

BEFORE THE  
POSTAL REGULATORY COMMISSION

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Periodic Reporting (Proposal One)	:	Docket No. RM2022-3
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INITIAL COMMENTS OF UNITED PARCEL SERVICE, INC.  
REGARDING PROPOSAL ONE  
(March 28, 2022)

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United Parcel Service, Inc. (“UPS”) respectfully submits these initial comments in response to the Postal Regulatory Commission’s Notice of Proposed Rulemaking on Analytical Principles Used In Periodic Reporting (Proposal One) (Jan. 10, 2022) (“Order No. 6090”).

## **INTRODUCTION**

Proposal One addresses a critically important Postal Service costing model that *directly* determines how roughly \$13 billion of the almost \$18 billion in Postal Service city carrier costs are attributed. How these costs are attributed also *indirectly* determines how several billion additional dollars of costs in other components are attributed, including retiree health benefits, vehicle attribution, and supervisor costs.

The Commission last reviewed the attribution model for city carrier street time seven years ago in Dkt. No. RM2015-7. In that docket, UPS recommended the use of a “top-down” cost modeling approach to replace the legacy attribution model, which relied on route evaluations and scanner data collected during a special study to separate city carrier street time into various smaller cost pools, including cost pools for parcel delivery.

The Commission conceptually supported the approach advocated by UPS, but ultimately concluded that data of the quality needed to implement a top-down approach was not available at that time.<sup>1</sup> The Commission instructed the Postal Service to collect

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<sup>1</sup> Order No. 2792, Order Approving Analytical Principles Used in Periodic Reporting (Proposal Thirteen), Docket No. RM2015-7 (Oct. 29, 2015), at 65 (“The Commission concludes that the UPS approach holds the potential to remedy many of the measurement problems that arise from the use of separate models for parcel delivery. However, available data are not sufficient to develop reliable estimates of variability using this approach. To improve the quality, accuracy, and completeness of the data used to attribute city carrier street time costs, the Commission directs the Postal Service to collect the information needed to determine whether a single model could produce improved estimates of variability.”).

such data and to investigate the feasibility of implementing such a model. Proposal One represents the top-down model developed by the Postal Service in response to the Commission's request.

Proposal One is certainly a step forward because it implements a top-down approach. But it suffers from a significant flaw also found in other Postal Service costing models: specifically, the Postal Service proposes to use as a key input for the model a slice of 2019 data, i.e. the respective volumes of packages and letter mail delivered as of that time, and then to rely on those volumes frozen in time going forward. In other words, now and going forward, the model determines cost attribution by assuming that the respective package and letter volumes are as they were in 2019.

This approach will significantly understate the costs attributable to packages, because those volumes have grown significantly since 2019, while letter mail volumes have continued to shrink. As UPS shows below, using the Proposal One model but implementing data from a mere two years later (when package volumes are higher and other volumes are lower) results in nearly \$500 million in additional volume variable costs being attributed to domestic competitive products.<sup>2</sup>

Fortunately, this issue can be fixed. To do so, as detailed further below, the Commission should direct the Postal Service to make some simple adjustments that will help keep the model updated on a going-forward basis.

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<sup>2</sup> This issue is even more important given that Proposal One by its own terms is already leading to a large increase in institutional costs. Over time, as Postal Service models continue to show an increase in institutional costs, it is becoming clear that competitive products are getting a free ride on network infrastructure those products cause but do not pay for.

UPS also points out below that Proposal One continues the Postal Service's narrow focus when it comes to cost attribution on short-term changes in volumes and costs. In fact, Proposal One affirmatively discards any empirical results that might reflect longer-term cost impacts that arise when volume levels change to a significant degree. This is because the Postal Service's approach uses a fixed-effects style model that assumes away any comparative information *across* ZIP-codes in favor of comparative information *within* ZIP-codes. This is inconsistent with previous Commission practice. Collection of additional data will improve the ability of econometric analysis to capture longer-term impacts of volume. Accordingly, the Commission should direct the Postal Service to collect additional data that will facilitate a more complete assessment of volume variabilities both *within* ZIP-codes (as Proposal One does) and *across* ZIP-codes.

Finally, UPS notes that the drastic change in cost attribution that occurs when going from the legacy RM2015-7 model to the new Proposal One model shows the importance of a robust "appropriate share" requirement, which is the subject of another pending docket. In this docket, the Postal Service reports that Proposal One results in over \$500 million additional costs attributed to competitive products in FY21 alone. These are costs that the Postal Service *currently classifies as institutional*, but which the Postal Service now recognizes are actually associated with delivering competitive products. Proposal One is therefore proof that there are costs "uniquely or disproportionately associated" with competitive products that the Postal Service has been classifying as institutional. This confirms UPS's argument in the appropriate share docket that there are, in fact, significant volumes of costs classified as institutional that

are associated with competitive products. Pursuant to the Postal Accountability and Enhancement Act (“Accountability Act” or the “Act”), such costs must be considered when the Commission sets the appropriate share.

