

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

PERIODIC REPORTING
(PROPOSAL ELEVEN)

Docket No. RM2016-1

REPLY COMMENTS OF THE UNITED STATES POSTAL SERVICE
REGARDING PROPOSAL ELEVEN
(December 7, 2015)

Order No. 2752 (October 14, 2015) set the dates of November 24, 2015 for Initial Comments on Proposal Eleven, and December 7, 2015 for Reply Comments. The only comments filed on November 24 were those of the Public Representative. The Postal Service hereby replies to the comments of the Public Representative.

Proposal Eleven seeks authorization to change the statistical estimator for revenue, pieces and weight for the digital letter mail sampling in the Origin-Destination Information System - Revenue, Pieces and Weight (ODIS-RPW) system. In general, the Public Representative appears to agree that the proposal is likely to achieve its stated objectives (PR Comments at 3), but also raises several concerns (*id.* at 3-6). As discussed below, however, her concerns provide no valid basis to decline to proceed with the proposal.

For example, with respect to the comment on BDP stratification (PR Comments at 3-4), the BDP stratum "Box and Highway Delivery Points Only" contains a total of only approximately 20 zones for which the Address Management System currently lacks information on residential and business delivery points. Zones currently categorized as "Box and Highway Delivery Points Only" would be classified into other four BDP-based

strata as the information become available. Contrary to her concern, there is no inconsistency.

The Public Representative does identify a typographical error in the Technical Appendix, but overstates the significance of this. As pointed out correctly in footnote 11 on page 4 of the PR Comments, the inequality in (3.10) in Appendix should be a strict inequality and the correct inequality should read:

$$\rho > \frac{1}{2} \frac{(CV \text{ of average EOR Count})}{(CV \text{ of average } 1-C \text{ SP})} \quad (3.10a)$$

However, because all observed correlations were strictly greater than their associated critical correlations, the specified typographical error does not change the Postal Service's conclusion that the proposed ratio estimator is likely to outperform the expansion estimator. Regarding the inclusion of sufficiency in Cochran's theorem 6.2, Cochran does not state (3.10a) as a necessary and sufficient condition, but the sufficiency is evident from the proof on p.157: If $V(\hat{Y}_R) < V(\hat{Y})$, then (3.10a) must hold true. Therefore, there is no error in interpretation of the theorem in this regard.

On page 5, the Public Representative raises the "possibility" that inequality (3.10) may be invalid, suggesting that the Postal Service's filings do not "provide any formal proof that inequality (3.10) is always valid." Contrary to her concern, inequality (3.10a) is always valid for a large sample under the design-based (randomization) sampling theory, as proved in Cochran's book. Aside from the correlation (linear association) requirement in (3.10a), no stochastic relationship about the variation is assumed under the design-based approach because (3.10a) is a necessary and sufficient condition for the variance of the proposed estimator to be smaller than that for the current estimator. The variance under the approach is based solely on the repeated sampling from the

finite population, rather than on the model assumptions (conditions 1 and 2) listed on page 5 of the PR Comments. The Public Representative's reference to Cochran's special conditions for best unbiased linear estimator (BLUE) on p.158 of the Cochran text applies to the model-based sampling theory, which differs from the design-based (randomization) theory upon which the current and proposed methodologies are based. In fact, Godambe (1955) proved that the pursuit of BLUE is not applicable under the design-based sampling theory. See, Godambe, V.P. (1955), "A Unified Theory of Sampling from Finite Populations", Journal of the Royal Statistical Society; Ser. B, Vol. 17, No. 2, pp. 269-278. Therefore, the relative performance of two competing estimators, measured by variance, can be evaluated using the necessary and sufficient condition (3.10a).

On page 5, the Public Representative quotes 39 C.F.R. § 3050.11(b)(1) to the effect that the Postal Service should "where feasible" include an estimate of the impact of proposed changes. She then observes that the Postal Service essentially suggests that, in this instance, no such exercise is feasible, and she does not appear to disagree with that assessment. *Id.* at 5-6. Consequently, there is no basis for her to claim that, to ensure compliance with this portion of the rules, further action should be required ("prior to practical implementation of Proposal Eleven ..., the Postal Service [should] provide the Commission with the additional documentation with estimates of the impact of the proposed change on the relevant characteristic of affected postal products.") The Postal Service has complied with the rule which, as plainly stated in the portion quoted in the PR Comments, is limited to circumstances in which estimation of the impact is feasible.

Nonetheless, in October, 2015, the Postal Service ran the digital and live sampling systems in parallel using 10 percent of the ODIS-RPW sample. The results, as expected, showed no statistical difference between the estimates for First-Class Single Piece letters. The estimated volume using the digital system was 484,944,114 pieces; the 95 percent confidence interval for this estimate was [468,629,896, 501,258,332]. The live tested estimated volume was 498,616,285, and the 95 percent confidence interval was [475,488,767, 521,743,804]. Since these confidence intervals overlap, these two estimates are not significantly different.

Therefore, in accordance with what the Postal Service views as ultimately the basic thrust of the Public Representative's Comments (despite the potential concerns she mentions), the Postal Service respectfully urges the Commission to approve Proposal Eleven.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

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December 7, 2015