

Evaluation of Comments Made on the Postal Regulatory Commission's Proposed  
Density-Related Price Cap Adjustment

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## Introduction

In Order No. 5337, the Postal Regulatory Commission explicitly recognized that the operational structure of the Postal Service renders it susceptible to increases in unit costs caused by exogenous declines in network density. The Commission further recognized that unit cost increases of this type necessarily worsen the financial position of the Postal Service.<sup>1</sup>

The increase in per-unit cost caused by the decline in density is distinguishable from that caused by inflation. Accordingly, the existing price cap system forces the Postal Service to, in the short to medium term, internalize the losses caused by density-driven increases in per-unit cost. The inability of the Postal Service to raise prices to account for these increases in per-unit cost threatens the Postal Service's financial stability by preventing it from achieving net income.

To remedy this structural imbalance, the Commission proposed an adjustment to the price cap formula that would allow for additional rate authority based upon declines in delivery density. The additional rate authority is necessary for the Postal Service's financial health because declines in density increase unit costs relative to unit revenue, reducing the Postal Service's ability to cover its costs.

As the Commission recognized, density declines affect the Postal Service's cost structure both through the associated declines in its volume and through increases in its delivery network. It also recognized that each of these two components of density has

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<sup>1</sup> See, Order No. 5337, Revised Notice of Proposed Rulemaking, Docket No. RM2017-3, December 5, 2019 at 70.

its own impact on costs.<sup>2</sup> It is widely accepted that the need to serve additional delivery points, independent of the amount of volume it handles, increases the Postal Service's costs. In addition, the cost effects of network expansions are not limited to delivery activities. This is because the Postal Service must make more separations when sorting the mail, must transport mail to additional locations, and must deliver to more delivery points as the network expands.<sup>3</sup>

Through the analysis of Christensen Associates, the Postal Service explains that while delivery of the mail to individual addresses is a clear illustration of economies of density, economies of density also arise in the collection, sortation, and transportation of the mail. As the network expands, the coordination of the flow between different delivery points in the network becomes more complex and costly. [Citation omitted.]

Apart from cost effects arising from expansion of the Postal Service's network, declining density can have cost effects through volume declines. Volume decreases have the effect of increasing unit attributable costs because the Postal Service experiences economies of density, and perhaps economies of scale, in different places throughout its network. Consequently, the marginal cost curves for the Postal Service's products are down sloping, meaning that when volume falls, the Postal Service moves up its marginal cost curve, incurring both higher marginal costs and higher average incremental costs. These higher unit costs reduce the difference between Postal Service revenue and cost, and worsen its financial position.

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<sup>2</sup> Id. at 71.

<sup>3</sup> Id. at 65.

A number of parties filed comments on the Commission's proposal of density-related additional rate authority. The Postal Service asked me to review three documents that criticized the Commission's approach and to assess the validity of the arguments made in those documents about the Commission's density-related rate authority proposal. The three documents are an expert report prepared by Dr. Kevin Neels and Dr. Nicholas Powers on behalf of a group of trade associations generally representing direct marketing and nonprofit mailers,<sup>4</sup> comments filed by the American Banking Association,<sup>5</sup> and comments filed by a group of trade associations self-described as the First-Class Business Mailers.<sup>6</sup>

### **The Neels/Powers Report**

The Neels/Powers expert report argues that decreasing density does not require an adjustment to the Postal Service's price cap because density declines do not cause large increases in Postal Service costs.<sup>7</sup> This argument is based upon the premise that increases in the number of delivery points do not cause "large" increases in Postal Service costs.<sup>8</sup> The report then presents an overly simple, back of the envelope,

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<sup>4</sup> See, Expert Declaration of Kevin Neels And Nicholas Powers, *filed with* Comments of the Alliance of Nonprofit Mailers [et al.], Docket No. RM2017-3, February 3, 2020.

<sup>5</sup> See, Comments of American Bankers Association, Docket No. RM2017-3, February 3, 2020.

