

**BEFORE THE
POSTAL REGULATORY COMMISSION**

**Periodic Reporting :
(UPS Proposals One, Two, and Three) : Docket No. RM2016-2**

**PROPOSAL TWO — A PROPOSAL TO CORRECT THE
MISCLASSIFICATION OF FIXED COSTS**

(October 8, 2015)

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I. SUMMARY OF PROPOSAL

The Postal Service should not be permitted to treat costs as “fixed” unless it can demonstrate that they are, in fact, fixed, using sound econometric methods. Dr. Neels has identified 37 cost pools¹ that the Postal Service classifies as fixed but that are actually fully or partially variable, as demonstrated by econometric tests with statistically significant results. See Report of Dr. Kevin Neels Concerning UPS Proposals One, Two, and Three at 45, Table 11 (Oct. 8, 2015) (“Neels Report”). The Commission should require the Postal Service to update its classification of these 37 cost pools and attribute the variable portion thereof to products, including competitive products.

II. BACKGROUND: THE POSTAL SERVICE’S HISTORIC CLASSIFICATION OF “FIXED” COSTS

The Postal Service utilizes a “top-down” costing approach which begins with total known incurred costs in each of its cost segments and then utilizes a mixture of *a priori* assumptions, economic models, and “piggybacking” to attribute some of the costs within each cost segment to certain products.² The costs not attributed are called institutional costs and are addressed through the separate “appropriate share” requirement that is the focus of UPS Proposal Three. See 39 U.S.C. § 3633(a)(3). Fixed costs are

¹ This discussion uses the term “cost pool” to represent either the entire cost component in the case of components that purportedly are entirely comprised of fixed costs, or the portion of a cost component that is purportedly fixed in the case of other types of cost components.

² U.S. Postal Service Office of Inspector General, *A Primer on Postal Costing Issues* at 6 (Mar. 20, 2012), <https://www.uspsoig.gov/sites/default/files/document-library-files/2013/rarc-wp-12-008.pdf> (“OIG Primer on Postal Costing”). The Postal Service typically divides each of its cost segments into components and subcomponents. Each of these components then typically has its own cost model depending on whether the component is considered fixed, variable, or a combination of fixed and variable. See Charles McBride, *Calculation of Postal Inframarginal Costs* at 10 (2014) (“McBride”); Neels Report at 32.

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currently a major component of institutional costs. If UPS Proposal One is adopted, going forward institutional costs should be limited to fixed and common costs.

As Dr. Panzar explained in his recent paper for the Commission, fixed costs are akin to “start-up costs” that measure “the size of jump discontinuities at the origin.” John Panzar, *The Role of Costs for Postal Regulation* at 8 (2014). In other words, fixed costs are the “significant levels of costs that must be incurred in order to produce even a vanishingly small level of output.” *Id.*

It is important that the Postal Service does not overstate its fixed costs because, for the most part, the Postal Service does not attribute fixed costs to products. The Postal Service only attributes “product-specific” fixed costs to individual products, which are a very small category of fixed costs that are considered to be unambiguously caused by a single product. Similarly, for purposes of the Incremental Cost Test, the Postal Service assigns to competitive products as a group a small category of fixed costs (called “group-specific” fixed costs) that are considered to be unambiguously caused by competitive products as a group. The Postal Service reports few fixed costs within these narrow categories.³ It treats the vast majority of fixed costs as wholly institutional and does not attribute them to products.

Since nearly all fixed costs are not attributed to products, the Postal Service must have a sound basis for classifying costs as fixed. The importance of accurately distinguishing between fixed and variable costs has long been recognized:

³ See *OIG Primer on Postal Costing* at 23 (“For most postal products, product-specific fixed cost is a very tiny portion of cost. In fiscal year (FY) 2010, product-specific fixed cost was about 3 percent of total cost.”). Product-specific fixed costs include product-specific advertising, or for Priority and Express Mail, dedicated processing capacity. Dkt. No. 2006-1, Direct Testimony of Dion Pifer, USPS-T-18 at 17 (Aug. 14, 2006).

