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

| PERIODIC REPORTING<br>(PROPOSAL SEVEN) | Docket No. RM2021-1 |
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# REPLY COMMENTS OF THE UNITED STATES POSTAL SERVICE REGARDING PROPOSAL SEVEN
(March 12, 2021)

Pursuant to Order Nos. 5756 (November 18, 2020) and 5835 (February 22, 2021), initial comments in this proceeding were filed on February 26, 2021, by UPS, and on March 5, 2021, by the Public Representative, Pitney Bowes, and Amazon. PSA filed comments on March 8, 2021. Both UPS and the Public Representative support adoption of Proposal Seven. However, UPS proposes three modifications of the existing methodology not raised in Proposal Seven.[1] The Public Representative suggests minor changes in two of the variabilities submitted in Proposal Seven, and also endorses one of UPS's proposed changes to the established methodology.[2] The Postal Service offers the following reply comments addressing the issues raised by UPS and the Public Representative, showing that the modifications to Proposal Seven they advance should not be adopted.

[1] In contrast, PSA, Amazon and Pitney Bowes support adoption of Proposal Seven as submitted.

[2] The Public Representative also appears to oppose what he calls the Postal Service's proposal to use 77.3 percent as the capacity-to-volume variability for Christmas Transportation. (PR Comments at 1). The Postal Service did not propose using 77.3 percent as the capacity-to-volume variability for Christmas transportation. Proposal Seven embodies the established Christmas capacity-to-volume variability of 100 percent.

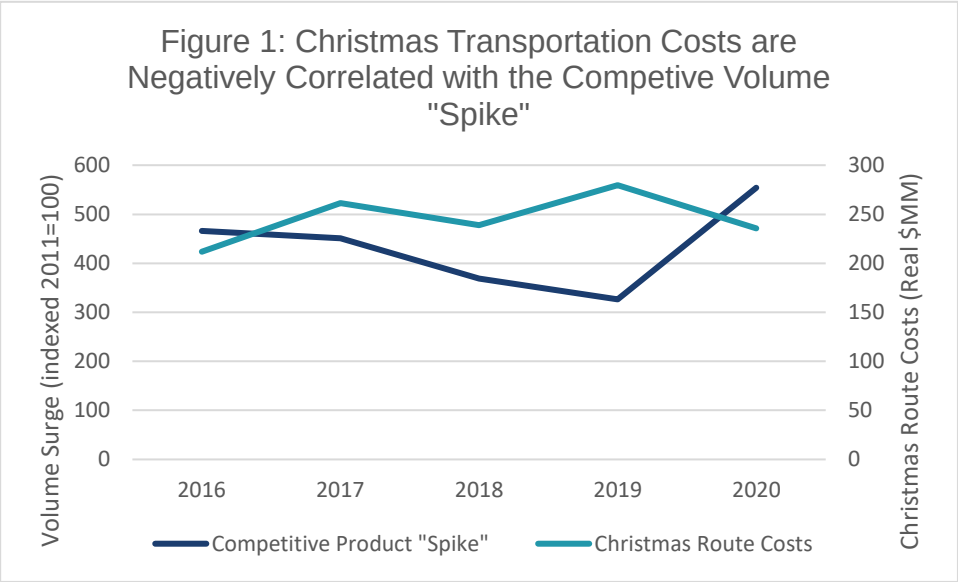
**A. UPS Again Asserts its Unfounded Claim that the Seasonal Peak is Solely Caused by Competitive Products, Presents Erroneous Criticisms of the Established Models, and Argues for Abandoning the Established Methodology for an Unneeded and Speculative Costing Algorithm.**

UPS's initial proposed modification to the established methodology is far removed from Proposal Seven. Rather, it is a dogmatic reassertion of the unsupported and erroneous claims previously presented by UPS in Docket No. RM2020-9. UPS again falsely claims that peak highway transportation costs are solely caused by competitive products, conveniently ignoring the fact that the December peak in First Class Mail volume is many times larger than the December peak in competitive volume. As in the previous case, UPS again fails to submit any substantive empirical or operational evidence to support its unfounded claim about peak season costs.

In fact, the sole motivation UPS supplies in its Comments actually demonstrates just the opposite of its primary assertion. UPS submits a graph of its "indexed" competitive volume "spike" and its calculated Christmas highway transportation costs.[3] But examination of the data underlying that graph shows that for the last five years -- the period during which UPS claims there has been a seasonal competitive volume surge – competitive volume growth and Christmas transportation costs are negatively correlated. This is illustrated in Figure 1, in which the two series often move in opposite directions. The correlation coefficient between the two series is -0.566, but is not

[3] See, Initial Comments of United Parcel Service, Inc. On Notice of Proposed Rulemaking on Analytical Principles Used in Periodic Reporting (Proposal Seven), February 26, 2021 (UPS Comments) at 7.

statistically significant, meaning that over the last five years, UPS' measure of Christmas costs is not positively correlated with competitive volumes.




