

BEFORE THE
POSTAL REGULATORY COMMISSION

PERIODIC REPORTING)
(UPS PROPOSALS ONE, TWO AND THREE))

Docket No. RM2016-2

COMMENTS OF
AMAZON FULFILLMENT SERVICES, INC.

January 25, 2016

TABLE OF CONTENTS

	Page
I. AMAZON’S BUSINESS AND INTEREST IN THIS PROCEEDING	4
A. Amazon’s business	4
B. Amazon’s interest in this proceeding.....	7
II. SUMMARY OF CRITIQUE OF PROPOSALS ONE AND TWO	9
III. THE COST STANDARDS USED BY THE COMMISSION TO SET PRICE FLOORS FOR COMPETITIVE PRODUCTS ARE CONSISTENT WITH THE LAW AND SOUND ECONOMIC PRINCIPLES.	22
A. The basic economic principles.....	26
B. The marginal, attributable and incremental cost standards developed by the Commission satisfy 39 U.S.C. §§ 3631(b), 3633(a)(1) and 3633(a)(2).	38
1. Cost attribution standards before 2007	39
2. The Commission’s development of a separate incremental cost test for cross-subsidy.....	50
3. The Postal Accountability and Enhancement Act of 2006	53
4. Developments since the enactment of PAEA	56
(a) Docket No. RM2007-1.....	57
(b) The 2007 Treasury Report and Docket Nos. PI2008-2 and RM2008-5	58
(c) Docket No. RM2010-4.....	61
(d) The Commission’s Annual Compliance Determinations Since Fiscal Year 2009	62
C. The record contains no evidence that attributable and incremental cost data relied on by the Commission in recent years significantly understate the marginal and incremental costs of competitive products.....	64
D. UPS has made no showing that the Postal Service’s pricing of its competitive products amounts to unfair competition.	69
IV. PROPOSALS ONE AND TWO ARE UNSUPPORTED BY RELIABLE EVIDENCE OF CAUSATION AND ARE THEREFORE UNLAWFUL.....	74
A. Proposal One	75
1. Description of proposal	75
2. Proposal One would violate 39 U.S.C. §§ 3622(c)(2), 3631(b), and 3633(a)(1) and (2) by attributing costs to individual classes and products that do not cause those costs.....	79

3.	Even if the attribution of all inframarginal costs to individual classes and products were correct in principle, Proposal One would violate 39 U.S.C. §§ 3622(c)(2) and 3631(b) because no reliable method of calculating inframarginal costs now exists.	85
4.	The non-postal and foreign precedents cited by UPS do not support the adoption of Proposal One.....	89
	(a) The Shapley allocation method	90
	(b) Regulation of minimum railroad rates by the Surface Transportation Board	93
	(c) Decisions of state regulatory commissions	96
	(d) Minimum rate floors for European postal operators based on fully allocated cost.....	98
	(e) The internal accounting systems of private corporations.....	99
B.	Proposal Two.....	102
1.	Description of the proposal.....	102
2.	UPS, as the proponent of greater cost attribution, bears the burden of proof.....	104
3.	Proposal Two suffers from major flaws.	105
	(a) Dr. Neels has failed to control for potential confounding causes of the decline in postal costs between Fiscal Year 2007 and Fiscal Year 2014.	105
	(b) Dr. Neels’ regressions have only eight annual data points.....	108
	(c) Dr. Neels has cherry-picked his regression results to obscure the flaws they imply in his methodology.	109
	(d) The correlations reported by Dr. Neels between volume and cost vanish if data from 2007-2008 are removed from his data set.	111
	(e) Dr. Neels has biased his results by failing to run his regression model on costs now classified as volume variable.	113
	CONCLUSION.....	114

TABLE OF AUTHORITIES

	Page(s)
Federal Statutes	
39 U.S.C. § 2011	58, 59, 60, 99
39 U.S.C. § 3622	<i>passim</i>
39 U.S.C. § 3625	49
39 U.S.C. § 3631	<i>passim</i>
39 U.S.C. § 3633	<i>passim</i>
39 U.S.C. § 3634	99
39 U.S.C. § 3652	23
39 U.S.C. § 3653	23
49 U.S.C. § 10701	95
49 U.S.C. § 10707	38, 95
ICC Termination Act of 1995, Pub. L. No. 104-88, § 102(a), 109 Stat. 804.....	95
Postal Accountability and Enhancement Act of 2006, Pub. L. No. 109-435, 120 Stat. 3198	<i>passim</i>
Postal Reorganization Act of 1970, Pub. L. No. 91-375, 84 Stat. 719	<i>passim</i>

