

UNITED STATES OF AMERICA
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

Periodic Reporting
(Proposal One)

Docket No. RM2022-3

CHAIRMAN'S INFORMATION REQUEST NO. 5
AND NOTICE OF FILING UNDER SEAL

(Issued March 7, 2022)

To clarify the Postal Service's petition to consider proposed changes in analytical principles, filed January 5, 2022,¹ and following up on the responses provided to the Chairman Information Request No. 1 filed January 12, 2022,² Chairman Information Request No. 2 filed February 1, 2022,³ and Chairman Information Request No. 3 filed February 15, 2022,⁴ the Postal Service is requested to provide written responses to the following questions. Answers should be provided to the individual questions as soon as they are developed, but no later than March 14, 2022.

1. Please see Attachment filed under seal.
2. Please see Attachment filed under seal.

¹ Petition of the United States Postal Service for the Initiation of a Proceeding to Consider Proposed Changes in Analytical Principles (Proposal One), January 5, 2022 (Petition). The Petition was accompanied by a study supporting its proposal. See Michael D. Bradley (Bradley Study), *On the Estimation of a Top-Down Model for City Carrier Street Time*, January 5, 2022.

² Responses of the United States Postal Service to Questions 1-3 of Chairman's Information Request No. 1, January 18, 2022 (Response to CHIR No. 1).

³ Responses of the United States Postal Service to Questions 1-4 of Chairman's Information Request No. 2, February 15, 2022 (Response to CHIR No. 2).

⁴ Responses of the United States Postal Service to Questions 1-6 of Chairman's Information Request No. 3, February 22, 2022 (Response to CHIR No. 3).

3. The Bradley Study provides equations for “marginal time for product type ‘j,’” variability, and “percentage response in street time.” Bradley Study at 64. Please also refer to Library Reference USPS-RM2022-3-1, January 5, 2022, folder “Rev01212022”, folder “Directory 2 CRE Model Programs and Results,” SAS program files “CRE Model Combined Restricted Quad with Time Effects.sas,” “CRE Model Combined Restricted Quad Dec.sas,” and “CRE Model Combined Restricted Quad Rand2.sas.” Please provide a thorough breakdown of how the referenced equations are calculated in the abovementioned programs. In your response, please include comments on the summands involving k , the sum of products involving variables such as sqm and pct_cent , and the 0.0138889 multiplier used in the first program mentioned above.
4. Please refer to the Bradley Study and the statement, “[i]n the course of their delivery activities, letter carriers also collect mail from customers’ receptacles. The amount of volume collected is material, so it is important to include some measure of this collected volume to avoid omitted variables bias... Carriers from over one thousand ZIP Codes participated in the collection volume study in a two-week period in January and February 2021.” Bradley Study at 24-25 (internal citations omitted). Please also refer to the Bradley Study that states that “collection volumes vary across ZIP Codes and days of the week, but for each day of the week, for each ZIP Code, the collection volume amount will be the same across all months.” Bradley Study at 36.
 - a. Please explain how the average day-of-week collection volume from a study in a two-week period in January and February 2021 can serve as a good proxy for collection volumes for other months. In your explanation, please discuss how this proxy can address the seasonality associated with collection volumes in different months.
 - b. Please discuss whether any weighting of collection volumes was considered to adjust for seasonality when merging these volumes into the

final panel Delivery Data Set. If not considered, please explain how the proposed methodology accounts for the seasonality of the collection volumes.

5. Please refer to the Bradley Study and the statement that “[i]f there were less than 5 of those other days with non-zero volume, then the remaining data were not sufficient to form the basis for calculating a replacement for the illegitimate days, and the route was removed from the data set. This process eliminated another 37 routes. On the other hand, when there were 5 or more days with non-zero volumes, the average value for the legitimate days was calculated and used in place of the illegitimately reported volumes.” Bradley Study at 28.
 - a. Please explain how the number 5 was chosen as a cutoff point in the referenced quotations.
 - b. Please explain the reason why imputation was attempted in some scenarios and elimination in others, such as in the above example, rather than using elimination in all scenarios.
6. Please refer to Response to CHIR No. 1 question 1.c., which states, “[s]imply put, there are so few observations for which imputation is being applied, that there is no need to test whether the data are missing randomly.” Please explain how the imputation procedures used add to the validity of the proposed methodology and provide the theory and evidence used in support of this claim. In your response, please discuss whether and why the Postal Service considers that the net benefit of imputation outweighs the practical costs (in terms of loss of transparency, increased complexity, etc.) of time and effort required to conduct the imputation procedures.
7. Please refer to Response to CHIR No. 3, question 4.d.i. The Postal Service states that, “[t]he ZIP Codes used for comparison with the FSS ZIP Codes were the non-FSS ZIP Codes. The deployment of FSS machines was not done