Moreover, it is not clear that UPS' proffered data show a positive and significant relationship between changes in its index of competitive volume and changes in its measure of Christmas highway transportation costs even over the full period. That relationship can be investigated by a simple regression of UPS' measure of Christmas transportation costs on its competitive mail and First-Class Mail indexes, along with a time trend to avoid spurious correlation.[4] Table 1 presents the results of estimating the

[4] It is well known that regression economic time series variables that contain trends can lead to spurious regression results. For a straightforward and clearly written discussion of the issue, see, Fawcet, Tom, "Avoiding Common Mistakes with Time Series," Silicon Valley Data Science, Jan. 28, 2015, https://www.svds.com/avoiding-common-mistakes-with-time-series/. For a more formal discussion, see, Greene, William H., "Random Walks, Trends, and Spurious Regressions," in Econometric Analysis, 2nd edition, Macmillan, 1993, at 50.

simple regression, showing a positive and significant coefficient for First-Class mail and a negative and insignificant coefficient for competitive mail.[5]

Table 1

Regression of UPS's Christmas Cost Measure on UPS's Indexes of Competitive and First-Class Volume

| Variable | Estimate | t-statistic |
|---|---|---|
| Intercept | -389.632 | -1.87 |
| First-Class Index | 50.0669 | 3.29 |
| Competitive Index | -0.12527 | -0.87 |
| Trend | 3.9129 | 1.97 |
| R2 | 0.9172 | |
| # of Observations | 10 | |

Of course, extreme caution should be used in interpreting the results of a regression with just ten data points, and such an equation should not be used for estimating variabilities or attributable costs. Moreover, the Postal Service does not believe that Christmas highway transportation costs are not positively correlated with peak competitive volumes. Rather, this analysis demonstrates the fragility of the data put forth by UPS in its attempt to shore up an extreme assertion -- that Christmas transportation costs are caused solely by competitive volumes.

[5] The SAS programs and Excel workbooks that produce the tables and graphs presented herein are located in folder USPS-RM2021-1-2, submitted to accompany these reply comments.

Apart from failing to provide any reliable empirical or operational data to support its assertion, UPSs simplistic discussion also fails to mention, let alone contemplate, the realities of the Postal Service's acquisition of purchased highway transportation. For example, UPS fails to acknowledge that nearly half (43 percent) of the competitive volume increase between 2016 and 2020 was for Parcel Select and Parcel Return Service mail. The vast majority of these mail categories are entered or picked up at the delivery unit and therefore do not require any Postal Service purchased highway transportation. In other words, the growth in the need for highway transportation to move competitive volumes is nowhere near as large as the growth in competitive volumes themselves.

Finally, UPS either misunderstands or misdescribes Postal Service operations and the way the established models capture their costs. For example, in discussing seasonal transportation costs, UPS argues that "the Postal Service's models assume that its operations are fixed."[6] For the Christmas and DRO operations at issue in this case, UPS's assertion is patently false. In introducing the analysis underlying Proposal Seven, Professor Bradley emphasized the importance of the operational changes in Christmas and DRO transportation:[7]

> In recent years, there have been two major operational changes in the Postal Service's highway transportation network. First, the Postal Service has increased its reliance on additional highway transportation during the seasonal volume peak. Second, the Postal Service has introduced a

[6] See, UPS Comments at 3.

[7] See, Bradley, Michael D., Research on Updating Purchased Highway Transportation Variabilities to Account for Structural Changes," November 9, 2020 (Bradley Report) at 1.

> new type of highway contract, called a Dynamic Route Optimization (DRO) contract.

Professor Bradley then emphasizes that these are both large, structural changes in operations:[8]

> Both of these operational changes are large enough to qualify as what the Commission has termed "major structural reorganizations," and in that sense, they are sufficient to justify investigation of possible changes in highway variabilities

UPS uses its claimed fixity as a basis for arguing that the Commission must abandon its established costing methodology for a speculative "what if" analysis that allegedly would account for any such fixity. But the complete lack of fixity in Christmas and DRO transportation precludes the need to consider an inaccurate and unreliable "what if" analysis. Both Christmas and DRO transportation are provided by contractors to the Postal Service, and if the need to increase or decrease either type of transportation arises, the Postal Service can simply increase or decrease the amount of contract transportation it acquires. If the Postal Service were to stop providing competitive products, it would simply reduce some, but not all, of its Christmas and DRO transportation. The incremental costs for competitive products in both Christmas and DRO transportation measure just that quantity -- the amount by which Christmas and DRO transportation are expanded due to their presence.

[8] Id.

## B. UPS Proposes Discarding the Empirically-Based Established Distribution Keys for Christmas and "Peak" DRO Transportation and Replacing it with an Assumption of "Only Competitive Mail."