Legislative History

110 Cong. Rec. 20455-58 (1970)	41
H.R. Rep. No. 94-725 (1975)	8
H.R. Rep. No. 96-1035 (1980)	8
H.R. Rep. No. 104-311, reprinted in 1995 U.S.C.C.A.N. 794 (1995).....	94
H.R. Rep. No. 109-66, pt. 1 (2005)	55
H.R. Conf. Rep. No. 91-1363, reprinted in 1970 U.S.C.C.A.N. 3712 (1970)	41

S. Rep. No. 91-912 (1970)	41
S. Rep. No. 108-318 (2004).....	56

Regulations

18 C.F.R. § 342.4	38
18 C.F.R. § 348.1	38
39 C.F.R. § 3015.7	22, 23, 57, 58
58 Fed. Reg. 58753	37
73 Fed. Reg. 6081	60

**Decisions and Reports of Postal Rate Commission
and Postal Regulatory Commission**

Docket No. ACR2009, <i>Fiscal Year 2009 Annual Compliance Determination Report</i> (Mar. 29, 2010)	23, 63
Docket No. ACR2010, <i>Fiscal Year 2010 Annual Compliance Determination Report</i> (Mar. 29, 2011)	23, 63
Docket No. ACR2011, <i>Fiscal Year 2011 Annual Compliance Determination Report</i> (Mar. 28, 2012)	23, 63
Docket No. ACR2012, <i>Fiscal Year 2012 Annual Compliance Determination Report</i> (Mar. 28, 2013)	23, 63
Docket No. ACR2013, <i>Fiscal Year 2013 Annual Compliance Determination Report</i> (Mar. 27, 2014)	23, 63, 74
Docket No. ACR2014, <i>Fiscal Year 2014 Annual Compliance Determination Report</i> (Mar. 27, 2015)	23, 62, 63
Docket No. MC2012-14, Order No. 1448, <i>Valassis NSA</i> (Aug. 23, 2012)	73, 74
Docket No. PI2008-2, Order No. 56, <i>Review of Treasury Report</i> (Jan. 28, 2008)	<i>passim</i>
Docket No. RM2007-1, <i>Regulations Establishing System of Ratemaking:</i>	
Order No. 26 (Aug. 15, 2007).....	34, 55, 57, 58
Order No. 43 (Oct. 29, 2007).....	58
Docket No. RM2008-2, Order No. 115, , <i>Order Accepting Certain Analytical Principles for use in the Postal Service’s Periodic Reports</i> (Oct. 10, 2008)	50

Docket No. RM2008-5, Order No. 106, <i>Accounting Practices and Tax Rules for Competitive Products</i> (Sept. 11, 2008)	61
Docket No. RM2009-3, Order No. 536, <i>Order Adopting Analytical Principles Regarding Workshare Discount Methodology</i> (Sept. 14, 2010)	91, 92
Docket No. RM2010-4, <i>Modification of Analytic Principles in Periodic Reporting (Proposals Twenty-Two through Twenty-Five):</i>	
<i>Petition of the USPS Requesting Initiation of a Proceeding to Consider Proposed Changes in Analytic Principles (Proposals Twenty-two – Twenty-five)</i> (filed Oct. 23, 2009)	61, 62
Order No. 399, <i>Order Accepting Analytical Principles Used in Periodic Reporting (Proposals Twenty-two through Twenty-five)</i> (Jan. 27, 2010)	35, 62, 65
Docket No. RM2012-3, Order No. 1449, <i>Order Reviewing Competitive Products' Appropriate Share Contribution to Institutional Costs</i> (Aug. 23, 2012)	64
Docket No. RM2015-7, Order No. 2792, <i>Order Approving Analytical Principles Used in Periodic Reporting (Proposal Thirteen)</i> (Oct. 29, 2015)	68
Docket No. R71-1, <i>Postal Rate and Fee Increases, 1971:</i>	
Chief ALJ's Initial Decision on Postal Rate and Fee Increases (Feb. 3, 1972)	42
PRC Op. & Rec. Decis. (June 5, 1972), <i>aff'd Ass'n of American Publishers v. USPS</i> , 485 F.2d 768 (D.C. Cir. 1973)	<i>passim</i>
Docket No. R74-1, <i>Postal Rate and Fee Increases, 1973</i> , PRC Op. and Rec. Decis. R74-1 (Aug. 28, 1975), <i>aff'd Nat'l Ass'n of Greeting Card Publishers v. USPS</i> , 569 F.2d 570 (D.C. Cir. 1976).....	36, 40, 44
Docket No. R76-1, <i>Postal Rate and Fee Increases, 1975</i> , PRC Op. & Rec. Decis. (June 30, 1976), <i>remanded, Nat'l Ass'n of Greeting Card Publishers v. USPS</i> , 569 F.2d 570 (D.C. Cir. 1976), vacated as to other issues, 434 U.S. 884 (1977)	<i>passim</i>
Docket No. R77-1, <i>Postal Rate and Fee Increases, 1977</i> , PRC Op. & Rec. Decis. (May 12, 1978), <i>aff'd Nat'l Ass'n of Greeting Card Publishers v. USPS</i> , 607 F.2d 392 (D.C. Cir. 1979)	46, 47