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in operating a multiproduct business it is important to distinguish those costs that are incurred as a result of processing the goods and services produced, as opposed to the overhead or fixed costs that would exist whether or not the particular item is produced. This kind of knowledge is essential for management cost control and for proper pricing of the products.

Dkt. No. R71-1, Chief Examiner's Initial Decision on Postal Rate and Fee Increases at 13-14 (Feb. 3, 1972) ("R71-1 Decision").

For over four decades, however, the Postal Service has classified costs as "fixed" largely by a subjective process whereby Postal Service personnel opine on the "tendency" of a particular cost to remain fixed in light of changes in volume. *Id.* at 16 ("The Director of the Cost System Task Force was assigned the job of producing estimates of Postal Service's attributable or variable costs. He consulted persons in the Postal Service who were experienced in particular cost areas. *The decision on how to classify a cost segment was based on the judgment of these consultants in the light of the prepared definitions.*") (emphasis added). As the Commission recognized back in 1971, as part of the Commission's first ever rate proceeding: "in applying the definition of 'variable,' [the] Postal Service often accepts results at face value without probing for underlying tendencies." *Id.* at 17.

The chief presiding examiner observed in his 1971 decision that the Postal Service's "tilt is generally in the direction of the institutional classification" over the variable classification. *Id.* at 20. Remarkably, as discussed further below, Dr. Neels' empirical work demonstrates that this "tilt" in favor of misclassifying variable costs as fixed still prevails today.

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Recently, economist Charles McBride again criticized the Postal Service's subjective categorization of costs as fixed, non-fixed, partially fixed, or constant elasticity.⁴ Dr. McBride used 2007 and 2013 ACR data to calculate the distribution of relevant costs per cost segment, including total, attributable, inframarginal, and fixed. McBride at 10. By comparing volume and cost differences across years, Dr. McBride showed that several cost components the Postal Service treated as fixed or partially fixed were not, in fact, fixed at all. He concluded that "several cost components that are now classified as fixed or mostly fixed could be considered to be system-wide indirect costs with their economic variabilities based on system-wide cost variability. A thorough examination of these and other components could lead to lower system-wide fixed costs shares, perhaps by four or five percentage points." *Id.* at 11.

UPS made similar points in the FY 2014 ACR proceedings, based on the limited data and time available. There, UPS presented the results reflected in Figure 2-1.⁵ See Dkt. No. ACR2014, UPS Comments at 12 (Feb. 2, 2015). This figure shows that, as mail volume declined over time, cost segments previously considered fixed also declined in a similar way — a result which raised serious doubts about whether these costs were truly fixed.

⁴ McBride at 8 (Dr. McBride expressed "serious reservations about the lack of a consistent approach as well as documentation for the criteria used by the Postal Service to decide which components would be designated as constant elasticity components and which would not.").

⁵ Volume data in Figure 2-1 comes from the public Revenue Pieces and Weights ("RPW") reports filed by the Postal Service in ACR proceedings. The fixed cost data comes from public Cost Segments and Components reports filed by the Postal Service, and the work-papers to the McBride paper cited above. Cost segments 18.3.4 (workman's compensation) and 18.3.6 (retiree health benefit repayments) experienced large, exogenous shifts in recent years, and so were removed to illustrate more clearly underlying operational cost trends. Inflation adjustments are based on an index reflecting changes in average postal service hourly wage levels.