In the established methodology, the distribution keys for both Christmas and DRO contracts are based upon Transportation Cost System (TRACS) data for regular contracts calculated by quarter. To the extent that Christmas and DRO transportation costs arise predominantly in the first quarter, the applicable distribution key is also taken from the first quarter.

Proposal Seven does not propose a change in the established distribution methodology, as the proposal is limited to an analysis of the cost-to-capacity variabilities for Christmas and DRO transportation. But UPS is attempting to use this docket to propose a change in the established distribution key without submitting a proposal to do so. And, as a result, UPS is avoiding putting its proposed methodological change through the regular procedure required by 39 C.F.R. § 3050.11. In sum, UPS proposes replacing the established distribution key with one that by assumption, distributes 100 percent of the attributable costs for Christmas and "peak" DRO transportation to competitive products. Yet, as UPS's own analysis demonstrates, this is clearly an overreach and should be rejected. In support of its proposal, UPS makes four arguments, all of which are easily rebutted.

First, UPS argues that its analysis of December TRACS data show that competitive products have a "materially" higher proportion of transported volumes in December than they do in October and November.[9] Second, UPS claims that because

[9] See, UPS Comments at 14.

the established distribution key includes both "baseload" and "incremental" volumes, it supports moving to a 100 percent competitive products distribution key for Christmas and peak DRO transportation.[10] Third, UPS also claims that because the Postal Service assumed that the Special Purpose Route (SPR) Sunday distribution key was 100 percent competitive mail before SPR Sunday costs were studied, then it is appropriate to do the same for Christmas and peak DRO transportation.[11] Finally, UPS claims that "the simplest and most accurate solution is for the Commission to require, conservatively, that all Christmas route costs and the peak season increase in DRO costs be attributed to competitive products."[12]

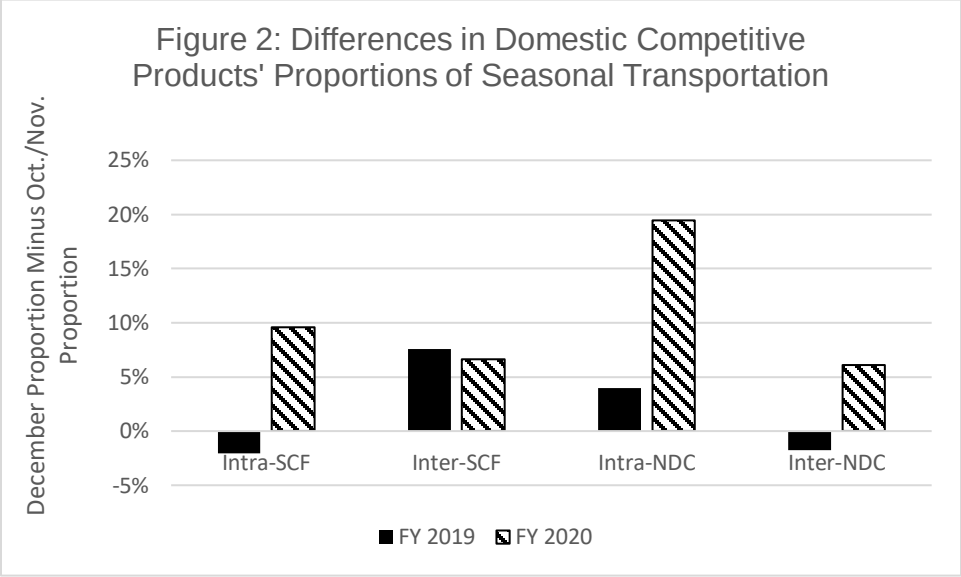
First, it must be emphasized that UPS' focus solely on the FY 2020 peak provides a misleading impression of the general difference between the December competitive mail proportions and the October/November competitive mail proportions. Peak patterns can vary from year-to-year, so an assessment of how much difference there is between the two sets of proportions should be performed for more than one year. To illustrate the importance of this point, the Postal Service repeated UPS' analysis for the previous year, FY 2019. The results for FY 2019 paint a very different picture of the comparative proportions, with the competitive proportions for two of four transportation categories actually being smaller in December than in October/November, and the differences for the other two categories being modest. This result undercuts UPS' assertion that using a quarterly distribution key underestimates

[10] Id.