Docket No. R80-1, <i>Postal Rate and Fee Changes, 1980</i> , PRC Op. & Rec. Decis. (Feb. 19, 1981), <i>remanded</i> , <i>Newsweek, Inc. v. USPS</i> , 663 F.2d 1186 (2d Cir. 1981), <i>remanded</i> , <i>Nat’l Ass’n of Greeting Card Publishers v. USPS</i> , 462 U.S. 810 (1983), on further review, <i>Time, Inc. v. USPS</i> , 710 F.2d 34 (2d Cir. 1983), further proceedings dismissed as moot, <i>Newsweek, Inc. v. USPS</i> , 716 F.2d 993 (2d Cir. 1983)	47, 49, 82, 85
Docket No. R84-1, <i>Postal Rate and Fee Changes, 1983</i> , PRC Op. & Rec. Decis. (Sept. 7, 1984), <i>aff’d</i> , <i>Direct Marketing Ass’n v. USPS</i> , 778 F.2d 96 (2d Cir. 1985)	<i>passim</i>
Docket No. R87-1, <i>Postal Rate and Fee Changes, 1987</i> , PRC Op. & Rec. Decis. (Mar. 4, 1988)	<i>passim</i>
Docket No. R90-1, <i>Postal Rate and Fee Changes, 1990</i> , PRC Op. & Rec. Decis. (Jan. 4, 1991), remanded in part, <i>Mail Order Ass’n of Am. v. USPS</i> , 2 F.3d 408 (D.C. Cir. 1993)	36, 51
Docket No. R94-1, <i>Postal Rate and Fee Changes, 1994</i> , PRC Op. & Rec. Decis. (Nov. 30, 1994)	<i>passim</i>
Docket No. R97-1, <i>Postal Rate and Fee Changes, 1997</i> :	
Direct Testimony of Kevin Neels (UPS-T-1)	111
PRC Op. & Rec. Decis. (May 11, 1998), <i>aff’d</i> , <i>United Parcel Service, Inc. v. USPS</i> , 184 F.3d 827 (D.C. Cir. 1999)	<i>passim</i>
Docket No. R2000-1, <i>Postal Rate and Fee Changes, 2000</i> , PRC Op. & Rec. Decis. (Nov. 13, 2000)	<i>passim</i>
Docket No. R2001-1, <i>Postal Rate and Fee Changes, 2001</i> :	
Direct Testimony of Nancy R. Kay (USPS-T-21)	53
PRC Op. & Rec. Decis. (March 22, 2002)	50, 53
Docket No. R2005-1, <i>Postal Rate and Fee Changes</i> :	
Direct Testimony of Maura Robinson (USPS-T-27)	53
PRC Op. & Rec. Decis. (Nov. 1, 2005)	37, 50, 53
Docket No. R2013-11, Order No. 1926, <i>Rate Adjustment Due to Extraordinary or Exceptional Circumstances</i> (Dec. 24, 2013), <i>aff’d</i> in relevant part, <i>Alliance of Nonprofit Mailers v. PRC</i> , 790 F.3d 186 (D.C. Cir. 2015)	107

<i>Financial Analysis of United States Postal Service Financial Results and 10-K Statement: Fiscal Year 2014</i> (April 1, 2015)	24, 25, 101
--	-------------

