procedure because it is less costly, as well as, perhaps, equally expeditious for the First-Class Mail and more expeditious for the Standard mail.

- d. If a separate Standard mail scheme needed to be added — *i.e.*, must be added — due either to the absence of First-Class Mail or an abundance of Standard mail, then by definition the setup costs of the separate scheme could not be avoided.

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USPS/VP-T2-21.

Please refer to your testimony, VP-T-2, at 54, lines 15-18, where you state that there is “no need to study how to treat non-volume variable mail processing costs” as long as the Commission treats mail processing costs as 100 percent volume-variable. Does this statement imply that the cost attribution issues you raise are moot, at least for the most part, if 100 percent volume-variability factors are applied? If not, please explain.

Response:

Yes. If mail processing costs continue to be treated as 100 percent volume variable, then non-volume variable mail processing costs will not exist and the appropriate treatment of (hypothetical) non-volume variable costs ceases to be an issue.

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USPS/VP-T2-22.

Please refer to your response to USPS/VP-T2-10. Consider a mail processing operation where the schemes are not normally specific to a single class or subclass of mail, e.g., letter DPS operations. Assume the operation has some non-variable cost. Please confirm that:

- a. There is no individual mail class or subclass whose elimination will lead to the elimination of such an operation.
- b. The non-variable cost of the operation is not causally “attributable” to any individual class or subclass of mail as either volume-variable or incremental cost.

If you do not confirm either statement, please explain fully.

Response:

- a.-b. Confirmed; see my testimony starting at page 53, line 16 to page 54, line 4.

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USPS/VP-T2-23.

Please refer to your testimony at page 44. Consider a sort scheme in which First-Class Mail is processed separate from Standard Mail.

- a. Please confirm that the First-Class Mail will, in general, include both single piece First-Class Mail and presorted First-Class Mail. That is, please confirm that rate categories within First-Class Mail are routinely merged. If you do not confirm, please explain.
- b. Please confirm that hypothetically eliminating all single piece First-Class Mail volume will not eliminate the First-Class Mail service.
- c. Please confirm that hypothetically eliminating all presorted First-Class Mail volume will not eliminate the First-Class Mail service.
- d. Please confirm that hypothetically eliminating single piece (or presorted) First-Class Mail will not eliminate the First-Class Mail scheme, assuming the Postal Service still seeks to separate First-Class and Standard Mail processing. If you do not confirm, please explain.
- e. In general, where subclasses and/or rate categories within a class of mail are merged for processing, explain whether hypothetically eliminating a rate category will lead to the elimination of the class-specific processing.

Response:

- a. I cannot confirm what the Postal Service does with respect to its internal operations. However, assuming that the presorted First-Class Mail requires processing on the same sort scheme as single-piece First-Class Mail (*e.g.*, incoming primary), I would expect the two to be merged routinely.
- b. Confirmed.
- c. Confirmed.
- d. Confirmed.

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- e. Where class-specific processing exists (*e.g.*, for letters, in sort schemes prior to DPSing), it is my understanding that separate processing is a result of the different service standards applicable to First-Class and Standard mail. It also is my understanding that those service standards apply uniformly to all rate categories within each class of mail. In general, therefore, eliminating a single rate category from a class of mail would not be expected to eliminate class-specific processing for the remaining rate categories.