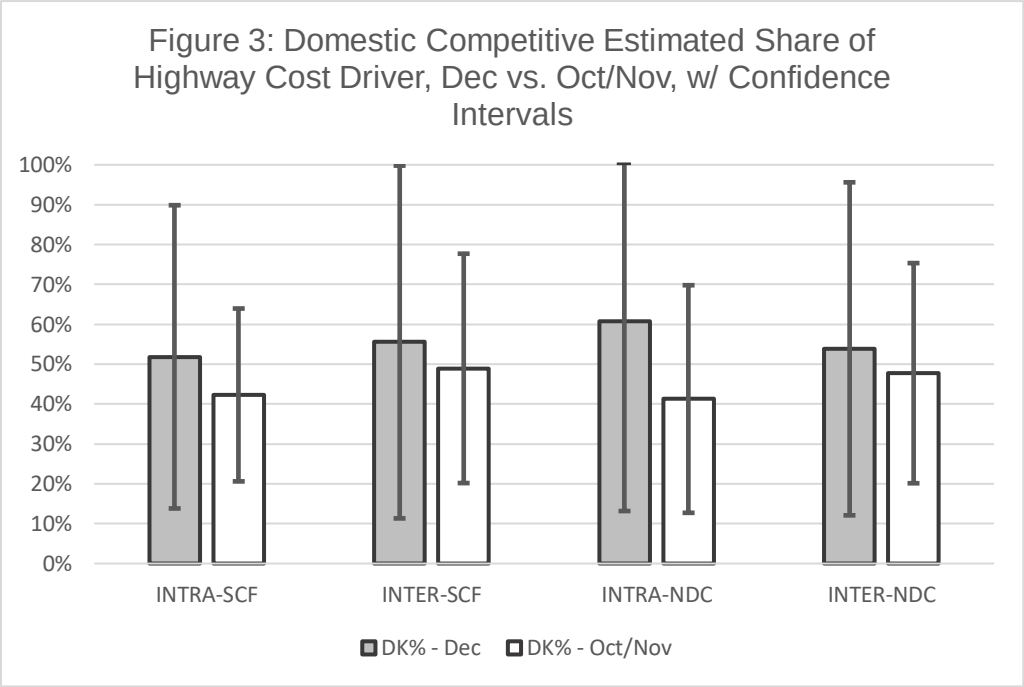
[11] Id.

[12] Id.

the peak competitive proportion of transported volume.




In addition, UPS's assertion that the December competitive products proportion is higher than in the other first-quarter months is not supported empirically. UPS did not check whether or not the differences, across transportation categories, between the December competitive proportions and October/November competitive proportions are statistically significant. The Postal Service did perform this check, by calculating the confidence intervals for the FY 2020 December and October/November proportions. As demonstrated in Figure 3, those confidence intervals completely overlap, indicating that the calculated differences in proportions are not statistically significant. This result is entirely consistent with the results presented in Figure 2, showing that the differences vary from year to year and vitiates any claim that the TRACS distribution key should be calculated on a monthly basis from the existing sampling design.




Moreover, it turns out that UPS' analysis demonstrates just the opposite of its claim that regular transportation is used for "baseload" volume and Christmas and peak DRO transportation are used for incremental (competitive) volume. The Postal Service starts planning for its peak season transportation needs months in advance. Based upon historical experience during previous peaks, and on anticipated future needs, the Postal Service determines how much transportation it expects to need during the coming peak. But the Postal Service plans for its total expected transportation capacity. It does not specify certain transportation accounts for market dominant mail volume and then separately specify other transportation accounts for competitive volume. That is, there are no "baseload volume" trucks, nor are there "incremental volume" trucks. Both types of volumes are transported on trucks covered by regular contracts and trucks covered by Christmas contracts.

This fact is evident in the TRACS data analysis presented by UPS. For FY2020, its December slice of TRACS data shows a higher proportion of competitive products than does its October and November slice. But that TRACS slice is for regular transportation contracts, showing that "incremental" volumes do indeed show up on regular transportation trucks. The reverse is also true; Christmas transportation trucks carry both "baseload" and "incremental" volume. In sum, UPS has no empirical or operational basis for asserting that only competitive products show up on Christmas and peak DRO transportation.

This also relates to UPS's second argument, the assertion that the inclusion within the established distribution key of both "baseload" and "incremental" volumes somehow supports moving to a competitive-product only distribution key for peak transportation. Contrary to this assertion, the results from TRACS data show that "baseload" and "incremental" volumes are spread across both types of transportation and that there is no basis for assuming that Christmas and peak DRO transportation carry only competitive products. Even if such transportation did carry just what UPS calls "incremental" volume, then it would carry both First-Class Mail as well as competitive products, refuting the application of a competitive-products only distribution.

UPS' third argument is an exercise in false equivalence. UPS argues that because the Postal Service assumed that the Special Purpose Route (SPR) Sunday distribution key was 100 percent competitive mail before SPR Sunday costs were studied, then it is appropriate to do the same for Christmas and peak DRO transportation. But UPS fails to account for the major difference between the two situations. In SPR, the Postal Service had a solid operational basis for making the 100

percent assumption, knowing that Sunday SPR service was designed to carry competitive products. Just the opposite is true here. Seasonal transportation capacities are designed to handle all of the volume that occurs during the seasonal peak, not just competitive volumes, so there is no operational basis for UPS' proposed change in the distribution key.