Other Agency Decisions and Reports

<i>Coal Rate Guidelines—Nationwide</i> , 1 I.C.C.2d 520 (1985), <i>aff’d</i> , <i>Consolidated Rail Corp. v. United States</i> , 812 F.2d 1444 (3d Cir. 1987)	<i>passim</i>
<i>Cost Standards for Railroad Rates</i> , 362 I.C.C. 800 (1980), <i>aff’d</i> , <i>Water Transport Ass’n v. ICC</i> , 684 F.2d 81 (D.C. Cir. 1982).....	27
<i>Investigation into New England Telephone Company’s Cost of Service and Rate Design</i> , 1994 Me. PUC LEXIS 9, 1994 WL 287424 (Apr. 13, 1994).....	96
Railroad Accounting Principles Board, <i>Railroad Accounting Principles</i> (Sept. 1, 1987).....	94
Report of the President’s Commission on Postal Organization (1968) (“Kappel Commission Report”)	29, 39, 40, 69
Report of the President’s Commission on the United States Postal Service, <i>Embracing the Future</i> (July 31, 2003)	102
<i>Rulemaking on the Commission’s Own Motion to Govern Open Access to Bottleneck Service</i> , Opinion on Request for Intervenor Compensation, 2003 WL 21396267 (Cal. P.U.C. June 5, 2003).....	96
U.S. Department of the Treasury, <i>Report on Accounting Principles & Practices for The Operation of the United States Postal Service’s Competitive Products Fund</i> (2007).....	<i>passim</i>
USPS Office of Inspector General Report No. MS-MA-13-004, <i>Benchmarking of Costing Methodologies</i> (Aug. 14, 2013).....	99, 100
USPS Office of Inspector General Report No. RARC-WP-12-008, <i>A Primer on Postal Costing Issues</i> (March 20, 2012)	<i>passim</i>

Federal Court Cases

<i>Alliance of Nonprofit Mailers v. PRC</i> , 790 F.3d 186 (D.C. Cir. 2015)	107
<i>American Commercial Lines, Inc. v. Louisville & Nashville R.R.</i> , 392 U.S. 571 (1968)	8
<i>Ass’n of American Publishers v. Governors of the USPS</i> , 485 F.2d 768 (D.C. Cir. 1973).....	36, 43

<i>BNSF Railway Co. v. STB</i> , 526 F.3d 770 (D.C. Cir. 2008)	96
<i>Consolidated Rail Corp. v. United States</i> , 812 F.2d 1444 (3d Cir. 1987)	27, 95
<i>CSX Transp., Inc. v. STB</i> , 754 F.3d 1056 (D.C. Cir. 2014)	96
<i>Direct Marketing Ass’n, Inc. v. USPS</i> , 778 F.2d 96 (2d Cir. 1985).....	36, 49, 73, 74
<i>I.C.C. v. New York, N.H. & Hartford R.R.</i> , 372 U.S. 744 (1963)	8
<i>Mail Order Ass’n of Am. v. USPS</i> , 2 F.3d 408 (D.C. Cir. 1993).....	36, 51
<i>Matsushita Elec. Industrial Co. v. Zenith Radio Corp.</i> , 475 U.S. 574 (1986)	7
<i>MCI Commc’ns Corp. v. Am. Tel. & Tel. Co.</i> , 708 F.2d 1081 (7th Cir.), cert. denied 464 U.S. 891 (1983).....	31
<i>Nat’l Ass’n of Greeting Card Publishers v. USPS</i> , 569 F.2d 570 (D.C. Cir. 1976) (“ <i>NAGCP I</i> ”)	36, 44
<i>Nat’l Ass’n of Greeting Card Publishers v. USPS</i> , 607 F.2d 392 (D.C. Cir. 1979) (“ <i>NAGCP III</i> ”).....	47
<i>Nat’l Ass’n of Greeting Card Publishers v. USPS</i> , 462 U.S. 810 (1983) (“ <i>NAGCP IV</i> ”)	<i>passim</i>
<i>Newspaper Ass’n of America v. PRC</i> , 734 F.3d 1208 (D.C. Cir. 2013)	73, 74
<i>Newsweek, Inc. v. USPS</i> , 663 F.2d 1186 (2d Cir. 1981).....	46, 67
<i>Newsweek, Inc. v. USPS</i> , 716 F.2d 993 (2d Cir. 1983).....	49
<i>Potomac Electric Power Co. v. ICC</i> , 744 F.2d 185 (D.C. Cir. 1984)	27, 33, 37
<i>Reed Construction Data Inc. v. McGraw-Hill Cos.</i> , 49 F. Supp. 3d 385, 400 (S.D.N.Y. 2014).....	112
<i>Time, Inc. v. USPS</i> , 710 F.2d 34 (2d Cir. 1983).....	49