## **ARGUMENT**

### **I. PROPOSAL ONE IMPLEMENTS A FLAWED FROZEN VARIABILITY ASSUMPTION**

In connection with Proposal One, the Postal Service proposes to perform a one-time calculation of variabilities based on the marginal times derived from the model and the volumes contained in the model estimation dataset.<sup>3</sup> These volumes are not static, however. Package volumes have consistently grown over time at high rates, while other volumes have consistently fallen. By using volume levels that are already outdated, and that already significantly understate package volumes, this proposed approach will lock in a persistent understatement of the costs of delivering packages and a persistent overstatement of the costs of the other volumes, including DPS, cased mail, sequenced, FSS, and collection volumes. This understatement of the costs of delivering packages will hold going forward, unless the trends of package volumes and other volumes unexpectedly reverse, which is highly unlikely in the foreseeable future.

To address this issue more specifically, in Proposal One, Professor Bradley has calibrated a new econometric model of city carrier street time that is based on a variety of conditions covering every month in the year, and including all six days a week that are relevant to city carrier street costs. Professor Bradley then evaluates his new econometric model to calculate two parameters for every type of volume:

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<sup>3</sup> See Responses of the United States Postal Service to Questions 1-19 of Chairman’s Information Request No. 4 (Mar. 11, 2022) (“CHIR 4 Responses”), Response to Question 18.

- the marginal time, which is the additional time needed to deliver (or collect) a single piece of a given volume type; and
- the variability, which is the share of total street time (and therefore costs) that are ostensibly caused by each type of volume.

As he describes in his report, Professor Bradley calculates these measures “using the estimated equation evaluated at the mean values for the right-hand side variables.”<sup>4</sup> Essentially, he estimates marginal times and variabilities for a hypothetical ZIP code-day observation that corresponds to the average across the 70,056 observations in his final regression sample. These statistics therefore represent average marginal times and average variabilities, based on average volume levels and average values of other characteristics as observed in 2019. Those marginal times and variabilities are presented in Table 1.

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<sup>4</sup> See Report of Michael D. Bradley, “On the Estimation of a Top-Down Model for City Carrier Street Time,” (“Bradley Report”) appended to Petition of the United States Postal Service for the Initiation of a Proceeding to Consider Proposed Changes in Analytical Principles (Proposal One), Dkt. No. RM2022-3 (Jan. 5, 2022) (“Petition”), at 63.

TABLE 1: MARGINAL TIMES AND VARIABILITIES UNDER PROPOSAL ONE<sup>5</sup>

Volume Type	Variabilities	Marginal Times
	[1]	[2]
DPS	7.74%	1.43
Cased Mail	1.37%	0.86
Sequenced	1.21%	1.93
FSS	0.63%	2.98
Collections from Customer Receptacles	1.23%	7.12
In-Receptacle Parcels	2.98%	19.51
Deviation Parcels/Accountables	7.28%	64.26

If Proposal One is adopted as filed, the Postal Service would update, on an annual basis, city carrier street time costs as follows: First, it recalculate total street time accrued cost at the end of every fiscal year. Next, the variabilities calculated by Professor Bradley and summarized in Table 1 above will be applied to the updated accrued cost total. In other words, in *every year* until the city carrier street time model is revisited at some indefinite future date,<sup>6</sup> 7.74% of the costs will be attributed to DPS volumes, 7.28% will be attributed to deviation parcels and accountables, and so on. These variabilities would, therefore, not reflect the significant changes in volume and mail mix that have already occurred since 2019, and that are expected to occur in coming years until the city carrier street time model is updated.

This static approach is highly problematic and will guarantee persistent errors. Both marginal times and the variabilities themselves are functions of volumes, changing

<sup>5</sup> Source: Petition at 5 (Table 1); Bradley Report at 96 (Table 23).