Finally, contrary to UPS's claim, its proposed distribution key is neither accurate nor conservative. UPS has produced no empirical nor operational evidence to support its claim, and the claim conflicts with known operational practice of how peak highway transportation is scheduled. Moreover, there is nothing "conservative" about distributing all attributable cost to competitive products, because that is the maximum amount of attributable costs competitive products could receive.

### C. UPS Proposes, and the Public Representative Supports, a Change in the Established Capacity-to-Volume Variability for DRO Contracts

Prior to the Postal Service submitting Proposal Seven, the established cost-to-capacity variability for DRO contracts was 64.3 percent and the established capacity-to-volume variability was 77.3 percent. Proposal Seven proposes changing the cost-to-capacity variability for DRO contracts to 100 percent, but does not propose a change in the capacity-to-volume variability.

In its comments, UPS proposes to change the capacity-to-volume variability for DRO contracts from its current value of 77.3 percent to an assumed value of 100

percent.[13] The Public Representative supports this change.[14] However, UPS fails to present any empirical or operational evidence to support its proposed assumed value. Rather, UPS' assertion of 100 percent capacity-to-volume variability is based upon its own uninformed assumption about the alleged "flexibility" of DRO contracts, a misrepresentation of the what the Postal Service has said about DRO contracts, and a mischaracterization of what the Commission decided in a previous rulemaking.

1. UPS misunderstands how DRO contracts work.

UPS claims that a 100 percent capacity-to-volume variability is applicable to DRO contracts because of the flexibility of such contracts, but never explicitly describes what that flexibility entails. What is clear, however, is that DRO contracts do not have the amount of flexibility embodied in the assumption of 100 percent variability, namely that the Postal Service has complete flexibility, so that changes in capacity perfectly adjust to changes in volume. Professor Bradley has previously articulated the stringent conditions necessary to support such an assumption:[15]

> The assumption of proportionality between volume and capacity implies that there are virtually no aspects of the Postal Services purchased highway transportation network that are determined by service requirements. In this view, when transported volume increases or decreases, the Postal Service maintains the same level of capacity utilization, and thus increases or decreases capacity in exact proportion to

[13] See, UPS Comments at 12.

[14] See, Public Representative Comments on Proposal Seven, March 5, 2021, (PR Comments) at 15. The Public Representative does not present any different arguments than UPS in supporting the proposed change in methodology, so the balance of these comments will address UPS' points.

[15] See, Bradley Michael, D, "Research on Estimating the Variability of Purchased Highway Transportation with Respect to Volume.", Docket No. RM2016-12, August 22, 2016 at 3.

> the volume change. In other words, it is assumed that there is no fixity in the Postal Service purchased highway network, so increases in volume do not bring any opportunities to better utilize capacity, and decreases in volume do not imply more challenges in using the network's required capacity.

The assumption of 100 percent capacity-to-volume variability implies that capacity utilization does not change with volume changes.[16] DRO contracts do possess a degree of flexibility in the contracting process that is not available for regular contracts, but that flexibility is not so extreme such that capacity can be adjusted so precisely that capacity utilization does not rise or fall, at all, with volume changes, as UPS asserts. In regular purchased highway transportation, the contracting process is just one reason why capacity might not respond proportionately to volume. Other reasons include the need to run transportation to meet service standards, cost savings associated with employing standard sized trucks, a limited number of options in terms of alternative truck cubic capacities, and the physical distribution of facilities in the Postal Service's transportation network. All of these latter reasons occur for DRO transportation as well as for regular Intra P&DC transportation. These constraints also imply that DRO capacity does not perfectly adjust to changes in volume, and that capacity utilization will rise and fall at least somewhat with increases and decreases in volume.

Moreover, UPS fails to recognize that a variability of 77.3 percent already implies a high degree of flexibility. With this high capacity-to-volume variability, capacity

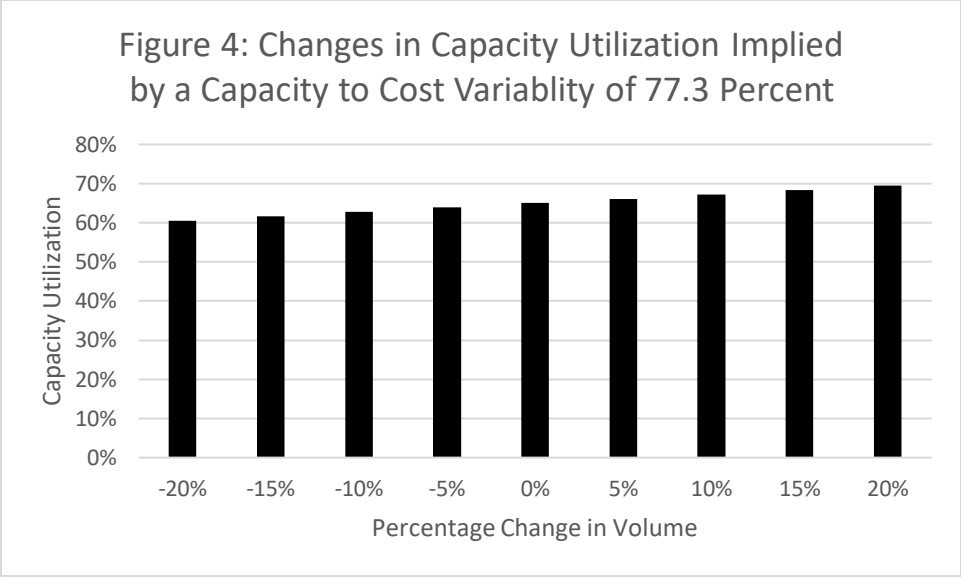
[16] For a mathematical demonstration of this point, see, Bradley Michael, D, "Research on Estimating the Variability of Purchased Highway Transportation with Respect to Volume", Docket No. RM2016-12, August 22, 2016 at 39.