<i>United States v. AMR Corp.</i> , 335 F.3d 1109 (10th Cir. 2003)	31
<i>United States v. Wilson</i> , 290 F.3d 347 (D.C. Cir. 2002)	56
<i>UPS v. USPS</i> , 184 F.2d 827 (D.C. Cir. 1990)	51
<i>USPS v. PRC</i> , 676 F.3d 1105 (D.C. Cir. 2012)	79
<i>Water Transport Ass’n v. ICC</i> , 684 F.2d 81 (D.C. Cir. 1982).....	27, 94
<i>Wheeling Pittsburgh Steel Corp. v. ICC</i> , 723 F.2d 346 (3d Cir. 1983).....	27, 33

Miscellaneous

3A Phillip E. Areeda & Herbert Hovenkamp, <i>Antitrust Law</i> (4th ed. 2015).....	27, 31, 73
William J. Baumol, James C. Bonbright, Yale Bronzen, Joel Dean, Ford K. Edwards, Calvin B. Hoover, Dudley F. Pegrum, Merrill J. Roberts, Ernest W. Williams, <i>The Role of Cost in the Minimum Pricing of Railroad Services</i> , 35 J. of Business 357 (October 1962).....	8, 9, 27, 31
William J. Baumol & David Bradford, <i>Optimal Departures from Marginal Cost Pricing</i> , 60 Am. Econ. Rev. 265 (1970)	36
William J. Baumol & Robert D. Willig, <i>Pricing Issues in the Deregulation of Railroad Rates</i> , in <i>Economic Analysis of Regulated Markets</i> (Jörg Finsinger ed., 1983).....	7, 31, 32
William J. Baumol & Janusz A. Ordover, <i>Use of Antitrust to Subvert Competition</i> , 28 J. Law & Econ. 247 (1985).....	8
William J. Baumol, Michael F. Koehn & Robert D. Willig, <i>How Arbitrary is ‘Arbitrary’—or, Toward the Deserved Demise of Full Cost Allocations, Public Utilities Fortnightly</i> (Sept. 3, 1987)	27, 31, 33
David Boies, Jr., <i>Experiment in Mercantilism: Minimum Rate Regulation by the Interstate Commerce Commission</i> , 68 Colum. L. Rev. 599 (April 1968)	7, 32
David Boies and Paul R. Verkuil, <i>Public Control of Business</i> (1977).....	7, 8
Ronald R. Braeutigam, <i>An Analysis of Fully Distributed Cost Pricing in Regulated Industries</i> ,” 11 Bell J. of Econ. 182 (1980)	92

Ronald R. Braeutigam, <i>Optimal Policies for Natural Monopolies, in 2 Handbook of Industrial Organization</i> (Schmalensee & Willig, eds.1989)	<i>passim</i>
Gerald Faulhaber, <i>Cross-Subsidization: Pricing in Public Enterprises</i> , 65 Am. Econ. Rev. 966 (1975).....	35, 37
Melvyn A. Fuss, <i>Cost Allocation: How Can the Costs of Postal Service Be Determined?'</i> in <i>Perspectives on Postal Service Issues</i> (Roger Sherman ed., 1980).....	31, 101
Nitza Geri & Boaz Ronen, <i>Relevance lost: the rise and fall of activity-based cost</i> , 24 Human Systems Management 133 (2005).....	100, 102
James M. Henderson & Richard E. Quandt, <i>Microeconomic Theory: A Mathematical Approach</i> (2d ed. 1971).....	28
T. Colwyn Jones & David Dugdale, <i>The ABC Bandwagon and the juggernaut of modernity</i> , 27 Accounting, Organizations and Society 121 (Jan./March 2002)	102
1 Alfred E. Kahn, <i>The Economics of Regulation</i> (1970).....	<i>passim</i>
2 Alfred E. Kahn, <i>The Economics of Regulation</i> (1971).....	<i>passim</i>
Alfred E. Kahn, <i>Market Power and Deregulated Industries</i> , 60 Antitrust L.J. 857 (1992).....	37
Alfred E. Kahn, <i>Whom the Gods Would Destroy, or How Not To Deregulate</i> (2001).....	90
Magazine Publishers of America Final Comments to the President's Commission on the USPS	102
N. Gregory Mankiw, <i>Principles of Microeconomics</i> (6th ed. 2012)	28
Charles McBride, <i>The Calculation of Postal Inframarginal Costs</i> 8 (2014).....	86, 88
Eric Noreen & Naomi Soderstrom, <i>Are overhead costs strictly proportional to activity?</i> , 17 J. of Accounting and Economics 255 (1994)	100
John C. Panzar, <i>The Role of Costs for Postal Regulation</i> 5-22 (2014) ("Panzar Report")	<i>passim</i>
Frank P. Ramsey, <i>A Contribution to the Theory of Taxation</i> , 37 Econ. J. 47 (March 1927).....	36
F.M. Scherer and David Ross, <i>Industrial Market Structure and Economic Performance</i> 19-20 (3d ed. 1990).....	28

