

**BEFORE THE
POSTAL REGULATORY COMMISSION**

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

**PROPOSAL ONE — A PROPOSAL TO ATTRIBUTE ALL VARIABLE
COSTS CAUSED BY COMPETITIVE PRODUCTS TO COMPETITIVE
PRODUCTS USING EXISTING DISTRIBUTION METHODS**

(October 8, 2015)

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I. SUMMARY OF PROPOSAL

Individual competitive products: The Postal Service should attribute inframarginal costs to individual products, including competitive products, using the distribution keys the Postal Service uses to distribute other variable costs to individual products. Accordingly, when the Postal Service reports the costs attributable to individual competitive products, pursuant to the regulations issued by the Commission under 39 U.S.C. § 3633(a)(2), the Postal Service should include all of the variable costs attributable to those products, including inframarginal costs, along with any product-specific fixed costs.

Competitive products collectively: When the Postal Service reports the total costs of its competitive products as a group, pursuant to the regulations issued by the Commission under 39 U.S.C. § 3633(a)(1), the Postal Service should report the sum of the attributable costs of each competitive product, which shall include the inframarginal costs attributable to each product and any product-specific fixed costs, along with the group-specific fixed costs of competitive products. The Postal Service should be required to show that its revenues from competitive products exceed the total of these costs, in addition to passing the Incremental Cost Test currently in place.

II. BACKGROUND: CURRENT POSTAL SERVICE TREATMENT OF MARGINAL AND INFRAMARGINAL COSTS

A. Inframarginal Costs Are a Significant Category of Variable Costs That the Postal Service Does Not Attribute to Individual Products.

Generally speaking, the marginal cost of production is the cost of adding only the last unit of production. In order to attribute costs to products, the Postal Service first divides its costs into various segments and then uses various methods to estimate the marginal cost of a particular cost segment, along with (where relevant) the cost elasticity

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curve applicable to that segment. A constant elasticity cost curve is applicable to many Postal Service cost pools, where, because of economies of scale and scope, the marginal cost of adding one more unit continually decreases as volume increases.¹

The Postal Service's estimation of marginal cost and elasticity yields a model for the marginal cost curve associated with the particular cost segment, as illustrated generally in Figure 1-1.

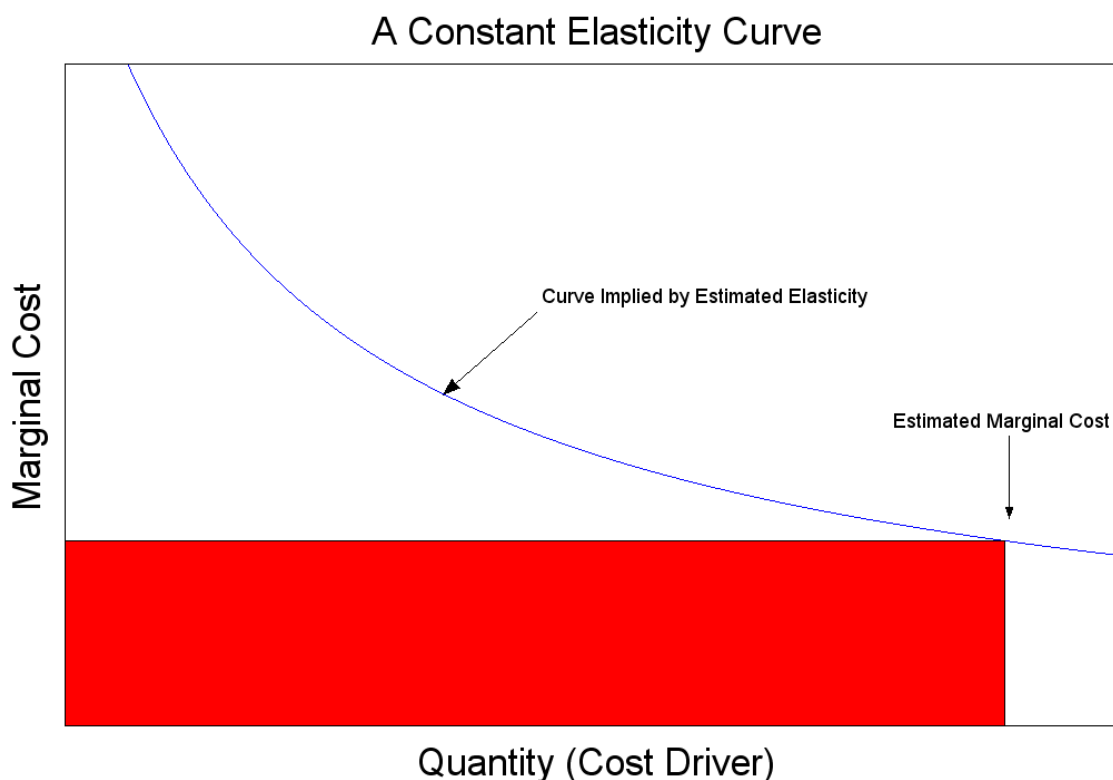


Figure 1-1: A Constant Elasticity Curve²

¹ See Charles McBride, *Calculation of Postal Inframarginal Costs* at 5 (2014) (“McBride”) (“The constant elasticity function plays a major role in postal costing because it is a simple one-parameter function that can reflect the economies of scale and scope inherent in many postal activities.”).

² The horizontal axis in this figure measures the quantity of the cost driver employed at current levels of operation. Creating marginal cost curves for a multi-product enterprise is difficult, given the need to account for differences in cost content across products, the potentially complex ways in which product interactions can influence cost, and the difficulty of depicting multidimensional relationships

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The “marginal cost rectangle,” *i.e.*, the red rectangle in Figure 1-1, is currently the centerpiece of Postal Service cost attribution. It is calculated by multiplying the marginal cost of production and the overall cost driver. The Postal Service distributes the marginal cost rectangle among the various individual products by using established tools for assigning cost drivers to products called “distribution keys.”³ Figure 1-2 illustrates how this works, using an example with four products.

graphically. To address this problem, the Postal Service often adopts the simplifying assumption that a cost driver specific to a particular cost pool can adequately capture the relative cost-causing characteristics of the different products. For example, a package might take on ten units of cost driver per package while a letter might take on only one unit of cost driver per letter. The characteristics of the cost drivers for a particular cost pool are determined by one of several extensive sampling systems. For example, the In-Office Cost System (IOCS) is used for mail processing, supervision, and in-office city carrier costs; the City Carrier Cost System (CCS) is used for city carrier costs; the Rural Carrier Cost System (RCCS) is used for rural carrier costs; and the Transportation Cost System (TRACS) is used for transportation costs. See U.S. Postal Service Office of Inspector General, *A Primer on Postal Costing Issues* at 17 (Mar. 20, 2012), <https://www.uspsoig.gov/sites/default/files/document-library-files/2013/rarc-wp-12-008.pdf> (“OIG Primer on Postal Costing”).