utilization does not change much, even with large changes in volume, indicating the Postal Service is substantially adjusting capacity up and down as volume changes.

This point can be illustrated by applying the relationship between the capacity-to-volume variability and the elasticity of capacity with respect to volume that was derived in Docket No. RM2016-12. In that docket, it was shown that the elasticity of capacity utilization with respect to volume is equal to 1 minus the variability of capacity with respect to volume.[17]

For DRO transportation, a capacity-to-volume variability of 77.3 percent implies an elasticity of capacity utilization with respect to volume of just 22.7 percent. Such an elasticity means that the Postal Service has sufficient flexibility in adjusting capacity to volume so that capacity utilization changes relatively little even for major volume changes. This is illustrated in Figure 4, which presents the different capacity utilizations associated with a 40 percent swing in volume. The baseline capacity utilization used in this exercise is 65 percent, and it falls to just 60.5 percent following a 20 percent decline in volume and increases to just 69.5 percent following a 20 percent increase in volume. In other words, the established cost-to-capacity variability for DRO transportation already implies a high degree of capacity flexibility.

[17] Id.




2. UPS misrepresents what the Postal Service has said about DRO contracts.

UPS claims that what the Postal Service has said about the nature of DRO contracts is "inconsistent" with the operational explanation it gave for why the variability of capacity with respect to volume, across all types of purchased highway transportation, is less than 100 percent.[18] In Docket No. RM2016-12, the Postal Service explained the operational basis:[19]

> Across all types of purchased highway transportation, capacity responds in a less-than-proportional manner to changes in volume. For example, when volume rises, the Postal Service is able to take advantage of existing empty space and capacity does not rise as quickly. When volume falls, network responsibilities preclude the Postal Service from reducing capacity in direct proportion to volume declines. In sum, the variability of purchased transportation highway capacity with respect to volume changes is less than 100 percent.

[18] See, UPS Comments at 17.

[19] See, Petition of The United States Postal Service for The Initiation of a Proceeding To Consider Proposed Changes In Analytical Principles (Proposal Four), Docket No. RM2016-12, August 22, 2016 at 2.

Yet this type of capacity adjustment is exactly what happens on DRO contracts, and the Postal Service's description of them is entirely consistent with this type of operational response. First, DRO contracts are established on a weekly basis, not a daily basis, which makes them less than perfectly flexible with volume. Second, DRO contracts optimize over a number of factors, not just volume. In addition, that optimization is limited by a number of constraints, including the need to meet service standards:[20]

> Optimization constraints include in part: departure time, arrival time, window of operations, dock availability, trailer size restrictions, product availability, product volumes, cube size, trailer cube capacity, and service standards

These constraints necessarily imply that capacity is not perfectly flexible with volume, contradicting an assumption of 100 percent variability of capacity with respect to volume. For example, the fact that DRO transportation, like other purchased highway transportation, is scheduled, in part, to meet service standards implies that an assumption of 100 percent variability between capacity and volume is invalid.

Ideally, TRACS data will become available so that a separate capacity-to-volume variability for DRO contracts can be estimated. Until that time, the existing variability of 77.3 is a much better representation of that variability than an assumed value of 100 percent.

3. UPS Mischaracterizes what the Commission Decided in Docket No. RM 2016-12.

UPS attempts to justify its proposed assumption of 100 percent capacity-to-

[20] See, Responses of The United States Postal Service to Questions 1-7 Of Chairman's Information Request No. 2, Docket No. RM2021-1, February 17,2021 at Question 2.

volume variability for DRO contracts by citing to a Commission decision on capacity-to-volume variabilities in Docket No. RM2016-12, and arguing that this previous decision perfectly mirrors the current one.[21] But the current situation is significantly different than the one decided by the Commission in Docket No. RM 2016-12, and that decision is not applicable to the current DRO variability.