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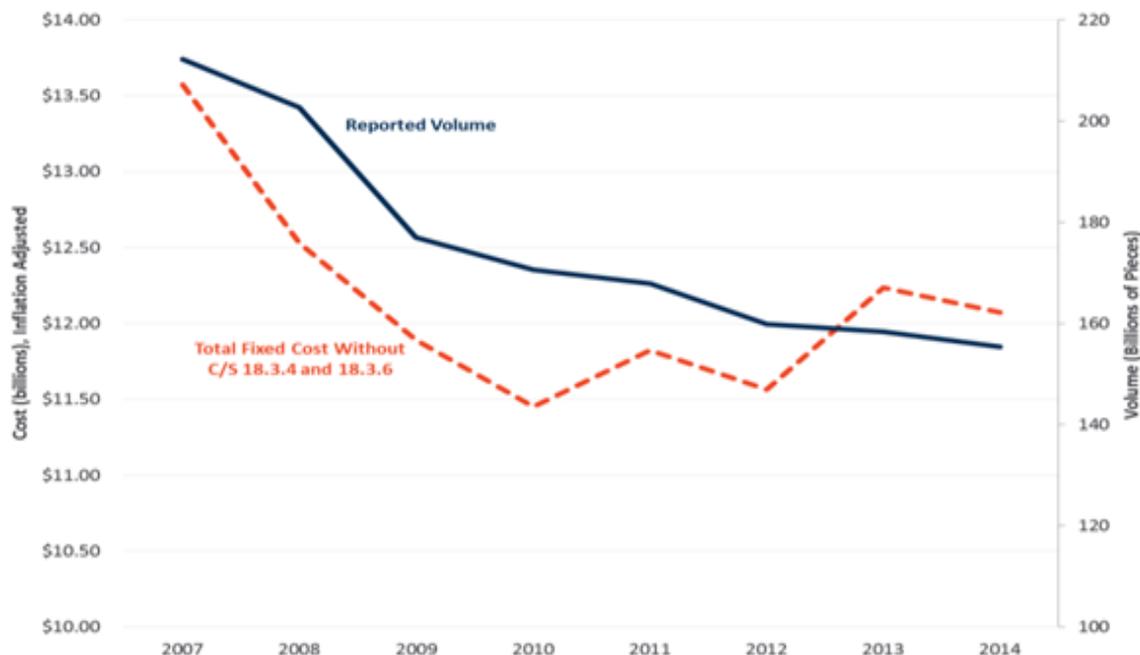


Figure 2-1: Fixed Costs Over Time

With the benefit of additional time and data, Dr. Neels has conducted further analyses and is now able to make concrete proposals for how specific cost components should be reclassified. This work and these results are covered in Dr. Neels' report and summarized below.

III. RATIONALE FOR UPS PROPOSAL TWO

When variable Postal Service costs are erroneously treated as “fixed,” those costs are erroneously not attributed to competitive products. They are instead almost always treated as institutional costs, which are borne disproportionately by the market dominant business. This creates the very subsidy that 39 U.S.C. § 3633 forbids — subsidization of the competitive products business by the market dominant business. Furthermore, this misclassification of costs makes it effectively impossible for the

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Commission to fulfill its responsibility of ensuring that competitive products are generating enough revenue to cover all of the costs attributable to them.

Diagnosing and correcting these flaws is critical in light of the Postal Service's avowed commitment to expanding investments directed to competitive products, at levels previously seen only with First Class Mail investments. See Dkt. No. ACR2014, UPS Comments at 5-7 (Feb. 2, 2015). It is also critical given the Commission's upcoming deadline for reviewing the efficacy of the market dominant rate-making system. 39 U.S.C. § 3622(d)(3). The Commission needs an accurate understanding of fixed costs when it performs this important review.

There is no justification for permitting the Postal Service to continue to rely on its own subjective (and often stale) judgments for the important task of cost categorization. Nor is there any justification for adhering to past classifications of costs as fixed where the data demonstrates the classification is unsound. Under PAEA, the Commission cannot allow the Postal Service to treat costs as fixed in the absence of a reliable demonstration that the costs are actually fixed.

As Dr. Neels explains, the great "natural experiment" of the past seven years provides an opportunity to examine the accuracy of the Postal Service's classification of its costs. Neels Report at 31. This natural experiment arises because, after remaining relatively steady for years, mail volumes have declined significantly in recent years. These volume changes provide a ready-made data set that allows for robust examination of whether the costs the Postal Service claims are fixed actually do or do not remain fixed as volume changes.

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A. Enterprise-Level Analysis

To identify the scope of the problem and to look for systematic patterns, Dr. Neels first conducted an overall analysis of the Postal Service's fixed costs. To facilitate his analysis, Dr. Neels constructed a weighted volume measure, in which each product is weighted by estimates of Postal Service per-unit attributable costs. This measure allows one to control, for example, for the fact that it is more costly to move a Parcel Select package than a first-class envelope. He then applied a linear regression of reported fixed costs against his weighted volume measure to see what proportion of "fixed" costs were actually fixed and what proportion of "fixed" costs were actually variable. *Id.* at 36-37.