<sup>6</sup> The Postal Service said that it is unable to predict how long the Proposal One variabilities would continue to be applied. See CHIR 4 Responses, at Response to Question 18). However, updates to the city carrier street model have historically been infrequent. Approximately seven years have passed since the Postal Service updated the city carrier street time model in Docket No. RM2015-7. Order 2792 at 65. The prior update occurred in Dkt. No. R2005-1, using data collected in May and June of 2002.

as volume levels change. Volume changes can produce large changes in variabilities. For example, the two volume types with the most similar marginal times in Professor Bradley's preferred model are DPS mail (with a marginal time of 1.43 seconds) and Sequenced mail (with a marginal time of 1.93 seconds). Yet these two volume types have vastly different variabilities and thus are assigned very different levels of costs (7.73% for DPS as opposed to 1.21% for sequenced mail), primarily due to the large differences in volumes.<sup>7</sup> Professor Bradley demonstrates this feature of variabilities in his report.<sup>8</sup>

The figures below also provide a tangible sense of how variabilities can change as volumes change across days *within* a ZIP code. A benefit of the regression equation estimated by Professor Bradley is that, in addition to calculating marginal times and variabilities at a hypothetical average ZIP code-day observation, it is capable of calculating these important measures for a wide range of volumes and other covariates. In particular, it can be used to calculate marginal times and variabilities for each observation, and more generally at other levels of the relevant variables, as long as they fall within the range of those observed in the sample.

To demonstrate how sensitive the variabilities are to volume levels, UPS external consultants have calculated the variability for DPS volumes and deviation parcel/accountable volumes for each of the 72 days in an approximately average ZIP

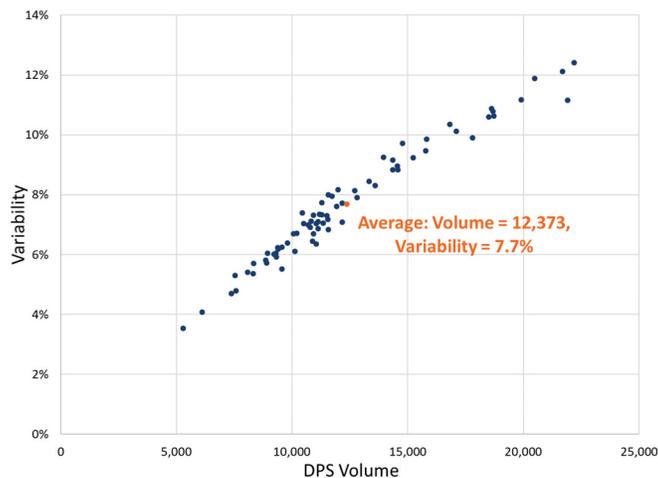
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<sup>7</sup> In Professor Bradley's sample, the average ZIP code-day observation has roughly 18,000 DPS pieces and roughly 2,000 pieces of sequenced mail.

<sup>8</sup> See Bradley Report at 64.

code taken from Professor Bradley’s final regression sample.<sup>9</sup> Figure 1 below plots the resulting DPS volumes and variabilities with respect to DPS volumes, while Figure 2 does the same for deviation parcel/accountable volumes. Both graphs clearly show a strong relationship between volumes and the variability for that type of volume.

FIGURE 1: DPS VOLUMES AND DPS VARIABILITY ACROSS THE 72 DAYS FOR AN EXAMPLE ZIP CODE<sup>10</sup>

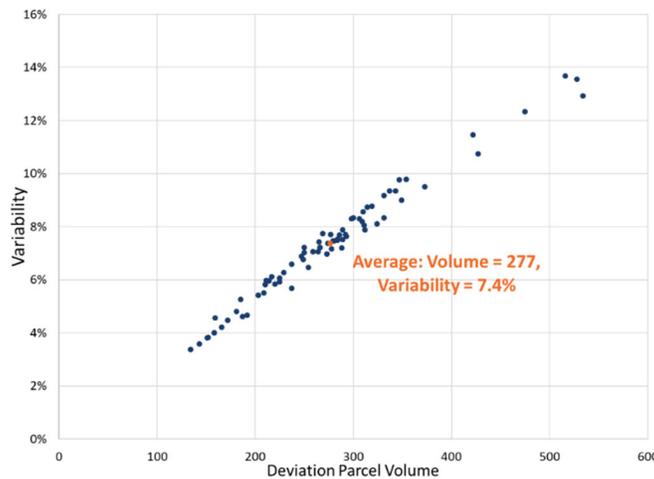


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<sup>9</sup> The selected ZIP code has average DPS and deviation parcel and accountable (“DEVPA”) variabilities that are approximately equivalent to those in Table 23 of the Bradley Report. See Bradley Report at 96.

<sup>10</sup> Analysis by The Brattle Group, using the CRE model ultimately relied upon by Professor Bradley for Proposal One. Each blue dot corresponds to one of the 72 observations for a single ZIP code, and depicts the number of DPS pieces on that day, as well as the variability evaluated for the volumes observed in that ZIP code-day. See UPS-RM2022-3/LR-NP1 for calculation details, including the identity of the ZIP code.