In making its "mirroring" assertion, UPS ignores the fact that the Postal Service had already considered the Commission's decision in Docket No. RM2016-12 and determined that the current situation is quite different:[22]

> This is a different situation than choosing a capacity-to-volume variability for Christmas or emergency contacts. In those cases, data for the type of transportation was not included in the variability estimation. In the case of DRO transportation, the volumes and capacities for the type of transportation DRO contacts provide were included in the estimation of the Intra-SCF cost-to-capacity variability. Moreover, the granularity of TRACS data does not support estimating separate capacity-to-volume variabilities for the individual accounts, such as Intra P&DC or Intra District, with the Intra SCF group. Finally, DRO contracts are currently receiving the Intra-SCF capacity-to-volume variability.

In Docket No. RM2016-12, the Postal Service was attempting to apply a newly estimated variability to a set of transportation contracts (Christmas) that had no direct relationship to the ones for which the variability was estimated (regular). In the current case, the facts are much different. Here, there is a direct and clear relationship between the DRO transportation and the Intra P&DC transportation from which it came. The two types of contracts share the same transportation function, transporting mail to

[21] See, UPS Comments at 17.

[22] See, Bradley Report at 42.

and from processing and distribution centers and their associated post offices, delivery units, and other affiliated locations. They also share similar products, similar product volumes, similar service standards, and similar network configurations. The primary difference between the two types of transportation is the method of contracting for the service, and that difference was addressed in the estimation of a separate, and higher, cost-to-capacity variability for DRO transportation.

This is a very different circumstance than Docket No. RM2016-12, in which the Commission made a clear distinction between the regular transportation, on which the variability was estimated, and Christmas transportation:[23]

> Considering that extra highway transportation capacity purchased for emergency and Christmas routes is intended to accommodate increases in mail volume, the Commission concludes that it is likely that the capacity-to-volume variabilities for emergency and Christmas routes are higher than for regular routes.

The Postal Service concurs with this assessment of Christmas transportation and did not propose a change in its capacity-to-volume variability in this proceeding. In contrast, because they share much in common, it is likely that the capacity-to-volume variabilities for DRO contracts is quite similar to that for Intra P&DC contracts, and a variability of 77.3 percent should be applied to DRO transportation until additional research can be performed.

[23] See, Order 3973, On Analytical Principles Used In Periodic Reporting (Proposal Four), Docket No. RM2016-12, June 22, 2017, at 19.

**D. The Public Representative Recommends Removing Additional Observations from the Christmas Intra-SCF tractor trailer and Inter-SCF Datasets.**

The Postal Service appreciates the thoroughness of the Public Representative's review of the econometric models underlying the estimated variabilities presented in Proposal Seven. It also appreciates his support for the methods employed and the estimated variabilities.[24] The Public Representative, though, does propose changes to two of the datasets used to estimate the Christmas, DRO, and Intra-P&DC variabilities. Specifically, the Public Representative recommends removing the subset of observations for which recorded annual miles are equal to or less than one mile from the Christmas Intra SCF tractor trailer and Christmas Inter SCF datasets. The Public Representative refers to these observations as "anomalous outliers."[25]

However, the Public Representative does not provide a basis for identifying these observations as outliers and does not provide a justification for their removal. The fact that an observation looks different from other observations in a dataset is not sufficient justification for removing it from that dataset. In fact, in certain circumstances, "unusual" observations can be important in improving the estimated equation:[26]

> The TCSS data set includes virtually all highway contracts in place, and there is great diversity in the transportation needs across the Postal Service's national highway network. It should be expected, therefore, that a small number of atypical contracts exist and the concern is that these unusual observations could have a disproportionate impact on the results and thus skew the estimated variabilities away from their true values.

[24] See, PR Comments at 13.

[25] Id.

[26] See, Report on Updating the Cost-to-Capacity Variabilities for Purchased Highway Transportation, USPS-RM2014-6/1, June 20, 2014 at 18.

> However, it is important to recognize that not all "outliers" create problems for the econometric estimation. If an outlier is from the true cost generating process and just represents an extreme observation, it can provide valuable information that improves the efficiency of the estimation.

It is essential, as a result, to provide a solid basis for eliminating any observations from an analysis dataset. The Public Representative does not provide that basis, and the identified observations should not be dropped from the estimation.

The Public Representative identifies five Christmas Intra SCF Tractor Trailer and nine Christmas Inter SCF observations that have annual miles of one mile or less. It turns out that there are actually eleven Christmas Inter SCF observations that meet this criterion, but two of them had already been removed from the analysis dataset by the Postal Service, due to having high values for the Cook's D statistic. The annual miles for these observations are indeed unusual, in that they are much smaller that the annual miles on the typical Christmas contract. But that, by itself, does not make them invalid as long as they are consistent with the estimated regression equation.

One piece of evidence on that issue is whether the small values for annual miles leads to atypical or unusual values for the costs per cubic foot-mile on the identified contract cost segments. Annual cost is the dependent variable in the variability equations, and cubic foot-miles is the cost driver. If an observation has a highly unusual value for cost per cubic foot-mile, it is likely to be far from the econometric equation and could be a potential outlier.