<sup>6</sup> See, Comments of the National Postal Policy Council, The Major Mailers Association, The National Association of Presort Mailers, and The Association for Mail Electronic Enhancement, Docket No. RM2017-3, February 3, 2020.

<sup>7</sup> See, Expert Declaration of Kevin Neels And Nicholas Powers, Docket No. RM2017-3, February 3, 2020 at 7.

<sup>8</sup> Id.

calculation of the increase in Postal Service costs that its authors expect would arise from a delivery point increase. But there are serious conceptual and implementation issues associated with the presented exercise.

First, the Neels/Powers approach ignores an essential, if not the most important, part of the density issue: the decline in volume. By focusing solely on the cost impact of an increase in delivery points and ignoring the ongoing decline in market dominant volume, the Neels/Powers report necessarily understates the impact of density declines on the Postal Service's financial health. Because of this omission, even if their assertion that increases in the number of delivery points does not have a "large" impact on Postal Service costs were true, it would not be persuasive that a decline in density did not have a material impact on the Postal Service's financial position. Suppose that market dominant volume fell by half and the delivery network stayed the same. Surely, the resulting decline in density would have a material impact on the Postal Service's financial position.

Moreover, by focusing just on the impact of network expansion on delivery costs, the Neels/Powers report again understates the additional cost to the Postal Service associated with serving a larger network that includes more delivery points. Its limited focus means that it ignores potential impacts in other Postal Service functions such as additional sorting responsibilities, additional transportation requirements, or additional postmaster obligations.<sup>9</sup>

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<sup>9</sup> The Neels/Powers report justifies this omission by claiming that delivery points "are not a recognized cost driver of other large cost segments and components." *Id.* It provides no basis for this assertion, but it is inaccurate. Delivery points are explicit cost drivers, for example, for both Postmasters and Intra-SCF highway transportation. In addition, it

In addition, there are also important implementation drawbacks in the approach the Neels/Powers report takes in calculating the limited implications of a density change that it does address. The approach takes a city-carrier street time delivery point elasticity, estimated by the Postal Service in Docket No. RM2015-7, and multiplies it by an assumed percentage increase in delivery points to calculate the percentage increase in delivery costs.<sup>10</sup> But the Neels/Powers approach fails to recognize that the elasticity it applies does not relate to total city carrier delivery time, but rather only to time for which it was estimated, the regular delivery portion of city carrier street time. The estimated elasticity that the report adopts does not apply to either non-volume related allied street time or to parcel/accountable street time. Consequently, it does not represent an estimate of the percentage increase in total street time associated with an increase in delivery points.

At the time of the study, regular delivery time represented 78 percent of total street time and, with the growth in parcel volume in the past five years, it is likely to make up an even smaller proportion today.<sup>11</sup> This discrepancy calls into question the use of the delivery time elasticity for finding the response in all city carrier costs due to increases in delivery points. In the same way, the Neels/Powers application of a city carrier street time elasticity to rural carrier costs is also inappropriate. In sum, the

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fails to account for the fact that there are other **cost** components without accepted **cost-driver models**.

<sup>10</sup> See, Expert Declaration of Kevin Neels And Nicholas Powers, Docket No. RM2017-3, February 3, 2020 at 7.

<sup>11</sup> See, Report on the City Carrier Street Time Study, Docket No. RM2015-7, December 11, 2014 at 18.

Neels/Power calculated costs have sufficient errors, both conceptual and computational, to render them unacceptable for determining whether the impact of declining density on Postal Service costs is large or small.

One other aspect of the Neels/Powers report bears mention. The report argues that the proposed density-related, and other, additional rate authority will cause dramatic declines in volume and a worsening of the Postal Service financial position.<sup>12</sup> To support this assertion the Neels/Powers report calculates a forecasted decline in volume arising from application of additional rate authority, and presents graphs showing what appears to be very large volume declines.