FIGURE 2: DEVIATION PARCEL AND ACCOUNTABLE VOLUMES AND VARIABILITY ACROSS THE 72 DAYS FOR AN EXAMPLE ZIP CODE<sup>11</sup>



Moreover, adoption of the Postal Service’s proposed static approach to calculation of variabilities is especially problematic because the Postal Service has recently experienced rapid and unprecedented changes in volumes and mail mix. In the less than two years that elapsed between calendar year 2019 (the time period used in the analysis underlying Proposal One) and the recently completed fiscal year 2021, domestic market-dominant mail volumes decreased by **9.2%** while competitive product volumes increased by **29.1%**.<sup>12</sup>

These changes mean that variabilities based on calendar year 2019 volumes are *already* outdated for 2021 costing. To demonstrate the implications of volume changes of such magnitudes, UPS’s external consultants have repeated Professor Bradley’s

<sup>11</sup> Analysis by The Brattle Group, using the CRE model ultimately relied upon by Professor Bradley for Proposal One. Each blue dot corresponds to one of the 72 observations for a single ZIP code, and depicts the number of deviation parcels and accountables on that day, as well as the corresponding variability evaluated for the volumes observed in that ZIP code-day. See UPS-RM2022-3/LR-NP1 for calculation details, including the identity of the ZIP code.

<sup>12</sup> United States Postal Service, Revenue, Pieces, and Weight by Classes of Mail and Special Services (FY2021).

variability calculation after adjusting for the approximate volume changes observed since calendar year 2019.<sup>13</sup> Specifically, they calculated marginal times, predicted street hours, and variabilities using mean volumes updated to reflect the average growth in the various volumes between calendar year 2019 and fiscal year 2021. For the purpose of this illustrative analysis, UPS's external consultants use the growth in competitive volume in that period (29.1%) as a proxy for the volume change in in-receptacle parcels and deviation parcels, and the growth in market-dominant volume (-9.2%) as an estimate for the other volume types over that time window.<sup>14</sup> The updated variability calculations are presented in Table 2.

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<sup>13</sup> The updated calculation also incorporates an adjustment to account for the slow growth in delivery points, which would be expected to affect the denominator of the variability calculations (predicted street time). Over the 9 year period between FY 2009 and FY 2018, the number of city delivery points increased by 4 percent, implying annual average growth of 0.44%. See United States Postal Service, Office of Inspector General, Report Number: RISC-WP-20-001, "A Closer Look at Postal Labor Costs" (Dec. 2, 2019), available at <https://www.uspsaig.gov/sites/default/files/document-library-files/2019/RISC-WP-20-001.pdf>.

<sup>14</sup> These growth figures are calculated from the relevant quarterly and annual Revenue, Pieces, and Weight reports. The FY2021 distribution keys attribute 92% and 93% of in-receptacle parcel and deviation parcel volumes, respectively, to domestic competitive products. On the other hand, domestic market dominant products account for 99% to 100% of Cased Mail, DPS, FSS, and SEQ volumes. Similarly, first-class mail continues to dominate the distribution key for collection volumes, with domestic market dominant products accounting for more than 86% of the distribution key for customer collections.

TABLE 2: VOLUME-ADJUSTED VARIABILITIES USING BRADLEY METHODOLOGY<sup>15</sup>

	CY19 (Bradley)	FY21 (Adjusted)
	[1]	[2]
DPS	7.7%	6.9%
Cased Mail	1.4%	1.2%
Sequenced	1.2%	1.1%
FSS	0.6%	0.6%
In-receptacle parcel	3.0%	3.9%
Deviation parcel	7.3%	9.5%
Collection Vol.	1.2%	1.0%

The costing implications of these updated variabilities are substantial. Specifically, as shown in Table 3 below, if variabilities are adjusted to reflect current (FY21) volumes rather than held static based on CY2019 volumes,<sup>16</sup> the volume variable costs attributed to domestic competitive products would be over **\$493 million** higher than under Proposal One.<sup>17</sup> The impact of Proposal One, in terms of increasing

<sup>15</sup> For FY19, variabilities as calculated and proposed by the Postal Service, based on the average ZIP code-day using CY2019 data. For FY21, variabilities calculated after adjusting the average ZIP code-day to account for changes to volume and delivery points between CY2019 and FY2021.

<sup>16</sup> The model reflected in Table 3 also allowed the number of USPS delivery points to grow by 0.44% per year, in line with their long-term trend for city carrier routes as discussed above.