Table 2 presents the costs per cubic foot mile for the Intra SCF tractor trailer and Inter SCF contract cost segments that have annual miles less than or equal to one mile. All of the Intra SCF Tractor Trailer observations have costs per cubic foot mile that are

very close to the median contract cost segment value, indicating that they are not likely to be outliers from the regression line.

Nine of the eleven Inter SCF observations also have costs per cubic foot mile close to the relevant mean value. Two do not, suggesting they are potential outliers and, in fact, both of the observations were excluded from the analysis dataset by the Postal Service, based upon their high Cook's D value and their unusual characteristics:[27]

> Contract 144EZ, cost segment B has an annual cost of just one cent for a single annual mile. Contract 450VZ, cost segment C also has a single annual mile, with a one-mile route length but a cost of over $3,000.

[27] See, Bradley Report at 22.

Table 2

Costs Per Cubic Foot-mile for Christmas
Contract Cost Segments with Annual Miles
Less than or Equal to One

Intra SCF Tractor Trailer

| Contract | Cost Segment | Cost Per Cubic Foot Mile |
|---|---|---|
| 632AH | C | $0.0014 |
| 841AZ | B | $0.0014 |
| 850AZ | B | $0.0011 |
| 890AZ | B | $0.0010 |
| 895GZ | B | $0.0014 |
| Median | | $0.0012 |

Inter SCF

| Contract | Cost Segment | Cost Per Cubic Foot Mile |
|---|---|---|
| 070EH | B | $0.0012 |
| 117AH | C | $0.0016 |
| **144EZ** | **B** | **$0.0000** |
| 290AH | B | $0.0011 |
| 330EH | A | $0.0006 |
| **450VZ** | **C** | **$1.1094** |
| 460AZ | C | $0.0008 |
| 480AZ | C | $0.0012 |
| 500AH | C | $0.0010 |
| 500AZ | C | $0.0014 |
| 773GH | C | $0.0012 |
| Median | | $0.0010 |

A more formal indication of whether or not an observation is a potential outlier is given by the Studentized Residual:[28]

> To find observations which are far from the regression line, one can calculate the "Studentized Residuals" for each observation in the dataset. A Studentized Residual is a measure of the distance to the observation from the regression line. The formula for the Studentized Residual for the $i^{th}$ observation shows that to calculate the measure, one divides the value for the $i^{th}$ residual by the standard error of the residuals with the $i^{th}$ residual removed:
>
> $$e_{si} = \frac{e_i}{\hat{\sigma}(e_i)}.$$
>
> This statistic gives a scaled, and thus comparable, measure of distance for each observation from the regression line. In large samples, the cutoff value for potential outliers is typically 2.5, but based upon the t-distribution, a more conservative cutoff value is 2.0. (Footnote omitted.)

Table 3 presents the Studentized Residuals for the relevant Christmas Intra SCF tractor trailer and Inter SCF observations. All but two of the observations have Studentized Residuals well below the cutoff value for potential outliers of 2.0. The two observations that have Studentized Residual above the cutoff (in absolute value) are the two observations already excluded from the Inter SCF equation.

In sum, there is no basis for eliminating the additional observations suggested by the Public Representative. While they are different than the typical observations in the relevant datasets, they are not outliers in the econometric sense and belong in the

[28] See, Report on Updating the Cost-to-Capacity Variabilities for Purchased Highway Transportation, USPS-RM2014-6/1, June 20, 2014 at 22.

analysis. There are two observations for which annual miles equal one that do qualify as outliers, but they have already been removed by the Postal Service from the Inter SCF analysis dataset.

Table 3

Studentized Residuals for Christmas Contract Cost Segments with Annual Miles Less than or Equal to One

Intra SCF Tractor Trailer

| Contract | Cost Segment | Studentized Residual |
|---|---|---|
| 632AH | C | -1.314 |
| 841AZ | B | -1.042 |
| 850AZ | B | -1.525 |
| 890AZ | B | -1.741 |
| 895GZ | B | -1.042 |

Inter SCF

| Contract | Cost Segment | Studentized Residual |
|---|---|---|
| 070EH | B | -0.140 |
| 117AH | C | 0.565 |
| **144EZ** | **B** | **-14.096** |
| 290AH | B | -0.267 |
| 330EH | A | -1.078 |
| **450VZ** | **C** | **16.878** |
| 460AZ | C | -0.773 |
| 480AZ | C | -0.063 |
| 500AH | C | -0.303 |
| 500AZ | C | 0.283 |
| 773GH | C | 0.193 |

## Conclusion

As shown above, the arguments submitted by UPS and the Public Representative to alter Proposal Seven do not withstand scrutiny. All parties agree that the proposal would be an improvement over the current established methodology, and it should be accepted as submitted by the Postal Service.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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