³ Each “distribution key is based on characteristics of the mail that reflect the cost drivers of the variable costs, such as time spent handling the mailpiece or space taken up on a truck.” OIG Primer on Postal Costing at 18.

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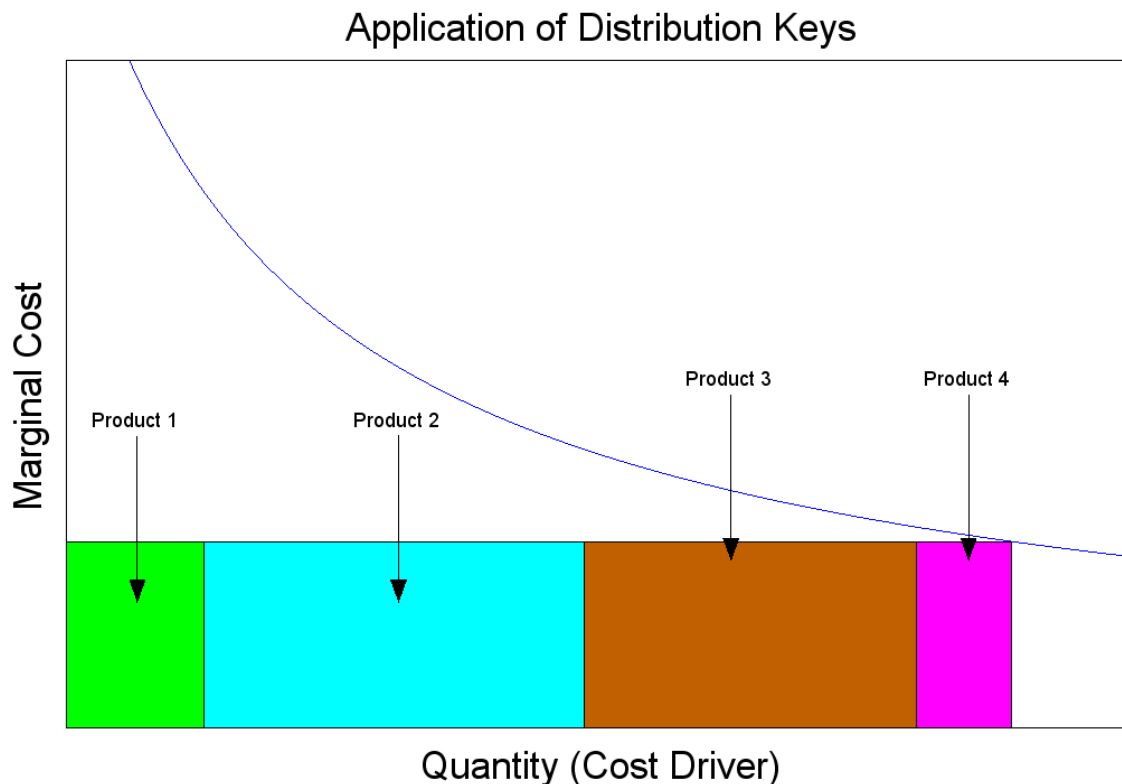


Figure 1-2: Application of Distribution Keys

By limiting attribution to the marginal cost rectangle, the Postal Service effectively assumes that the cost associated with adding the *last* unit of mail is identical to the cost associated with adding *each and every* unit of mail. Such an assumption is reasonable only when marginal cost is constant with respect to all volume levels. But when marginal cost is not constant and instead declines as the level of volume increases, as in many Postal Service cost segments, this approach is unreasonable and inaccurate. As the curve of the above figures shows, the costs associated with delivering every other mailpiece is higher than the marginal cost of adding the last piece.

As a result of this practice, the Postal Service's methodology fails to attribute large amounts of variable costs to products. Specifically, as one can see from Figure 1-2, the existing methodology does not attribute those variable costs that are below the

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marginal cost curve but above the marginal cost rectangle. These unattributed costs — called “inframarginal” costs because they are found “below” the marginal cost curve — are variable costs that arise when, because of economies of scale or scope, the cost of adding the “last unit” is lower than the cost of adding any of the preceding units.⁴

Inframarginal costs, by definition, are all of the variable costs incurred by the Postal Service in a given cost segment other than those in the marginal cost rectangle.

A hypothetical example illustrates the concept.⁵ Suppose that the costs of delivering mail are \$100 for one letter, \$125 for two letters, \$130 for three letters, and \$132 for four letters, reflecting economies of scale and a lower “per unit” cost as volume increases.

Letters	Marginal Cost	Total Cost
1	100	100
2	25	125
3	5	130
4	2	132

In this example, the fixed cost is \$100, which represents the start-up costs of the enterprise. The marginal cost is \$2, as it costs \$2 extra to deliver the fourth and final letter. Under the Postal Service’s current methodology, only this \$2 multiplied by the

⁴ The Postal Service applies a variety of economic cost models to its various cost pools. Some cost pools are considered wholly fixed, and others are fully attributable. Inframarginal costs do not arise for either of those two types of cost segments. As noted, inframarginal costs primarily arise in “constant elasticity” cost segments, such as City Carrier Street Time. The complexity of Postal Service costing and the variety of models applied to various cost components partially explains why the concept of inframarginal costs has not been well understood to date.

⁵ This is a simplified version of the example given in the Inspector General’s Primer on Postal Costing. See OIG Primer on Postal Costing at 14, Table 1: Marginal Cost Example. While this example uses “letters,” the point applies to any type of mailpiece, including parcels. Dr. Neels provides another example. Neels Report at 14-15.

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total number of units (in this example, \$2 X 4 letters = \$8) would be attributed to products using the distribution keys. In other words, the Postal Service would act as if it cost only \$2 to deliver *each* of the four letters. It would do so despite the fact that this is plainly untrue; the additional cost of delivering the third letter, for example, is \$5.⁶ The Postal Service would *not* attribute to products any of the variable costs incurred before the last unit. In this example, those inframarginal costs would be \$24 (*i.e.* \$132 - \$100 - \$8). Thus, the Postal Service would attribute to products only \$8 out of a total of \$32 in variable costs. It would ignore \$24 of variable costs.

The cumulative volume of these unattributed variable costs is large. Figure 1-3 shows a “constant elasticity” marginal cost curve displaying costs associated with a large Postal Service cost pool, City Carrier Street Time, as estimated by Dr. McBride.⁷

⁶ Similarly, in the Marginal Cost Example from the OIG Primer on Postal Costing, the Postal Service would attribute to products *only* the marginal cost of delivering the letters (\$.05 times 400), acting as if the cost of delivering each letter along the way was \$.05, even though this clearly is not the case.