Figure 2-2 provides an illustration of his results over the time period 2007 to 2014.⁶ "Reported Fixed Cost" is calculated by subtracting what the Postal Service reports as inframarginal costs from institutional costs. Since institutional costs consist only of inframarginal costs and fixed costs, "Reported Fixed Costs" *should* represent only the truly fixed start-up costs of the enterprise. Dr. Neels' analysis shows, however, that a large portion of what the Postal Service reports as fixed costs is, in reality, composed of variable costs.

⁶ This graph excludes fixed costs associated with cost segments 18.3.4 (workman's compensation) and 18.3.6 (Annuitant Health Benefits and Earned CSRS Pensions), two categories that have experienced large fluctuations in cost that are unrelated to the Postal Service's operations.

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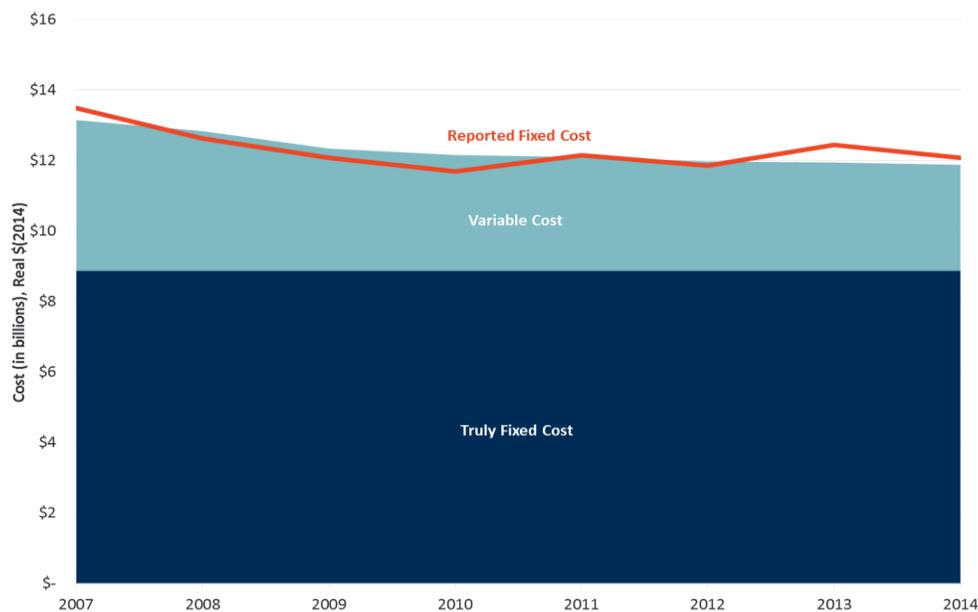


Figure 2-2: Reported Fixed Cost Over Time (Neels Report Figure 11)

Dr. Neels' statistical results are displayed in Table 2-1. These results demonstrate that the Postal Service has misclassified over \$3 billion of variable costs and that it is failing to attribute over \$700 million to competitive products. Neels Report at 50, Table 15.

	Value	Standard Error	t-Stat	P-Value
Constant	8,871,956	997,946	8.8902	0.0001
Total Weighted Volume Coefficient	0.0762	0.0220	3.4634	0.0134
Number of Observations	8			
Adjusted R Square	0.6110			

Table 2-1: Enterprise-Level Regression Results (Neels Report, Table 8)

These striking results indicate that there is a serious problem with Postal Service cost methodologies and confirm Dr. McBride's "serious reservations" about the accuracy of Postal Service cost classifications. McBride at 8. Given these enterprise-

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level results, UPS asked Dr. Neels to conduct a component-by-component analysis of the Postal Service's fixed costs to localize the problem and propose solutions.

B. Component-Level Analysis

Dr. Neels analyzed 84 separate cost components that reportedly have some fixed costs. For each of these components, he started with the reported institutional costs for the component in each year and then subtracted the calculated inframarginal costs for the component in each year, to identify the amount of costs that the Postal Service treats as truly fixed in each year.