<sup>17</sup> UPS also notes that an alternative calculation based on data provided in Postal Service CHIR responses is presented in UPS Library Reference UPS-RM2022-3\LR NP1. However, UPS has concerns about the reliability of volume totals calculated using the City Carrier Costing System (CCCS) underlying that response. In the Annual Compliance Review, the Postal Service provided its best estimates of mail volume by route type, but was unable to reliably replicate the volume totals using the CCCS and analogous datasets for rural carrier (RCCS) and special purpose routes (SPCCS). Responses of the United States Postal Service to Questions 1-6 of Commission Information Request No. 3, Dkt. No. ACR2021 (Feb. 11, 2022). For example, the Postal Service estimates that in FY2021, the share of domestic competitive volume distributed by city route was 50.1%, the share distributed by rural route was 35.0%, and the share distributed by SPR was 2.1%. These route types are mutually exhaustive and exclusive, but only sum to 87.1% of competitive product volumes. Similarly, for First-Class Mail,

cost attribution for domestic competitive products, would nearly double. Put differently, Proposal One only corrects slightly more than half of the FY21 undercosting of competitive products. Conversely, institutional costs would be more than \$300 million lower, and domestic market dominant costs would also be lower, by more than \$170 million.

TABLE 3: APPROXIMATE COST IMPACT FROM ADJUSTING VARIABILITIES USING FY21 VOLUMES<sup>18</sup>

	City Carrier Costs (\$ Millions)	Including Piggybacks (\$ Millions)
	[1]	[2]
<b>Domestic Market Dominant</b>	-127.4	-173.1
<b>Domestic Competitive Products</b>	355.8	493.7
<b>International</b>	8.4	11.5
<b>Other (Approx. Equal to Institutional)</b>	-236.8	-332.1

Simply put, using stale variabilities significantly understates the costs attributed to domestic competitive products, and significantly overstates both institutional and domestic market dominant costs. This issue is substantial, but can be easily avoided.<sup>19</sup>

the shares sum to only 87.5% (less than 100%). Even so, the alternative calculation based on the data provided in the Postal Service's Feb. 11, 2022 CHIR Responses indicates that there is a substantial costing error caused by the unnecessary freezing of product variabilities at 2019 levels.

<sup>18</sup> Assumes that DPS, Cased Mail, Sequenced Mail, FSS, and Collection Volumes fell by 9.2%, that in-receptacle parcels and deviation parcels and accountables have grown by 29.1%, and that delivery points grew by 0.77% between CY2019 and FY2021.

<sup>19</sup> Using growth rates implied by CHIR 4 Responses, at Response to Question 17, to estimate FY2021 volumes (which have serious reliability concerns as discussed in a previous footnote above), these calculated values are smaller, but still substantial: the volume variable costs attributed to domestic competitive products would be \$238.9 million higher, while domestic market dominant costs would be \$216.1 million lower.

Furthermore, the magnitude and consequences of the static variability error will likely become increasingly significant over time. The changes in volumes between calendar year 2019 and fiscal year 2021 reflect well-established long-term secular trends: shrinking volumes of letters and flats and growing parcel volumes. The Postal Service has stated its belief that traditional mail volumes will continue to decline.<sup>20</sup> Meanwhile, the Postal Service has stated it is targeting additional package business, and expects package volumes to grow due to the substantial investments it is making in service reliability and processing efficiencies.<sup>21</sup>

As one illustration of the potential *future* consequences of the static variability error, UPS's external consultants have calculated adjusted variabilities for a hypothetical average ZIP code-day in FY2026, based on the Postal Service's own projections for volume growth.<sup>22</sup> The resulting variabilities are compared to Professor

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<sup>20</sup> One recent Postal Service projection envisions a 37% decrease in mail volume (excluding packages) between FY2020 and FY2030. See *Delivering For America: Our Vision And Ten-Year Plan To Achieve Financial Sustainability And Service Excellence* (Mar. 23, 2021) ("Delivering for America"), at 42, available at [https://about.usps.com/what/strategicplans/delivering-for-america/assets/USPS\\_Delivering-For-America.pdf](https://about.usps.com/what/strategicplans/delivering-for-america/assets/USPS_Delivering-For-America.pdf). The Postal Service has also acknowledged that mail volumes could decrease by even more as the Postal Service uses new rate authority to raise letter prices more quickly than it has done historically. See *id.* at 46, 50.

<sup>21</sup> See *id.* at 46-47, 49.

<sup>22</sup> See *id.* at 22 ("[W]e estimate the U.S. parcel market to grow 6 to 11 percent annually from 2020 to 2025."). UPS's external consultants take the midpoint of this range and assume that the Postal Service's market share of parcel volume stays constant. In fact, data assembled by the Commission indicate that Postal Service market share of parcel volumes has steadily grown in the era of the Accountability Act. See PRC-LR-ACR2020-10.xlsx. The Postal Service reports projected volumes for total volume (including packages). See *Delivering for America* at 46 (Figure 28). Using the actual volumes in FY 2021, combined with the Postal Service's projected percentage-growth in total volumes, an 8.5% annual growth in package volumes implies a CAGR of -4.4% in market dominant products from FY2021 to FY2026. UPS's external experts rely on these projected growth rates for the purpose of this illustrative calculation.