⁷ The financial figures come from McBride at 9, Table 3: Summary of FY 2013 Segment Costs (2014).

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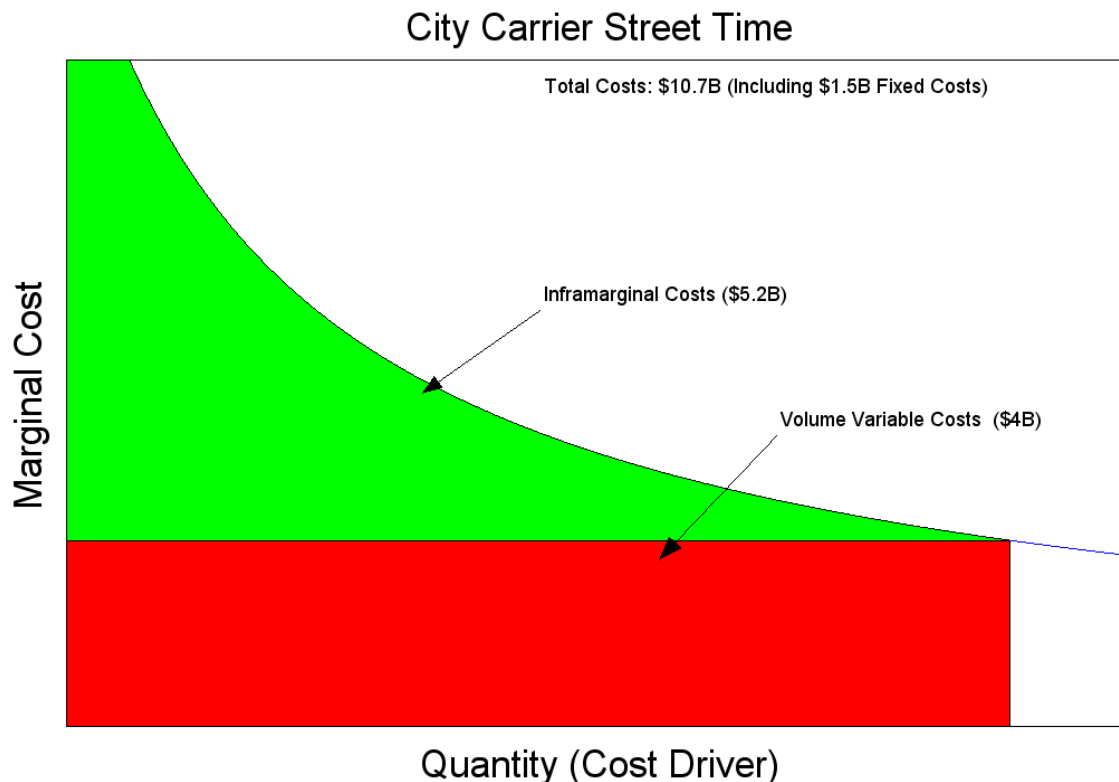


Figure 1-3: City Carrier Street Time⁸

The marginal cost rectangle of the segment is represented by the red rectangular area on the diagram, with the right-most edge of the rectangle reflecting the operational volume level of the Postal Service. As noted, the costs of this red rectangle are today distributed to individual postal products using established distribution keys.

The *total* variable costs associated with this cost segment, however, comprise the *full* area under the marginal cost curve (*i.e.*, the green area + the red area). The green area corresponds to the unattributed inframarginal costs in this cost segment. As

⁸ This figure depicts the culmination of a series of modeling steps which are particularly complex in this component – steps that are not relevant to the point made here. The figure also omits the fixed costs associated with City Carrier Street Time. Fixed costs, or the “start-up costs” associated with any volume at all in the cost segment, constitute “jump discontinuities at the origin.” John Panzar, *The Role of Costs for Postal Regulation* at 8 (2014) (“Panzar”). Fixed costs are not associated with volume and thus are not included on the marginal cost curve.

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Figure 1-3 shows, total variable costs are far greater than just the marginal costs. In this City Carrier Street Time example, \$5.2 billion of variable costs were not attributed to individual products.

To some extent, the Postal Service's massive understatement of variable costs may be obscured by confusing and misleading terminology. The Postal Service today claims it is attributing all "volume variable costs" to products. But it is only able to make that claim because it uses the term "volume variable costs" to refer only to the marginal cost rectangle (that is, the product of *marginal* cost and volume).⁹ In other words, the Postal Service has defined "volume variable costs" in a way that plainly excludes an important category of variable costs. As Dr. Neels observes: "It is important to note that the Postal Service's measure of volume variable costs does not correspond to the economic concept of variable cost." Neels Report at 9. Dr. McBride too has observed that "the term volume variability is unique to the USPS, and its value is often less than total volume variability in the economic sense."¹⁰

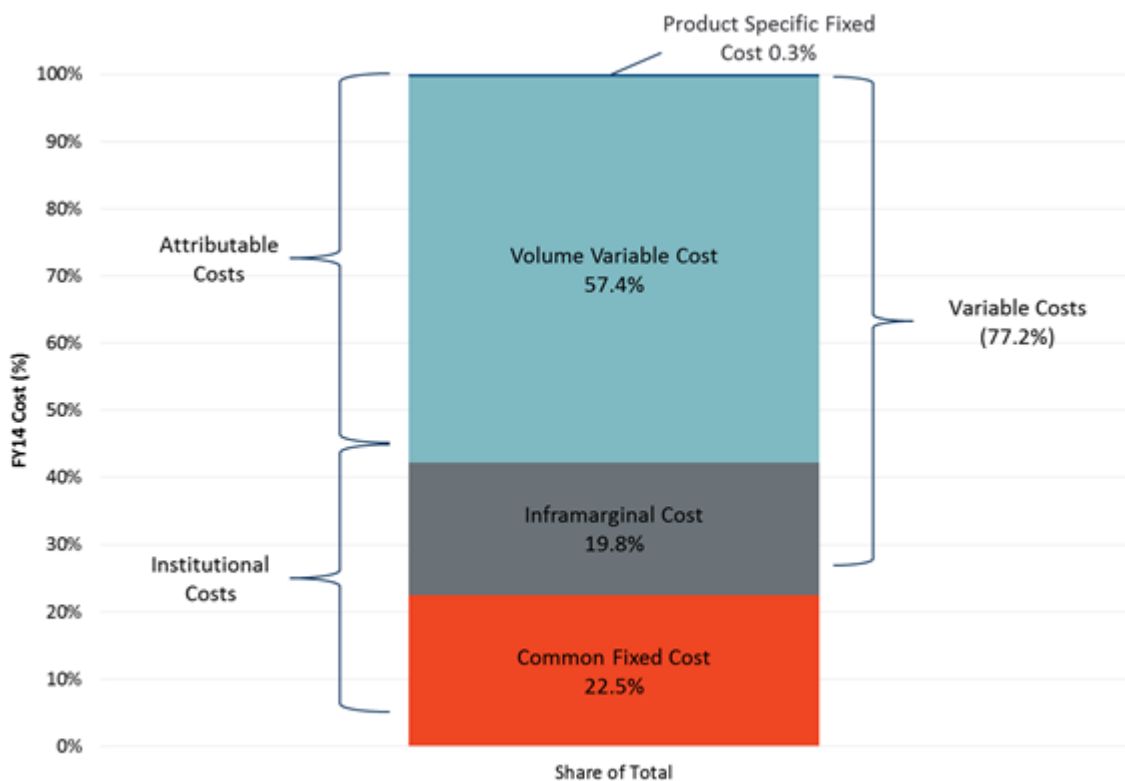
Similarly, the Postal Service professes to calculate the "variability" of its cost pools. But that term, as used by the Postal Service, does not correspond to the percent of costs in the pool that are actually variable; rather, it corresponds only to the percent of total costs that are in the marginal cost rectangle (*i.e.*, that are "volume variable").