George J. Stigler, *The Theory of Price* 176-78 (3d ed. 1966)28
Jean Tirole, *The Theory of Industrial Organization* 70 (1990) 36, 100

**COMMENTS OF
AMAZON FULFILLMENT SERVICES, INC.**

Pursuant to Order No. 2793 and Presiding Officer's Ruling Nos. RM2016-2/1 and RM2016-2/2, Amazon Fulfillment Services, Inc. ("AFSI") respectfully submits these comments on Proposals One and Two of United Parcel Service, Inc. ("UPS"). These comments are supported by the declarations of three experts: (1) John C. Panzar, Professor of Economics at the University of Auckland and Northwestern University; (2) T. Scott Thompson, Partner in the Washington, D.C., office of Bates White, LLC, an economic consulting firm; and (3) Sander Glick, Vice President of SLS Consulting, Inc. Supporting workpapers have been filed with the Commission as Library References AFSI-LR-RM2016-2/1 and 2.

AFSI is the logistics and distribution subsidiary of Amazon.com, Inc. ("Amazon"). Customers who buy goods from Amazon rely on the package services provided by the United States Postal Service (the "Postal Service") as a vital distribution channel. So do the customers of the independent merchants (manufacturers, wholesalers, and retailers, large and small) who sell goods on Amazon and other online commerce websites.

Amazon has established a transportation and distribution network of 23 sort centers and more than 50 fulfillment center warehouses. The network is designed to complement the Postal Service's "final mile" delivery services, so that the Postal Service can deliver parcels to customers, with quality service and at a reasonable price, seven days per week, and Amazon can offer its customers door-to-door delivery in two days or less. Amazon and

its customers have a strong interest in maintaining the overall competitiveness of the parcel delivery industry.

Amazon has become increasingly concerned about recent efforts to persuade the Commission to limit the Postal Service's ability to compete on price. The proposals under consideration in this docket should alarm consumers and parcel shippers throughout the United States. The proposals, advanced by a private competitor of the Postal Service, would increase the costs attributed to Postal Service package services and other competitive products by 31 percent, or \$3.4 billion a year. The costs attributed to market-dominant products such as First-Class Mail and magazines would increase by an average of 47 percent, or more than \$13 billion a year.

Proposal One would require that the rates on each competitive mail product cover not only (1) the costs actually caused by that product (*e.g.*, the costs of the time spent sorting a piece of mail), and (2) a pro rata allocation of the minimum contribution to "institutional" costs (*i.e.*, fixed¹ and common² costs of the Postal Service) that the Commission requires competitive products collectively to make, but also (3) an arbitrary pro rata allocation of *all*

¹ Fixed costs are costs that must be (discontinuously) incurred if the firm is to produce any positive amount of output. That is why fixed costs are sometimes referred to as "start-up costs." They do not vary with volume. Declaration of John C. Panzar on behalf of AFSI (filed Jan. 25, 2016) ("Panzar Decl.") at 6; John C. Panzar, *The Role of Costs for Postal Regulation* 7 (2014) ("Panzar Report"); USPS Office of Inspector General Report No. RARC-WP-12-008, *A Primer on Postal Costing Issues* 2 (March 20, 2012).

² Common costs are the costs of producing two or more outputs in common. A common cost as an outlay "which contributes simultaneously to the supply of two or more different goods and/or services." PRC Docket No. R84-1 Op. & Rec. Decis. (Sept. 7, 1984) at 131 ¶ 3026 n.11 (citing testimony of William J. Baumol); *see* USPS OIG, *A Primer on Postal Costing Issues* 2.

of the Postal Service's variable costs—including costs that the product *does not cause*. There is no legal or economic basis for the third requirement, which violates decades of Commission and court precedent rejecting the use of arbitrary cost allocations to set postal rates, as well as the Postal Accountability and Enhancement Act of 2006, which codified this rule into law.

Proposal Two would further inflate the minimum required prices for competitive products by redefining \$725 million a year in Postal Service fixed costs as variable costs of those products. For market-dominant products, Proposal Two would redefine \$2.6 billion in fixed costs as variable costs. The only support offered for this proposal is a statistical study by a consultant to the same private competitor. The study is flawed, however, and its conclusions are unreliable guesswork. Like Proposal One, Proposal Two would violate decades of Commission and court precedent holding that costs may not be attributed to individual products and classes of mail without reliable evidence that those products and classes cause the costs.