Dr. Neels then ran a linear regression model at the component level to determine how the purportedly fixed costs *actually* behave with respect to volume. This analysis shows that, often, the cost component's fixed costs were in reality at least partly variable and often wholly variable. Neels Report at 41-42.

Dr. Neels' results are so one-sided that they confirm the existence of a "systematic bias that tends to overstate the fixed costs of the Postal Service." *Id.* at 42. Dr. Neels calculated that 67 out of the 84 allegedly fixed Postal Service cost pools have a positive relationship between volume and costs, when in fact a "fixed" cost pool should have no relationship between volume and costs. If Dr. Neels' results represented random noise alone, one would expect there to be an approximately equal number of positive relationships and negative relationships: approximately 42 each. That there are instead 67 positive relationships demonstrates that the Postal Service has a systematic tendency to misclassify its costs as fixed and highlights the urgent need for the Postal Service to address its erroneous cost modeling practices.

Out of the 84 cost components Dr. Neels examined, **31** cost components appear, in fact, to be *fully* variable. This is demonstrated by Dr. Neels' finding statistically

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significant tendencies for costs to vary with volume and fixed costs that are statistically indistinguishable from zero.⁷ *Id.* at 45, Table 11. The data shows, in other words, that these 31 cost components apparently have no fixed costs whatsoever. In addition, Dr. Neels found that six other components were only “partially fixed,” with a statistically significant slope indicating the purportedly “fixed” costs in the component include variable costs. *Id.*

As Dr. Neels explains, his statistical results demonstrate that the cost models used for these cost components are clearly incorrect. *Id.* at 47. The Postal Service must develop and implement cost models that more accurately estimate the amount of variable costs associated with these cost components. In fact, given the demonstrated systematic bias of the Postal Service toward classifying costs as fixed, the Postal Service should conduct a review of *all* purportedly fixed costs as soon as possible, including the 30 components that had positive slopes (indicating the presence of variable costs) that were not statistically significant. *Id.* at 45, Table 11. This is, however, a long-term solution that likely could not be implemented as part of the 2015 Annual Compliance Determination.

As an immediate step, the Commission should attribute the newly discovered variable costs to individual products using a robust and readily available approximation. As recommended by Dr. Neels, the Commission should attribute the “hidden” variable costs identified through his analysis to individual products “based on their respective shares of overall attributable costs in the preceding fiscal year.” *Id.* at 46. This is a suitable short-term measure the Commission can use unless and until the Postal

⁷ The regressions for these components yielded a statistically significant positive coefficient on weighted volume and a negative constant term.

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Service is able to develop better costing models. At a minimum, the Postal Service must attribute all of the hidden variable costs for those components listed in Table 12 of the Neels Report, which lists components that are currently wrongly treated as entirely fixed. *Id.* at 47.

IV. IMPACT

Dr. Neels has made a preliminary estimate of the impact of correcting these basic cost misclassifications. Table 2-2 estimates the impact of Proposal Two on the Postal Service's cost attribution practices:

Mail Class [1]	Current Methodology [2]	Hidden Variable [3]	Proposal Two [4]	% of Current Costs [5]
Total Market Dominant (MD) Attributable Costs	28,205	2,649	30,854	109%
Priority Mail Express	366	30	395	108%
First-Class Package Service	1,155	97	1,252	108%
Priority Mail	5,234	380	5,615	107%
Ground	2,472	217	2,689	109%
Competitive International	1,385	-	1,385	100%
Domestic Competitive Services	359	1	359	100%
Total Competitive (CP) Attributable Costs	10,970	725	11,695	107%
TOTAL ATTRIBUTABLE COSTS	39,175	3,374	42,549	109%
OTHER COSTS	34,187	(3,374)	30,813	90%
TOTAL COSTS	73,362		73,362	

Table 2-2: Impact of Proposal Two (Neels Report, Table 15)⁸

⁸ [1], [2]: Mail classes as reported in the FY14 Public Cost and Revenue Analysis (PCRA). Note that these costs differ from Component 460 in FY14 CRA Cost Model B (CRA B).

[3]: Hidden Variable Costs are predicted costs from significant fixed cost regressions and distributed amongst classes used in the fixed cost regressions.

[4]: [2] + [3].

[5]: [4] / [2].