⁹ As far back as 1987, the Postal Service introduced the terminology "volume variable" to describe the mathematical product of marginal cost and volume. See, *e.g.*, Dkt. No. R87-1, Direct Testimony of William Baumol at 34 (May 7, 1987); *id.* at 35 (equating marginal costs to variable costs); *id.* at 40 (defining "volume variable" as equating to marginal costs); *id.* at 50 (same). The use of this misleading terminology may have arisen because the role of inframarginal costs in postal costing was not well understood for many years. This may be because, for a period of time, the Postal Service did not understand that many of its cost components were best modeled by a constant elasticity cost curve.

¹⁰ McBride at 12; see *also id.* at 1 n.2.

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The Postal Service's narrow definitions of "volume variable" costs and "variability" dramatically understate the true amount and proportion of its costs that vary with volume. In fact, approximately *half* of what the Postal Service currently classifies as institutional costs (costs that are often assumed to be fixed overhead costs that do not vary with volume) are actually variable costs, as illustrated by Figure 5 from Dr. Neels' Report:



Source: PCRA, CRA Matrix B, McBride. Excludes Component 203: Annuitant Health Benefits - Pre-Funded (Prior).

Figure 1-4: Breakdown of Fixed and Variable Costs (Neels Report, Figure 5)

B. The Postal Service Accounts for Only a Small Sliver of Inframarginal Costs When Reporting the Total Costs of Competitive Products as a Group.

While it does not attribute any inframarginal costs to *individual* products, the Postal Service accounts for a very small amount of inframarginal costs when reporting

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the “incremental” costs of competitive products *as a group* pursuant to the Incremental Cost Test established by the Commission under 39 U.S.C. § 3633(a)(1).

The Incremental Cost Test, which is the sole test the Commission currently requires under 39 U.S.C. § 3633(a)(1), attempts to estimate the costs that would disappear if the Postal Service discontinued the sale of all competitive products, but maintained the sale of all market dominant products. Those estimated costs are then compared against the total revenues the Postal Service earns from all competitive products. This test addresses an important question: would the customers of market dominant products be better off if the Postal Service exited the competitive products business? If the Postal Service fails this test, then market dominant mailers are *worse off* because of the Postal Service’s expansion into competitive markets.

Since the test is concerned with the impact of the Postal Service exiting the competitive products business, it proceeds by subtracting the costs of competitive products from the tail end of the constant elasticity curve (that is, by moving from right to left along the curve). Accordingly, market dominant products are assumed to come “first” on the curve and competitive products are assumed to come “last.” This approach results in a very small sliver of the least expensive inframarginal costs (*i.e.*, those at the end of the curve) being assigned to competitive products as a group for purposes of this test.

The relevant concepts can be seen in Figure 1-5, which displays the cost allocation under the current “Incremental Cost Test” to a constant elasticity cost segment.

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The Incremental Cost Test

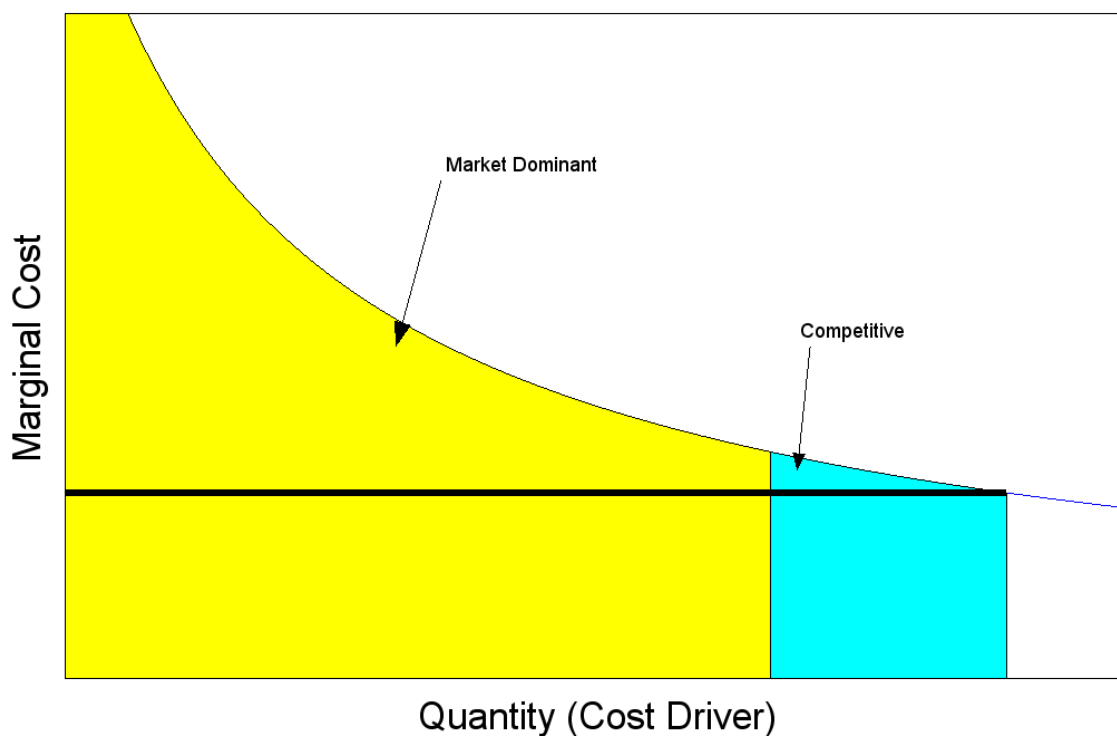


Figure 1-5: The Incremental Cost Test

In this example, the blue costs are assigned to competitive products as a group. The Incremental Cost Test, as applied by the Commission, compares the costs in the blue area to the revenues generated by all competitive products.