Adoption of Proposals One and Two would be a giant step backwards in postal ratemaking. The proposals would return postal rate regulation to the discredited era of regulatory protectionism, when powerful private competitors made unjustified claims of unfair competition to persuade federal and state regulatory commissions to impose artificially inflated floors under the prices charged by regulated firms, in order to free the private competitors to raise their own prices. Economic history teaches that inflated price floors of this kind inevitably harm consumers by suppressing competition, diverting business to higher-cost suppliers, raising the delivered price of goods, and harming the regulated firm

by depriving it of the additional volume and contribution that it could have earned if allowed to price down to incremental cost when necessary to compete for business. Adoption of Proposals One and Two would cause all of these harms. The only beneficiaries would be the private parcel carriers. The proposals should be rejected.

I. AMAZON'S BUSINESS AND INTEREST IN THIS PROCEEDING

A. Amazon's business

AFSI is a wholly owned subsidiary of Amazon.com, Inc., a publicly traded company (AMZN-NASDAQ) that is headquartered in Seattle, Washington. Amazon, which was incorporated in 1994 and opened its virtual doors on the World Wide Web in 1995, seeks to be Earth's most customer-centric company. It is guided by four principles: customer obsession rather than competitor focus, passion for invention, commitment to operational excellence, and long-term thinking.

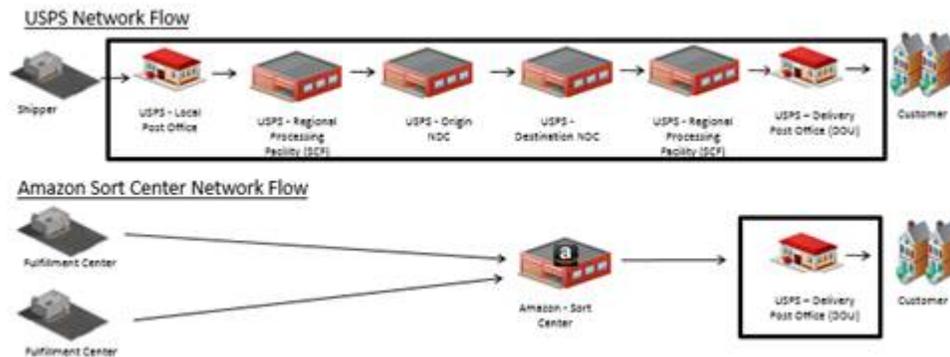
Amazon serves a variety of customers and focuses on price, convenience, and selection. Amazon's retail customers can browse, read reviews, search, and purchase through the company's retail websites and mobile applications. Amazon also offers services that enable a wide variety of independent merchants (including manufacturers, wholesalers, and retailers, many of which are family operations or small businesses) to sell their products on Amazon websites and mobile applications. Many of these merchants also elect to have Amazon fulfill their customer orders through Amazon's operations and transportation network.

Amazon engineers solutions to meet exacting delivery promise deadlines while offering its customers low everyday product pricing and a variety of low cost shipping options for delivery in two days or less. For example, Amazon offers free shipping for orders of eligible items fulfilled by Amazon in the amount of \$35 or more. The company also offers a popular Prime program, an annual membership program for \$99 a year that offers customers unlimited free two-day shipping on more than 20 million items across all categories, among many other benefits.

To achieve this, Amazon continually seeks ways to improve its operating efficiencies and minimize its costs, including arranging for shipment of customer orders through multiple carriers, including the Postal Service, UPS, FedEx, among others. Amazon works with all of these carriers to build strong relationships and innovative solutions that achieve fast delivery and low prices for customers. Competition within the package delivery industry has driven down customer shipping prices and has led participants to improve service and drive down their internal costs to compete for volume.

Amazon has established a transportation and distribution network of 23 sort centers and more than 50 fulfillment center warehouses, with more to come in 2016. This network enables Amazon to enter parcels at Postal Service Destination Delivery Units (“DDUs”) already presorted for delivery to the customer. The following figure illustrates the flow of parcels from Amazon fulfillment centers to Amazon sortation centers, and then to Postal Service DDUs for final delivery to the customer:

Figure 1



For parcels coming from Amazon sortation centers, the Postal Service provides only final mile delivery. Amazon arranges for the transportation from its fulfillment centers, sortation at the sortation centers, and delivery of sorted parcels to Postal Service delivery units. The delivery units receive these packages in the early morning, so that Postal Service carriers from each facility can deliver those packages to the addressees the same day. Amazon has created innovative technology and developed efficient processes (including improvements in labeling and advance data transmission) to reduce the Postal Service's costs of final delivery. This arrangement benefits the Postal Service by letting it make better use of its delivery facilities, equipment and personnel while avoiding the costs of building additional capacity in the Postal Service's upstream network. The arrangement benefits consumers by enabling Amazon to offer them two-day delivery at a reasonable cost.