Bradley’s results in Table 4. Notably, the variabilities with respect to the two types of parcel volumes nearly double.

TABLE 4: VOLUME-ADJUSTED VARIABILITIES USING BRADLEY METHODOLOGY<sup>23</sup>

	<b>CY19 (Bradley)</b>	<b>FY21 (Adjusted)</b>	<b>FY26 (Projected)</b>
	[1]	[2]	[3]
<b>DPS</b>	7.7%	6.9%	5.4%
<b>Cased Mail</b>	1.4%	1.2%	1.0%
<b>Sequenced</b>	1.2%	1.1%	0.8%
<b>FSS</b>	0.6%	0.6%	0.4%
<b>In-receptacle parcel</b>	3.0%	3.9%	6.0%
<b>Deviation parcel</b>	7.3%	9.5%	14.4%
<b>Collection Vol.</b>	1.2%	1.0%	0.7%

The potential long-term costing impacts of applying variabilities based on calendar year 2019 data are illustrated in Table 5. As the Table indicates, the effects of using static variabilities based on CY2019 volume levels could eventually result in an understatement of competitive product of over \$1.6 billion per year. Similarly, in this scenario, domestic market dominant costs would be overstated by nearly \$500 million and institutional costs would be overstated by nearly \$1.2 billion.

<sup>23</sup> CY2019 variabilities as calculated and proposed by the Postal Service, based on the average ZIP code-day using CY2019 data. FY2021 variabilities calculated after adjusting the average ZIP code-day to account for changes to volume and delivery points between CY2019 and FY2021. FY2026 variabilities calculated after adjusting the average ZIP code-day to account for projected changes in volumes and delivery points through FY2026.

TABLE 5: MAGNITUDE OF FY2026 COSTING ERROR IF VARIABILITIES ARE FROZEN<sup>24</sup>

	City Carrier Costs (\$ Millions)	Including Piggybacks (\$ Millions)
	[1]	[2]
<b>Domestic Market Dominant</b>	-344.6	-468.0
<b>Domestic Competitive Products</b>	1,154.2	1,601.4
<b>International</b>	27.3	37.2
<b>Other (Approx. Equal to Institutional)</b>	-836.8	-1,170.7

The exact costing impact of not updating the variabilities ultimately depends on how volumes and time-varying ZIP code characteristics will change in the coming years. It is clear, however, that the potential impacts will be substantial. The results presented in Table 3 illustrate that the impact of the frozen-variability assumption is already sizable, and the experience of the last several years suggests that both foreseen and unforeseen developments will cause significant changes to volumes and costs before the city carrier street time model is likely to be revisited.

Frozen variabilities are particularly problematic in settings where certain cost drivers are increasing while others are decreasing. Moreover, because changes in variabilities influence the *sizes* of the different city carrier variable cost pools, annual updates to distribution keys cannot be expected to compensate for these errors.

In Dkt. No. RM2017-8, the Postal Service and the Commission demonstrated flexibility in modifying the city carrier street time model adopted in RM2015-7 in order to

<sup>24</sup> Projected error in FY2026 city carrier cost attribution when variabilities are “frozen” using CY2019 volumes. Calculated as the difference between costs using CY2019 variabilities and those adjusted based on projected changes to volumes and delivery points. Expressed in FY2021 dollars, assuming that city carrier costs keep pace with inflation. For Piggybacks, the same applies but this column also includes the effect on piggybacked cost pools.

accommodate the effects of increasing package volumes on the mix of activities carried out by city carriers. The Postal Service and Commission should demonstrate the same flexibility here. Specifically, Proposal One should be modified such that the variabilities are recalculated every year, along the lines discussed above and enumerated here:

- Using the DOIS, PTR, and AMS data sources and methods described in the Bradley Report, at 7-8, the Postal Service would calculate mean ZIP Code-day values for volumes and delivery points, covering the 973 ZIP Codes and the corresponding weeks in the data.<sup>25</sup>
- The Postal Service would recalculate variabilities at the mean ZIP Code-day values, as carried out in the SAS program “CRE Model Combined Restricted Quad With Time Effects.sas” contained in the revised version of USPS-RM2022-3-1.
- The variables beginning with the letter “z”, corresponding to ZIP code means, would not be updated, which is consistent with Professor Bradley’s assertion that these volumes are correlated with time-invariant unobserved ZIP code differences in street hours, but do not cause them to change.<sup>26</sup>
- The date fixed effects estimated in the aforementioned SAS program would be used as estimated. As such, the update to the model could be viewed as recalculation of the variabilities as if higher volumes had been observed in CY2019.
- The Postal Service would provide a write-up on the calculation of updated variabilities as part of its annual compliance review filing, for review and comment by the Commission and other parties.<sup>27</sup> The Postal Service would apply the updated variabilities as part of its calculations as provided in the CRA B workpapers filed annually in library reference NP14 and its public version, library reference 32.