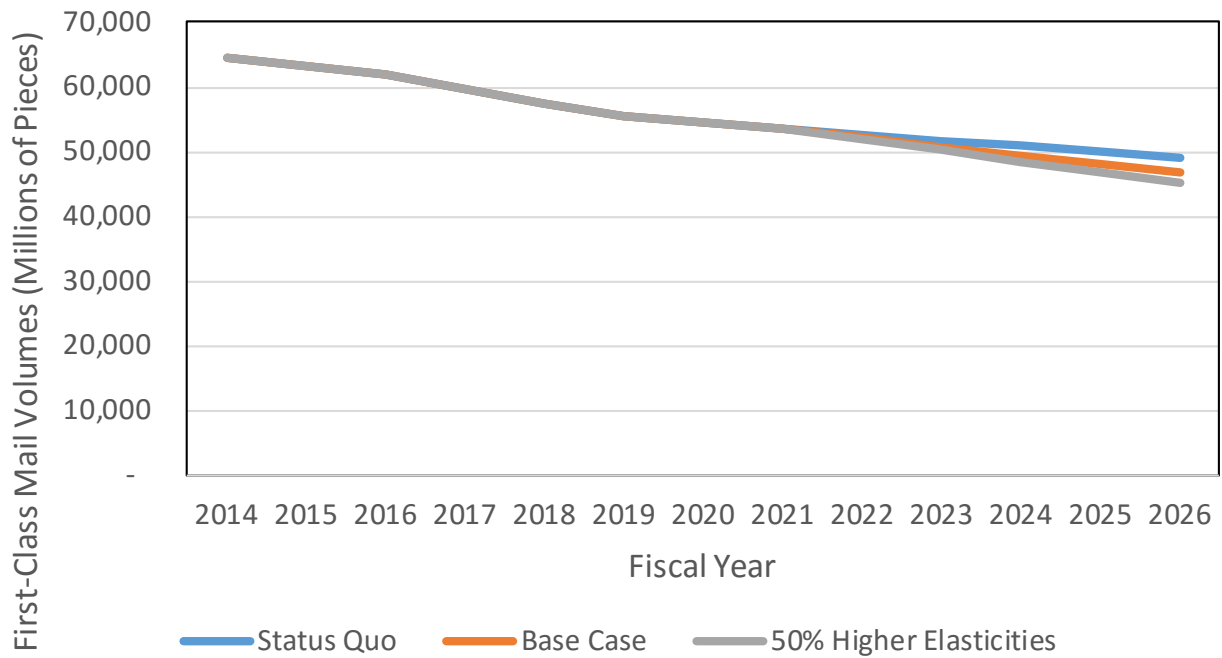
For example, Figure 3 on page 17 of the report shows the decline in First-Class mail volumes under different sets of assumptions about the elasticity response to rate increases. The graph then appears to show the volumes resulting upon use of additional rate authority being driven toward the horizontal axis. Yet closer inspection of the graph reveals that this apparent dramatic decline appears because the vertical axis of the graph is set at 42 billion pieces, not zero. The compressed scale of the vertical axis magnifies the apparent size of the volume decline.

Reproducing the graph, using zero for the horizontal axis, as is normally done, shows a different picture. Figure 1, below, presents the Neels/Powers computed volumes in a graph with a traditional vertical axis. While there are projected volume declines, the impact of the additional rate authority is not as dramatic as the Neels/Powers graphs suggest.

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<sup>12</sup> See, Expert Declaration of Kevin Neels And Nicholas Powers, Docket No. RM2017-3, February 3, 2020 at 15.

Figure1: First Class Mail Volumes Under Different Scenarios



Source: Neels/Powers Scenario Analysis.xlsx, Volume Scenario Tab, Col. J, Col O, Col.T

Perhaps a more direct way of presenting the volume declines is to simply present the numbers. Table 1, below, presents the Neels/Powers calculated First Class Mail volumes for their different scenarios, relative to the “status quo” volumes in which postal rates increase at the rate of CPI growth.