As discussed further below, while it does address the important question of whether customers of market dominant products would be better off if the Postal Service exited the competitive products business, the Incremental Cost Test does not address all of the relevant questions under 39 U.S.C. § 3633. In particular, it does not address the question of whether competitive products are covering all of the variable costs that can be reliably attributed to those products. This is because, as Figure 1-5 illustrates, the Incremental Cost Test assigns the “more expensive” variable costs associated with earlier units of volume to market dominant products and the least

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expensive variable costs associated with later units of volume to competitive products. By doing so, the test assumes that the market dominant products are funding the infrastructure that creates economies of scale, and then competitive products are riding for free (or nearly free) by covering only the tail-end of the marginal cost curve. The significance of these ordering assumptions is discussed further below.

III. RATIONALE FOR UPS PROPOSAL ONE

A. Inframarginal Costs Must Be Attributed to Individual Products Under PAEA.

PAEA requires the Postal Service to attribute to competitive products all “attributable costs,” 39 U.S.C. § 3633(a)(2), which are defined as the “direct and indirect” costs that are “attributable through reliably identified causal relationships,” 39 U.S.C. § 3631(b). PAEA’s definition of attributable costs has been carried over from the prior statute, the Postal Reorganization Act. 39 U.S.C. § 3622(b)(3) (amended in 2006).¹¹

Under the plain language of PAEA, as informed by (i) the legislative purpose, (ii) the structure of the Act, and (iii) longstanding cost attribution principles recognized by the Commission, the Commission must require the Postal Service to attribute inframarginal costs to individual products, including competitive products.

¹¹ The meaning of this language is informed by the Supreme Court’s prior interpretation of PRA’s costing mandates. See S. Rep. No. 108-318 at 9 (2004) (“The current analysis [of attributable costs] has been guided by a Supreme Court decision, *National Assoc. of Greeting Card Publishers v. USPS*, 462 U.S. 810, 829-34 (1982) [*NAGCP IV*], that carefully analyzed how the term attributable should be interpreted.”). See also note 13, *infra*.

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i. Inframarginal Costs Should Be Attributed to Products Under Longstanding Principles Recognized by the Commission.

Inframarginal costs are variable costs — they are causally related to volume. The Commission has recognized this fact. See Solicitation No. PRC-2014-2, RFP re: Study of Postal Service Institutional Cost at 4 (May 22, 2014) (“Commission RFP”) (“[Inframarginal] costs are causally related to volume and, in total, increase or decrease as volume increases or decreases.”). Dr. Neels confirms that, if the level of a cost driver¹² associated with a certain cost component were to decrease, inframarginal costs would decrease, and vice versa. Neels Report at 16. See also *id.* at 18 (“[T]he total amount of inframarginal cost in a component is directly related to the total amount of the cost driver(s) of a component . . .”). This demonstrates that inframarginal costs are directly tied to changes in the volume of products sold by the Postal Service.

The Commission has also recognized that variable costs should be attributed to products. See Commission RFP at 4 (noting that, since inframarginal costs are variable costs, “these costs can be included in the direct cost of a product”). Indeed, from the first rate case it heard in 1971, the Commission recognized the key inquiry for attribution is whether a cost is fixed or variable. See Dkt. No. R71-1, Chief Examiner’s Initial Decision on Postal Rate and Fee Increases at 12 (Feb. 3, 1972) (“R71-1 Decision”). Thereafter, the causal nature of variable costs has traditionally been the “cornerstone” of the Commission’s economic theory of cost attribution. See, e.g., Dkt. No. R80-1, Opinion and Recommended Decision on Postal Rate and Fee Changes, Appendix B,

¹² As noted above, “cost drivers” are measures of volume tailored to the specific cost pool under consideration. See note 2, *supra*.

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Historical Development of Costing Principles at 26 (Feb. 19, 1981). As the Commission explained then:

That variability with volume should be sufficient to establish causality is not difficult to understand. It is almost tautological. A variable cost is one that will change because of a change in the volume of a class of mail. A finding of variability is thus simultaneously a finding of causation.

Id.

This principle applies directly to inframarginal costs — these costs are variable costs that change *because* of a change in the volume of a class of mail. The finding of variability inherent in inframarginal costs is thus “simultaneously a finding of causation.”

Id. Accordingly, the Commission must now fulfill its long-recognized “statutory duty,” Dkt. No. R94-1, Opinion and Recommended Decision on Postal Rate and Fee Changes at III-44 (Nov. 30, 1994), to ensure that the Postal Service attributes inframarginal costs.¹³

ii. Attributing Inframarginal Costs to Competitive Products Is Even More Critical Post-PAEA.

Attributing inframarginal costs to products is also necessary to abide by Congress’ legislative purpose in PAEA. If the Postal Service is allowed to disregard large volumes of variable costs when setting prices for its competitive products, then it is allowed to compete unfairly, on a playing field that is heavily tilted in its favor. It is

¹³ The Supreme Court has interpreted the substantively-identical precursor to 39 U.S.C. § 3633(a)(2) to require that the Commission attribute any cost that it determines is causally linked to a specific product. *NAGCP IV*, 462 U.S. at 833 (“The statute’s plain language and prior legislative history, discussed above, indicate that Congress’ broad policy was to mandate a rate floor consisting of all costs that could be identified, in the view of the expert Rate Commission, as causally linked to a class of postal service.”); see *a/so* S. Rep. No. 108-318 at 9-10 (“The Committee finds no reason for changing [the] standard [enunciated by the Supreme Court in *NAGCP IV*.]”).

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simultaneously unable to ensure itself or the public that it is operating profitably or avoiding subsidization. This approach is directly contrary to PAEA's commands.¹⁴

The Postal Service's massive understatement of attributable costs allows (and even encourages) the Postal Service to set prices for its competitive products below the actual costs of those products. Specifically, the Postal Service is setting prices based on the demonstrably false assumption that the cost of *each* unit of its competitive products is only the cost of the *last* unit of production. In this way, the Postal Service can set prices for competitive products that do not take into account the full set of variable costs caused by those products. This result is not just financially irresponsible; it is intolerable under PAEA.