randomly. Specifically, the machines were deployed in zones that had high levels of flats volume. Because volumes, by type, are correlated across ZIP Codes, ZIPs that received FSS machines, were large, high volume ZIP codes with high numbers of routes, hours and volumes.” Please confirm that in the proposed methodology, stratifying by FSS ZIP Code costs is essentially a proxy for stratifying by ZIP Codes that receive high number of volumes (and therefore costs).

- a. If confirmed, please also confirm whether the Postal Service considered alternative models which would estimate variabilities for ZIP Codes with different volumes (or costs), *e.g.*, by using indicator variables for different volume (or cost) buckets. If confirmed, please report the conclusions from these alternative analyses and explain why the Postal Service retained the proposed approach. If not confirmed, please explain how ZIP Codes receiving FSS machines would affect street time, all else equal.
 - b. Please discuss the potential issues of stratifying by FSS ZIP Codes for future street time variability updates (assuming this proposal is approved). In your discussion, please consider the fact that the composition of FSS ZIP Codes may change as the FSS machines are phased out of certain facilities.
8. The Bradley Study states that “because the c_i are random variables, there is a possibility that they are correlated with the various volume variables and, if so, the estimated coefficients on the volume variables will be biased.” Bradley Study at 88.
- a. Please confirm whether the inclusion of cluster averages of the volume variables as additional explanatory variables is the only possible way to account for the correlation between c_i and the various volume variables. If confirmed, please explain. If not confirmed, please explain why this particular function of volumes, *i.e.*, cluster averages of the volume

variables, is chosen to account for the above correlation and why, in the specific context of the Top-down model, the use of cluster averages of the volume variables is better than possible alternative functions of volumes.

- b. Please explain whether, and if so, why, Proposal One considers any change in street time induced by a change in the cluster average of mail volume as irrelevant to the calculation of variabilities. In your response, please consider the fact that, for a given ZIP Code, the cluster average of a mail volume changes when the corresponding volume changes.
9. The Bradley Study states that “[t]he correlated random effects model also produces evidence on whether the pooled model suffers from unobserved heterogeneity which is correlated with volume. If so, the variabilities estimated by the pooled model are biased.” Bradley Study at 94. Please confirm whether the unobserved characteristics that are possibly correlated with volume levels can be alternatively accounted for as random intercepts or as ZIP-Code-specific random slopes. If confirmed, please explain why, in the specific context of the Top-down model, the expression of the unobserved characteristics as random intercepts is better than their expression as ZIP Code-specific random slopes. If not confirmed, please explain.
 10. Please provide a reference to a published scientific article in which a CRE model similar to the model proposed is used in the following way:
 - a. The model is employed to calculate the elasticity of the predicted dependent with respect to a time-dependent explanatory variable.
 - b. In the calculation of elasticity in 10.a., the change in the cluster average of the explanatory variable induced by the change in the variable itself is ignored, *i.e.*, it is counted as zero.

11. Please refer to Response to CHIR No. 3, folder “OneDrive_2022-02-22,” folder “RM2022-3,” folder “ChIR 3 Response Attachments,” SAS log file “RM2022.3.CHIR3.Q4b.FSS.nonFSS.txt,” SAS output file “RM2022.3.CHIR3.Q4b.FSS.nonFSS.lst,” and SAS program file “RM2022.3.CHIR3.Q4b.FSS.nonFSS.sas.” Please also refer to Response to CHIR No 3, question 4.b. Please confirm that the program file referenced above does not correspond with the referenced log file, output file, and “Table: Comparison of Means between FSS and non-FSS ZIP Codes in the Analysis Dataset Used in the Top-Down Model” provided by the Postal Service in Response to CHIR No. 3, question 4.b. If confirmed, please provide an updated SAS program file. If not confirmed, please explain the discrepancy between the results of running the program file and the contents of the referenced table, output file, and log files.

By the Chairman.

Michael Kubayanda