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<sup>25</sup> Those are the seven-day periods beginning January 12, February 2, March 23, April 20, May 18, June 8, July 13, August 3, September 21, October 19, November 2, and December 14. In the original dataset, these were all Saturdays, but that need not necessarily be the case in follow-up datasets for the data to be comparable, as long as all six delivery days are represented.

<sup>26</sup> As described below, UPS does not necessarily agree with this view.

<sup>27</sup> For example, the files underlying the calculation, along with a brief write-up, could be provided as part of Library Reference 32 (“CRA B Workpapers”).

Adopting a modified version of Proposal One would result in a city carrier street time model that would more reliably capture the effects of rising parcel volumes on daily variations in *all* street costs, while simultaneously having the flexibility to accommodate the ongoing evolution of volumes delivered by city carriers over the next several years.

## II. PROPOSAL ONE REFLECTS A FOCUS ON SHORT-TERM VARIATION IN COSTS THAT IS TOO NARROW

As demonstrated by the ten different regression models estimated by Professor Bradley and the disparate nature of their results, the statistical relationships between volumes and costs can be measured in a variety of ways.<sup>28</sup> Intuitively, a single piece of additional mail volume, when added to a carrier's daily load, will increase street time by a few seconds in the case of a letter, or more time in the case of a large parcel. However, if the volume changes are large and persistent for several months or years, they can have longer-term effects. For example, the Postal Service will adjust route structures in order to accommodate the volume changes, with routes being added or eliminated. Similarly, the mere presence of certain types of mail can change operational practice.<sup>29</sup> Such changes in operations, whether caused by the *presence* or *amount* of certain types of volumes, are relevant to assessing the effect of volume on costs and should not be ignored.

In the past, the city carrier street time model has measured cost causation based on a combination of these two types of variation, by using a "pooled" model.<sup>30</sup>

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<sup>28</sup> As one example of this disparate nature, Professor Bradley's first model generated a variability of 15.1% for DPS, nearly double the ultimate DPS variability of 7.7%. *Compare* Bradley Report at 65 (Table 11) *with* Bradley Report at 96 (Table 23).

<sup>29</sup> *See, e.g.*, Bradley Report at 82 ("The presence of FSS mail can change operational practice on the street.").

<sup>30</sup> Bradley Report at 50.

“Longitudinal” variation in volume and cost across days within a ZIP code allows a pooled model to capture the effects of small, short-term volume changes on cost. Pooled models also capture the effects of persistent differences in volume on persistent differences in costs, known as “cross-sectional” variation, by comparing across different ZIP codes with very different volume levels.

In the model underlying Proposal One, Professor Bradley departs from Commission preference and precedent in that he controls for unobservable differences across ZIP codes, using panel econometric techniques.<sup>31</sup> Professor Bradley’s rationale for this decision is that these unobservable differences are correlated with volume, and therefore the estimated volume coefficients may be biased;<sup>32</sup> he specifically cites the marginal times on FSS and collection volume mail as being “unreasonably large” when using a pooled model.<sup>33</sup> The specific change he makes is to introduce and rely upon the correlated random effects estimator, which is similar to a fixed effects estimator, except that it is able to assess the extent to which the unobserved cross-sectional differences are correlated with volume. He finds that persistent cross-sectional differences in costs are generally positively correlated with volume.

It is not possible with the available data to assess the extent to which the observed cross-sectional correlations between costs and volumes reflect truly causal volume effects, or mere coincidence. But established practice under the Commission is that persistent cross-sectional relationships between volume and costs are presumed

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<sup>31</sup> *Id.* at 85-89.

<sup>32</sup> *Id.* at 88.