More broadly, the Postal Service's failure to attribute inframarginal costs to competitive products effectively gives to those products nearly all of the cost savings of the Postal Service's economies of scale and scope. Competitive products are only required to bear the lowest variable costs — marginal costs. Captive mail customers are left to pay for the more expensive variable costs. This cost-accounting approach effectively gives competitive products nearly a free ride on a network funded by captive mail customers. In addition to unfairly burdening those mail customers, this approach allows the Postal Service to be far less efficient than its private competitors, while setting prices in ways those private competitors would find impossible. This type of

¹⁴ The plain language of PAEA compels the attribution of both "direct and indirect postal costs" that can be reliably be attributed to individual products. 39 U.S.C. § 3631(b). As shown above, inframarginal costs are the direct variable costs caused by products for every product delivered by the Postal Service except for the very last product delivered. Thus, they must be attributed to products. But even if inframarginal costs somehow did not qualify as "direct" costs, PAEA embraces attribution of "indirect" costs as well, demonstrating that Congress intended robust attribution of variable costs to products.

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conduct fundamentally distorts competition, and it is precisely what Congress sought to avoid in PAEA.¹⁵

iii. The Commission Has Properly Rejected the Postal Service's Attempts to Limit Attribution to Marginal Costs.

The Postal Service's failure to attribute inframarginal costs to products rests on its apparent view that the only variable costs that need to be attributed to products are marginal costs. This position is wrong, for reasons the Commission has previously explained.

In fact, the Commission criticized the Postal Service's exclusive focus on marginal cost long before PAEA. In a 1997 docket, the Commission emphatically rejected the exclusive use of marginal cost as a cost floor, with reasoning that applies directly to this petition:

Marginal costs are an important subset of attributable costs, but the Commission cannot agree that marginal cost is all that is meant by the term "attributable." . . . The framers of the Act knew about and could have used the concept of marginal costs, but they did not. . . . In interpreting this language, ***the Commission continues to believe that the authors of the Act intended "attributable" to mean more than just marginal cost. If they had meant marginal cost, they would have said so.***

Dkt. No. R97-1, Opinion and Recommended Decision on Postal Rate and Fee Changes at 233 (May 11, 1998) (emphasis added).¹⁶

¹⁵ See, e.g., Dkt. No. MC2015-7, Order No. 2686, Joint Dissent of Acting Chairman Robert G. Taub and Vice Chairman Tony L. Hammond at 13-14 (Aug. 26, 2015) ("[O]ne of the purposes of the PAEA is to ensure that the Postal Service does not undercut its competitors by improperly leveraging a network paid for by monopoly products. The Act's primary safeguard for ensuring this is section 3633....").

¹⁶ Previously, the Commission had observed that a marginal cost approach will miss "clear causal relationships" between volume and cost if "they are not observed at

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Despite this powerful rejection of the Postal Service's practice of attributing only marginal costs to products, the Postal Service still maintains that practice today. It continues to attribute to individual competitive products only their respective portion of the marginal cost rectangle (and a trivial amount of product-specific fixed costs).

The practical effect of this narrow focus on marginal cost is that the Postal Service attributes very few costs to parcels. For example, in the Postal Service's recently proposed model for City Carrier Street Time, the parcel study conducted by the Postal Service focused on measuring the time a carrier needed to insert parcels into the delivery receptacle, or if necessary, to go to the recipient's door. In the process, the model ignored for attribution purposes the effects parcels have on other aspects of the delivery operation, including (1) driving from the office to a route, (2) driving the delivery truck along a route, (3) loading up the carrier's mailbag, or (4) walking from the truck to the delivery address. Indeed, the Postal Service effectively took the position that only the *few seconds* it takes for a carrier to reach into his or her bag for a parcel and put it in the receptacle or take it to the doorstep are attributable to parcels. See Dkt. No. RM2015-7, Report on the City Carrier Time Study at 19, 85 (Dec. 11, 2014).¹⁷ This approach is equivalent to cost attribution based on the marginal cost of delivery, as it discards any costs not exclusively associated with the delivery of a single unit.

The Postal Service's justification for this extremely narrow approach to cost attribution appears to be that, since driving time and walking time involve the delivery of

the margin of volume." Dkt. No. R90-1, Opinion and Recommended Decision on Remand at 38 (Sept. 27, 1994).

¹⁷ To estimate this cost, the Postal Service periodically asks carriers to attempt to time how long it takes them to do these discrete actions, using the equivalent of a stopwatch.

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multiple mail products, *none* of the costs associated with that time should be attributed to *any* products. Postal Service economist Dr. Bradley, for example, has opined:

In many, if not most, of the activities a carrier performs on several mail streams, the resulting costs are not attributable to any individual product. Consider a motorized carrier driving from delivery point to delivery point. The time required for driving between delivery points would be the same whether the carrier had one, two, three, or four different mail streams in the vehicle.

Alternatively, consider a carrier who is walking and deviates from the route's primary line of travel to take the mail to a customer's receptacle. Suppose that the carrier has a parcel, three DPS letters, and two pieces of cased mail for the customer. ***It turns out that the time (and thus the cost) of walking to the house is not attributable to any of the individual products the carrier is delivering.***

Dkt. No. RM2015-7, Dr. Michael Bradley, *Analysis of the Supplemental Report of Dr. Kevin Neels on Behalf of United Parcel Service* at 19-20 (July 8, 2015) (emphasis added).

This logic causes the Postal Service to disregard for cost attribution purposes (and thus for revenue-generation purposes) many, if not most, of the variable costs the Postal Service incurs in delivering its competitive products. The time spent by Postal Service carriers driving to or walking on their routes is undeniably variable: if volume dropped or rose significantly, then supervisors would adjust carriers' walking and driving patterns. But the Postal Service refuses to attribute these variable costs because they are purportedly common to more than one product. Instead, as noted, it attributes to parcels only the marginal costs associated with the fleeting seconds it estimates the parcels are spent in a carrier's hands.

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The Commission was right to reject the Postal Service's limiting of cost attribution to marginal cost in the past.¹⁸ It is well-recognized in economics that a firm that benefits from economies of scale and scope must price above marginal cost to break even — that is, it must generate revenue that covers *all* of its variable costs (*and* its fixed costs), not just its marginal costs.¹⁹ Since the Postal Service is currently able to price its competitive products virtually without regard to inframarginal costs, competition in private markets is distorted, and the Postal Service's financial health is undermined.

B. Inframarginal Costs Should Be Attributed to Products Using Existing Distribution Methods.

The Postal Service's failure to attribute inframarginal costs to products is particularly inexcusable because there already exist tools to distribute inframarginal costs to the various products: the distribution keys. Today, the Postal Service uses the distribution keys to distribute what it calls "volume variable" costs to individual products (*i.e.*, the marginal cost rectangle). UPS Proposal One just says the Postal Service should start doing what it suggests it is already doing: it should distribute *all* costs that vary with volume (including inframarginal costs) to products (including competitive products).