**Table 1: Neels/Powers Calculated First-Class Mail Volumes  
Relative to the Status Quo Volumes**

Year	Base Case	Case with 50% higher elasticities	Case with 100% higher elasticities
2015	100.0%	100.0%	100.0%
2016	100.0%	100.0%	100.0%
2017	100.0%	100.0%	100.0%
2018	100.0%	100.0%	100.0%
2019	100.0%	100.0%	100.0%
2020	100.0%	100.0%	99.9%
2021	99.9%	99.8%	99.7%
2022	99.0%	98.5%	98.0%
2023	98.1%	97.1%	96.1%
2024	97.1%	95.5%	93.8%
2025	96.1%	93.9%	91.6%
2026	95.1%	92.3%	89.3%

*Source: Neels/Powers Scenario Analysis.xlsx, Volume Scenario Tab, Col. J, Col. O, Col T, and Col.Y.*

While all volume declines are serious for the Postal Service, accurate policymaking requires putting any volume decline in proper perspective, particularly when those volume declines are predicated on rate increases that will increase revenue. With inelastic demand, it is likely that a rate increase will increase revenue despite declining volume.<sup>13</sup> Thus, looking at just the volume decline resulting from a rate increase is insufficient to determine the likely impact on the Postal Service financial position. The impact on revenue should also be considered.

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<sup>13</sup> It bears mention that most elasticities for market dominant products are sufficiently small so that even if they were doubled, they would remain in the inelastic range. Moreover, the Neels/Powers report provides no basis for its arbitrary elasticity increases of half again as large, and double. It provides no justification for why these dramatic changes are indicative of the true range of potential variation in the elasticities.

### **The ABA and NPPC et al. Comments**

The American Bankers Association (ABA) comments and the First-Class Business Mailers (NPPC et al.) comments also complain that the Commission's density adjustment formula overstates the impact of density on the Postal Service's finances, and recommend an approach based upon the estimated cost of additional delivery points derived from the Postal Service roll-forward model.<sup>14</sup> The ABA comments suggest using the roll-forward model to estimate the additional cost arising from additional delivery points using current data, and the NPPC et al. comments attempt to produce an estimate of the current cost of additional delivery points using historical data. Both comments argue that the results of an application of the roll-forward model will produce an estimated additional cost which is far less than the additional rate authority calculated by the Commission's proposed approach.

But such a result is to be expected, as the ABA and NPPC et al. approach calculates only part of the impact of a decline in density on the Postal Service's financial position. Both sets of comments ignore the impact of declining volume on density, which is omitting an essential part of the declining-density impact. The Postal Service Office of Inspector General (OIG) has succinctly described why the existing Postal

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<sup>14</sup> See, Comments of American Bankers Association, Docket No. RM2017-3, February 3, 2020 at 11, and Comments of The National Postal Policy Council, The Major Mailers Association, The National Association of Presort Mailers, and The Association for Mail Electronic Enhancement, Docket No. RM2017-3, February 3, 2020 at 30.

Service price cap structure needs to be modified, emphasizing the role of falling volume:<sup>15</sup>

The present price cap formula was not designed for an environment of falling mail volumes. An unstated assumption under a traditional price cap is that volume will remain stable or preferably grow. Growth in the output of products is likely needed to cover costs, particularly in the case of the Postal Service where the network of delivery points is expanding.

The need for additional rate authority does not arise solely from growth in the number of delivery points, as suggested by ABA and NPPC et al. It also arises from the cost impacts of declines in volume per delivery point and accurate evaluation of the overall impact requires accounting for all cost channels. Again, the OIG succinctly articulates the multi-faceted nature of the impact of declining density on the Postal Service:<sup>16</sup>

The fundamental economic issue undermining Postal Service financial stability is declining economies of density. In the postal system, the decline in economies of density can be seen in the continuing reduction in mail volume (and revenue) per delivery point. The decline in economies of density is caused by three key drivers: (1) the increase in the number of delivery points each year; (2) the overall decline in the volume of mail; and (3) the shift in the mail mix away from high contribution First-Class Mail to lower contribution types of mail. The number of delivery points has continued to grow over the past decade. Meanwhile, mail volume has declined. [Emphasis in original, footnote omitted.]