<sup>33</sup> *Id.* at 64, 69, 73, 81, 84.

causal until proven otherwise.<sup>34</sup> The Commission has therefore recommended use of a pooled model, which identifies the causal effects of volume based on a mix of variation across ZIP codes and within ZIP codes.<sup>35</sup> Contrary to this practice, however, Professor Bradley assumes that these cross-sectional correlations are not causal, but instead are caused by unspecified “unobserved” factors.<sup>36</sup>

The addition or elimination of routes within a ZIP code is most likely to occur after a period of sustained changes to volume—changes that typically do not occur within a ZIP code during the typical time period of study (here, one year). Indeed, only 11% of

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<sup>34</sup> See Appendix F to Opinion And Recommended Decision, Dkt. No. R2000-1 (Nov. 13, 2000) (“Appendix F”), at 47, 49, 71. In that docket, the Commission opined that the fixed effects, which as explained below generate results that are equivalent to those under the method used by Professor Bradley in the instant docket, were “an omitted source of volume variability,” and that the variabilities estimated using a fixed effects model did “not account for all sources of volume variable effects on...costs.” In other words, the Commission has opined that estimating volume variabilities with panel models leads to variability estimates that are incomplete.

<sup>35</sup> Professor Bradley has framed the correlated random effects (“CRE”) estimator as a panel data technique that addresses the Commission’s concerns related to fixed effects. See Bradley Report at 87-89. However, this characterization is misleading. In the document cited by Professor Bradley, the Commission concludes that “fixed effects are an omitted source of volume variability,” and that fixed effects approaches do not account for all sources of volume variable effects on costs. See Appendix F at 71-72. As the Postal Service has acknowledged in the instant docket, the coefficients associated with the time-variant volume measures in the estimation of the CRE model are numerically the same as those that would have been obtained with a fixed effects estimation method. See Response of the United States Postal Service to Questions 1-3 of Chairman’s Information Request No. 1, Dkt. RM2022-3 (Jan. 19, 2022), Response to Question 3b. While Professor Bradley has measured the extent to which the unobserved effects are correlated with and arguably caused by mean volumes in a ZIP code, those mean volume effects only factor into the denominator of the volume variability calculation. The volume variabilities calculated under the CRE model are therefore no more complete than they are under a fixed effects approach. The CRE model does not in fact address the Commission’s underlying concerns with the fixed effects model.

<sup>36</sup> See Responses of The United States Postal Service to Questions 1-11 of Chairman’s Information Request No. 5, Dkt. RM2022-3 (Mar. 14, 2022), Response to Question 8 (“In this equation, the coefficients [on the ZIP-Code level mean volumes] measure the correlation between volumes and the unobserved non-volume effects. They do not measure the response of street hours to changes in volume ... they are appropriately interpreted as “contextual” effects.”).

the ZIP codes in Professor Bradley's final sample witnessed a change in the number of routes during calendar year 2019, and it is likely that those changes were in response to longer-term volume trends that manifested over several prior years. Thus the Proposal One non-pooled approach is unlikely to reliably capture the variation in street time that results from secular, longer-term volume trends—variation that *could* be measured if the model worked across ZIP codes as well as within them, by measuring the difference between small-volume ZIP codes and large-volume ZIP codes.

Nonetheless, an additional alternative that could plausibly increase the ability of the non-pooled approach of Proposal One to capture all sources of volume variability would be to evaluate it using a multi-year dataset. Using multiple years of data would provide the Postal Service and the Commission with a more accurate understanding of how and the extent to which volume changes affect route structure and costs, and permit them to look beyond the effect of changes in costs caused by shorter-term fluctuations in volume associated with day of the week and seasonal variation.

There is precedent for using multiple years of data in estimating variabilities. We see this in the model for highway transportation costs.<sup>37</sup> The gains the Postal Service has made in the past several years in assembling consistently collected operational data and using it in costing models should also lower the barriers to developing a multi-year dataset with volumes and costs, perhaps using the same 973 ZIP codes employed in the analysis performed by Professor Bradley for the current docket.

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<sup>37</sup> The model put forth in Docket No. RM2016-12 by Professor Bradley and accepted by the Commission relied on six years of data.

## **CONCLUSION**

The Commission should accept Proposal One only after implementing an adjustment mechanism to reflect the significant changes in volume and mail mix that have occurred since the end of 2019. Despite the significant quantitative and conceptual gains realized through implementation of the top-down model, the “frozen variabilities” issue renders Proposal One outdated before it has even been adopted, materially distorting cost calculations. The continued growth in parcel volumes and continued losses in other volumes will only exacerbate the already-significant costing errors caused by the use of fixed variabilities.

A simple fix to this “frozen variabilities” issue is readily available and detailed above. UPS welcomes suggestions from the Postal Service, the Commission, and other commenters to refine its suggested modification.

UPS also urges the Commission to require the Postal Service to collect and retain data that would permit analysis of an appropriately broader view of cost causation, as discussed *supra*. Collecting additional long-term data would allow the Postal Service to further refine Proposal One in ways that could better capture long-term changes in the Postal Service’s operations.

Respectfully submitted,

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