¹⁸ The Commission has also rejected the Postal Service's effort to consider volume variability from an exclusively short-run perspective, and this rejection was upheld by the Supreme Court in *NAGCP IV*, 462 U.S. 810 (1983). In *NAGCP IV*, the Court heard an appeal from the judgment of the Second Circuit, which had held that "short-run" costing was mandated by PRA's legislative history. *Id.* at 819. The Supreme Court *rejected* the Second Circuit's mandate to utilize "short-run" costing, holding instead that the Commission may choose among a range of permissible methods to identify reliable causal links between volume and cost. *Id.* at 833-34.

¹⁹ See Dennis W. Carlton & Jeffrey M. Perloff, *MODERN INDUSTRIAL ORGANIZATION* 113 (4th ed. 2004) (explaining it is unsustainable for a regulated utility to price only at marginal cost).

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By using the distribution keys to distribute some variable costs to individual products, the Postal Service effectively acknowledges that the keys are sufficiently reliable to attribute variable costs to products “through reliably identified causal relationships.” 39 U.S.C. § 3631(b). For example, a common cost driver for many transportation cost segments is a “cubic-foot-mile,” which measures the distance the Postal Service transports a certain volume of mail.²⁰ By dividing the attributable cost of a specific cost segment by the share of a cost driver (such as cubic-foot-miles) associated with a specific mail product, the Postal Service can estimate the cost of transporting a certain type of mail.

The same approach can and should be used to attribute inframarginal costs to products.²¹ As Dr. Neels explains, “the total amount of inframarginal cost in a component is directly related to the total amount of the cost driver(s) of a component, and the total amount of the cost driver is in turn a function of the quantities of the products whose provision relies on that cost category.” Neels Report at 18.

Attributing inframarginal costs to products using the existing distribution keys is just as reliable as attributing marginal costs to products using those distribution keys. In fact, if one of the two methods (application of distribution keys to *all* variable costs or to *just* the marginal cost rectangle) is more arbitrary, it is the Postal Service’s method,

²⁰ See *generally* Dkt. No. RM2012-5, Petition of the United States Postal Service for the Initiation of a Proceeding to Consider Proposed Changes in Analytical Principles (Proposal Five), Appendix at 2 (June 26, 2012).

²¹ See, e.g., Panzar at 12 n.9 (“The determination of driver shares for a cost component makes it possible to *distribute* any portion of the component’s cost to individual services. In the CRA, only a component’s volume variable costs are distributed to individual products. However, in principle, the same driver shares can be used to distribute *any* category of component costs: e.g., fixed costs, variable costs *and infra-marginal costs.*”) (emphasis added).

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which intentionally understates the cost of every unit other than the last unit. Failing to use the distribution keys to distribute inframarginal costs, while doing so only for marginal costs, is fundamentally arbitrary and capricious.²²

C. The “Incremental Cost Test” As Currently Applied Is Not By Itself Sufficient to Ensure Competitive Products Bear All Costs Attributable to That Business.

As noted above, the only time the Postal Service considers any of the inframarginal costs of its competitive products business is when it purports to report the costs of competitive products as a group in connection with the Incremental Cost Test. As discussed above, this test reflects the Postal Service’s estimate of the amount of costs that would disappear if the Postal Service discontinued the sale of all competitive products, but maintained the sale of all market dominant products. Those costs are then compared against the total revenues the Postal Service earns from all competitive products. The question this economic test seeks to address is whether the customers of market dominant products are, at the time the test is conducted, better or worse off because of the Postal Service’s competitive products business. If the Postal Service ever fails the Incremental Cost Test, it would bring into question whether the Postal Service should be engaged in selling competitive products at all.

But the fact that the Postal Service passes the Incremental Cost Test does not mean that its competitive products business is generating revenues sufficient to recover *all* costs that are fairly attributable to that business. This is because, as Dr. Neels explains, the Incremental Cost Test utilizes an “ordered methodology” that assigns to

²² As with any other aspect of postal costing, the various distribution keys themselves need to be continuously analyzed to make sure they are working for their intended purpose. UPS does believe that there is room for improvement in the operation of the distribution keys, but does not address that issue in this petition.

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market dominant products the most expensive variable costs of the enterprise. Neels Report at 22.

Figure 1-6 depicts the cost-allocation under the current “Incremental Cost Test” for a constant elasticity cost segment.

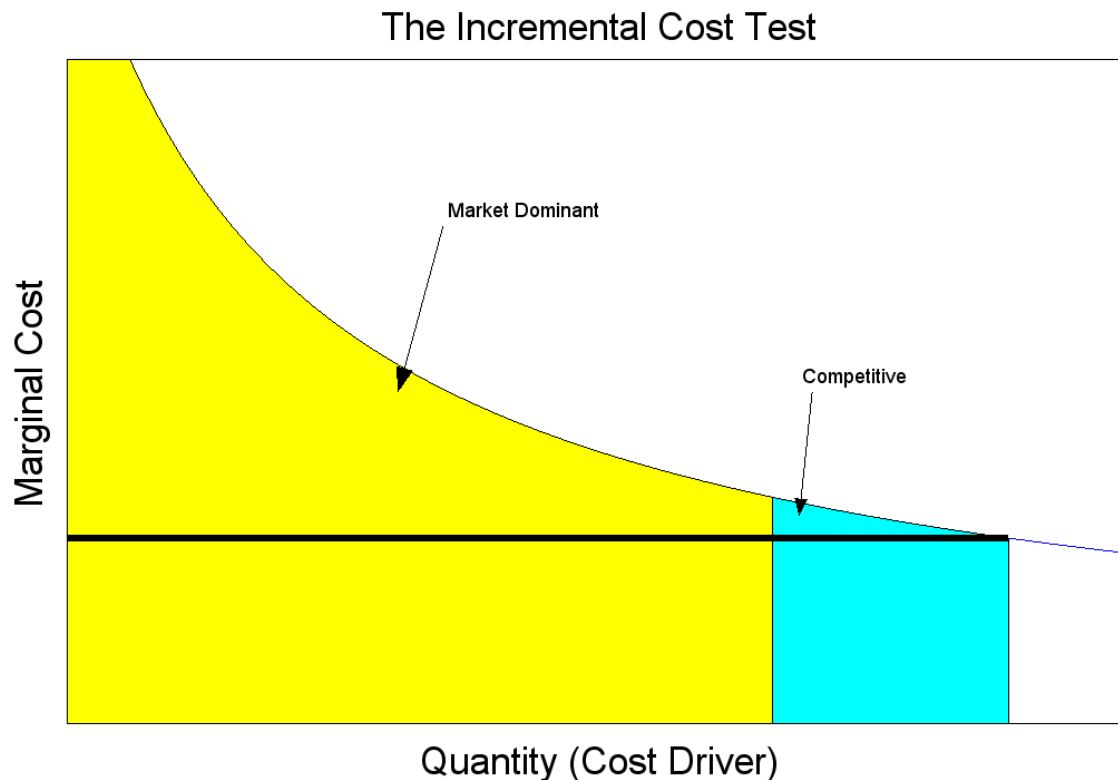


Figure 1-6: The Incremental Cost Test

As Figure 1-6 reflects, the Incremental Cost Test, by design, assumes that market dominant products come first on the curve and that competitive products come last. The result of this ordering assumption is to assign the more expensive variable costs to market dominant products (*i.e.*, the yellow portion), while assigning the least expensive variable costs to competitive products (*i.e.*, the blue portion). This ordering assumes that the customers of the Postal Service’s market dominant products are funding the infrastructure that creates economies of scale, and then competitive

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products are riding for free (or nearly free) by covering only the tail-end of the marginal cost curve.