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<sup>15</sup> See, U.S. Postal Service Office of Inspector General, RARC-WP-13-007, Revisiting the CPI-Only Price Cap Formula, April 12, 2013, at iii. Note that an absence of analysis of the implications of volume declines also infects the Neels/Powers report.

<sup>16</sup> Id.

In addition, it is quite likely that the roll-forward approach espoused by the ABA and NPCC et al. understates the part of the density impact that it does try to estimate. This is because the roll-forward approach focuses on the direct impact of additional delivery points on city and rural carrier delivery and does not measure the impact of a larger network on other types of costs, like transportation or postmasters. The roll-forward approach, like the Neels/Powers approach, thus provides an incomplete method for calculating the cost impacts of serving a larger postal network.

The Commission's proposed approach, by using a density measure that includes both volume and the number of delivery points, incorporates the impacts of both volume declines and delivery point increases. It is more general than the ABA/NPPC et al. approach and is better tailored to modify the price cap to account for the impact of density declines.

## APPENDIX

### Brief Summary of Postal Experience for Professor Michael D. Bradley

I am Professor of Economics and Deputy Chair in the Department of Economics at George Washington University, where I have been on the faculty for over thirty-five years. One of my areas of research is postal economics and I have published numerous papers on the subject. Below are examples of that research

- "Measuring Canada Post's Costs: Lessons from the U.S. Experience," Canadian Transportation Research Forum, May 1988, with A. R. Robinson
- "Measuring Product Costs for Ratemaking: The U.S. Postal Service," in Regulation and the Evolving Nature of Postal and Delivery Services, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1992, with J. Colvin and M. Smith
- "Measuring Performance of a Multiproduct Firm: An Application to the U.S. Postal System," Operations Research, June 1993, with D.M. Baron
- "An Econometric Model of Postal Delivery," in Competition in Postal and Delivery Services: National and International Perspective, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1995, with J. Colvin.
- "Issues in Measuring Incremental Cost in a Multi-Function Enterprise," in Managing Change in the Postal and Delivery Industries, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 1997 with J. Colvin and J.C. Panzar
- "On Setting Prices and Testing Cross-Subsidy with Accounting Data," Journal of Regulatory Economics, July 1999, with J. Colvin and J.C. Panzar
- "The Role of the Monopoly Product in the Cost of Universal Service," Future Directions in Postal Reform, M. Crew and P. Kleindorfer, eds. Kluwer Academic Publisher, 2001 with J. Colvin
- "Testing for Anti-Competitive Behavior in Public Enterprises," in Topics in Regulatory Economics and Policy, Vol. 46, November 2004, pp 159-171., with J. Colvin
- Should We Teach an Old Economy Dog New Economy Tricks? The Role of the Postal Service in the New Economy," in The New Economy: How New? How Resilient? Edward Elgar, 2006, 174-196 with D.W. Jansen.

“Measuring Scale and Scope Economies with A Structural Model of Postal Delivery,” in Liberalizing the Postal and Delivery Sector, Advances in Regulatory Economics Series, 2007, with J. Colvin

“An Economic Model of the Regulatory Structure Created by the Postal Accountability and Enhancement Act of 2006,” in Handbook of Worldwide Postal Reform, 2008, with J Colvin and M.K. Perkins

“Estimating the Impact of a Uniform Price Rule in a Liberalized Postal Environment: the Case of the United States Postal Service,” in Advances in Regulatory Economics: “Heightening Competition in the Postal and Delivery Sector” Michael Crew and Paul Kliendorfer, (eds.), 2010, with J Colvin, N. Nieto, and D. Tobias.