This assumption has large consequences. As explained by Dr. Neels, “while domestic competitive products and services bore 24.2% of total volume variable costs (equivalent to its share of total cost drivers) in FY2014, the incremental cost test, as currently applied, assigns only 1.6% of total inframarginal costs to these products.” Neels Report at 21. Again, this very small amount of inframarginal costs assigned to the competitive products business under the Incremental Cost Test is the result of the ordering assumption implicit in the test.

This assumed ordering makes sense to answer the limited question of what would happen if competitive products were removed from the system. But the ordering assumption does not make sense if the goal is to ensure that the Postal Service’s competitive products business is standing on its own financial footing and not riding on the back of the market dominant business. Indeed, under the ordering inherent in the current Incremental Cost Test, competitive products are being allowed to ride nearly for free on the backs of market dominant customers, who are primarily responsible for funding the more expensive variable costs of the network.

To answer the question of whether the Postal Service’s competitive products business is standing on its own financial footing, it is necessary to remove any normative assumptions about the proper ordering of products altogether.²³ As Dr. Neels

²³ In fact, if it were proper to make any assumption about the proper ordering of products, PAEA would arguably dictate that the highest variable costs should be assigned to competitive products and the “free ride” to market dominant products: “In determining all policies for postal services, the Postal Service shall give the highest

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explains, there is guidance for applying such an order-neutral approach in the form of the Shapley Value.²⁴ See Neels Report at 22-29. As applied to the Postal Service, each product would be a contributor to the variable costs shared among and across products. Whichever product is added “first” has to pay for the most expensive variable costs, the second has to pay for the second most expensive variable costs, and so on. The Shapley Value approach dictates that one should consider all possible orderings of the products and then take the average cost assignment across all orderings. *Id.* at 23.

Dr. Neels’ report shows that this order-neutral approach can be applied to Postal Service costing. *Id.* at 22-29. Significantly, Dr. Neels also demonstrates that utilizing the Shapley Value is mathematically equivalent to distributing inframarginal costs according to the distribution keys associated with each cost segment. As Dr. Neels explains:

We thus arrive at the simple, straightforward and reasonable result that the implementation of the Shapley value approach to the assignment of inframarginal costs to products is equivalent to assigning inframarginal costs using the same distribution keys (whether explicit or implicit) used to assign volume variable costs. Furthermore, the Shapley value results in a complete and exact allocation of all inframarginal costs.

Id. at 28.

consideration to the requirement for the most expeditious collection, transportation, and delivery of important letter mail.” 39 U.S.C. § 101(e).

²⁴ Lloyd Shapley and Alvin Roth were awarded the 2012 Nobel Prize in economics for their work in developing the Shapley Value. Gregory Sidak has shown that the Shapley Value can be applied to postal costing issues arising under 39 U.S.C. § 3633. See J. Gregory Sidak, *Maximizing the U.S. Postal Service’s Profits from Competitive Products*, 11 J. COMPETITION L. & ECON. 617, 632 (2015).

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In other words, Proposal One accomplishes an order-neutral approach to the issue of subsidization under 39 U.S.C. § 3633(a)(1) if one aggregates all of the costs that are causally related to competitive products under § 3633(a)(2). When used in conjunction with the Incremental Cost Test, this approach provides a critical and necessary safeguard against subsidization and unfair competition. Specifically, under 39 U.S.C. § 3633(a)(1), the Postal Service should be required to show that the revenues earned from competitive products as group exceed the (i) sum of the attributable costs of each competitive product — which includes all variable costs along with any product-specific fixed costs²⁵ — and (ii) any group-specific fixed costs attributable to competitive products as a whole.

Adding this test to the existing Incremental Cost Test will ensure that competitive products as a group are bearing a proportional share of all variable costs, and are not assigned only the cheapest units of variable costs. This modification is necessary to ensure that the Postal Service's competitive products business is competing fairly and that it is not being allowed to ride nearly for free on a delivery network paid for almost entirely by market dominant products. The Postal Service's competitive products business will still enjoy some benefits of the economies of scope and scale created by mailers held captive by the letter monopoly, but it will just not be able to enjoy *all* of those benefits. Instead, the competitive products business will have to cover the share of variable costs that are fairly attributable to the business, which is precisely what Congress intended in PAEA.

²⁵ The attributable costs of each competitive product should be calculated as discussed above – that is, all variable costs, including inframarginal costs, should be attributed to individual products using the distribution keys.

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IV. IMPACT

Dr. Neels has estimated the impact of attributing inframarginal costs to products using the distribution keys. His results are reported in Table 1-1.

Mail Class [1]	Current Methodology [2]	Inframarginal [3]	Proposal One [4]	% of Current Costs [5]
Total Market Dominant (MD) Attributable Costs	28,205	10,717	38,922	138%
Priority Mail Express	366	124	490	134%
First-Class Package Service	1,155	302	1,456	126%
Priority Mail	5,234	1,204	6,439	123%
Ground	2,472	837	3,309	134%
Competitive International	1,385	219	1,604	116%
Domestic Competitive Services	359	2	360	100%
Total Competitive (CP) Attributable Costs	10,970	2,688	13,658	125%
TOTAL ATTRIBUTABLE COSTS	39,175	13,406	52,581	134%
OTHER COSTS	34,187	(13,406)	20,781	61%
TOTAL COSTS	73,362		73,362	

Table 1-1: Impact of Proposal One (Neels Report, Table 6)²⁶

²⁶ [1], [2]: Mail classes as reported in the FY14 Public Cost and Revenue Analysis (PCRA). Note that these costs differ slightly from those shown in Component 460 in FY14 CRA Cost Model B (CRA B).

[3]: Inframarginal Costs calculated following McBride's methodology applied to 2014.

Estimated International Inframarginal costs are split between MD and CP based on the ratio of 'Total Competitive International' Attributable Costs reported in the PCRA to 'International Mail and Services' Attributable Costs for Component 460 reported in CRA B.

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

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