Do Volume Increases and Decreases Have the Same Effect on Labor Hours?\* in Advances in Regulatory Economics: Multi-Modal Competition And The Future Of Mail, Michael Crew and Paul Kliendorfer, (eds.), 2012 , J.L. Colvin and M.K. Perkins.

“What’s Past is Prologue: Understanding Developments in North American Postal Markets,” in Reforming the Postal Sector in the Light of Electronic Competition, Michael Crew and Paul Kliendorfer, (eds.) 2013 with J.L. Colvin and M.K. Perkins.

On Alternative USO Financing Mechanisms for the U.S. Postal Market,” in The Role of the Postal and Delivery Sector in a Digital Age, Michael Crew and Tim Brennan, (eds.) 2014, with J.L Colvin, M.K. Perkins.

“Targeting Versus Saturation: Derived Demand for Direct Mail,” in Postal and Delivery Innovation in the Digital Economy,” Michael Crew and Tim Brennan, (eds.) 2015, with J.L Colvin, M.K. Perkins.

“Which Universal Service Obligation Attributes Do Americans Value?” in The Future of the Postal Sector in the Digital World, Michael Crew and Tim Brennan, (eds.) 2016, with Jennifer Bradley, and Jeff Colvin

“Modes of Delivery and Customer Response to Advertising Mail” in The Future of the Postal Sector in the Digital World, Michael Crew and Tim Brennan, (eds.) 2016, with Laraine B. Hope and John Pickett.

“The Personalization and Volume Trade-Off: A Future Without Saturation Mail?” in The Changing Postal and Delivery Sector: Towards A Renaissance, Michael Crew, Pier Luigi Parcu and Timothy Brennan, (eds.) 2017, with Adam Houck.

“Simulating Cost-Effective Parcel Delivery Methods for Postal Services,” in The Contribution of the Postal and Delivery Sector, Pier Luigi Parcu, Timothy Brennan, and Victor Glass (eds.), 2018 with J.L Colvin, M.K. Perkins.

In addition to my academic work I have real-world experience in measuring postal costs. Below are examples of my participation in Commission proceedings relating to postal costs.

<b>Case</b>	<b>Topic</b>
Docket No. R87-1	Calculating costs of purchased transportation
Docket No. R90-1	Analyzing costs of city carrier load time
Docket No. MC91-3	Investigating the existence of a distance taper in postal transportation costs
Docket No. R94-1	Calculating costs of city carrier access time
Docket No. R97-1	Calculating mail processing labor costs.
Docket No. R97-1	Estimating costs of purchased highway transportation.
Docket No. R2000-1	Developing theory and methods for calculating incremental cost
Docket No. R2000-1	Econometric estimation of purchased highway transportation
Docket No. R2005-1	Presented a study of city carrier street time costs
Docket No. R2005-1	Presented the analytical foundations of window service costs
Docket No. R2006-1	Calculating the costs of window service
Docket No. PI2008-3	Calculating the costs of universal service
Docket No. N2010-1	Calculating the costs moving from six-day to five-day street delivery
Docket No. N2012-1	Calculating the cost savings for a mail processing network rationalization

Docket No. RM2014-6	Estimating the relationship between costs and capacity in highway transportation
Docket No. RM2015-7	Presenting a study of city carrier delivery time.
Docket No. RM2016-2	Analyzed alternative methods of calculating attributable postal costs
Docket No. RM2016-6	Estimating the relationship between capacity and volume in highway transportation
Docket No. RM2019-6	Calculating the costs for Special Purpose Route city carriers

In addition to my appearances before the Commission, I have submitted testimony or declarations on postal costs to the President's Commission on the United States Postal Service, The Canada Post Mandate Review, the NAFTA Tribunal on Claims by United Parcel Service against the Government of Canada, and United States District Court for the Northern District of California. I currently serve as the External Methodology Adviser to Canada Post.