Online commerce saves consumers money and time. All online customers – including Amazon's customers and customers of independent merchants that sell on Amazon – rely on commercial package carriers like the Postal Service to deliver their packages.

B. Amazon's interest in this proceeding

A perennial concern of minimum rate regulation—in common carrier regulation, public utility regulation, and antitrust—is the risk that competitors of regulated firms will persuade regulators to suppress price competition from the regulated firm by forcing up the minimum prices that it may charge, thereby creating a price umbrella for competitors. Predatory pricing or cross-subsidization of competitive end-to-end services is often alleged by rival firms—but rarely proven. *Matsushita Elec. Industrial Co. v. Zenith Radio Corp.*, 475 U.S. 574, 589 (1986) (“predatory pricing schemes are rarely tried, and even more rarely successful”). A far greater threat to the public interest is the risk that false allegations of noncompensatory pricing will lead to unwarranted increases in the prices charged by the regulated firm and its private competitors, thereby reducing consumer welfare. Economists and regulators have long noted this risk:

Except in matters of degree, the effect of minimum rate regulation will therefore ordinarily have the same economic effect as a monopoly or private cartel. In each instance, power over price is acquired and used to increase the market price. Since an increased price almost always implies fewer sales, restricted output and consequent misallocation of resources ordinarily follow.

David Boies and Paul R. Verkuil, *Public Control of Business* 372-73 (1977); see also David Boies, Jr., *Experiment in Mercantilism: Minimum Rate Regulation by the Interstate Commerce Commission*, 68 Colum. L. Rev. 599, 638 (April 1968) (“Economically, whether the source of the power over price is a monopoly, a private cartel, or administrative regulation is irrelevant.”); 2 Alfred E. Kahn, *The Economics of Regulation* 11-14 (1971); cf. William J. Baumol & Janusz A. Ordover, *Use of Antitrust to Subvert Competition*, 28 J. Law & Econ. 247 (1985) (“a firm that by virtue of superior efficiency or economies of scale or scope is able to

offer prices low enough to make its competitors uncomfortable is all too likely to find itself accused of predation.”).

The victims of inflated price floors can include the regulated firm as well as its ratepayers and ultimate consumers. A classic case of this occurred in the railroad industry in the 1950s and 1960s. During that period, the Interstate Commerce Commission (“ICC”) often forbade railroads from charging less than fully allocated cost when lower rates would undercut the prices charged by competing barge and truck carriers (which had lower fixed costs but higher variable costs than the railroads), on the theory that allowing railroads to price below fully allocated costs would result in “unfair” or “destructive” competition by depriving the barge and truck carriers of traffic despite their “inherent advantages.” The railroads’ attempts to obtain judicial relief were in vain. *I.C.C. v. New York, N.H. & Hartford R.R.*, 372 U.S. 744 (1963); *American Commercial Lines, Inc. v. Louisville & Nashville R.R. Co.*, 392 U.S. 571 (1968). Between 1967 and 1976, the Penn Central (the largest railroad in the United States) and six other major railroads entered bankruptcy.³

³ H.R. Rep. No. 96-1035, at 99 (1980); H.R. Rep. No. 94-725 at 54 (1975); *see also* Boies & Verkuil, *Public Control of Business* 379-418 (discussing harmful effects of the fully-allocated cost floors imposed on railroad rates in the 1950s and 1960s to protect competing truck and barge operators); 2 Alfred E. Kahn, *The Economics of Regulation* 21-24, 248-49 (1971) (same); William J. Baumol, James C. Bonbright, Yale Bronzen, Joel Dean, Ford K. Edwards, Calvin B. Hoover, Dudley F. Pegrum, Merrill J. Roberts, Ernest W. Williams, *The Role of Cost in the Minimum Pricing of Railroad Services*, 35 *J. of Business* 364-65 (Oct. 1962) (“It is the fully distributed cost doctrine which, by pegging minimum rates on a false economic premise, would burden not only railroad shippers but the economy as a whole and would tend to bankrupt the railroad system by artificially restricting the economic use of railroad facilities and services.”).

Proposals One and Two would have the same effects. Artificially high regulatory floors under the prices that the Postal Service may charge for competitive package services would not only inflate the cost of those services, but would also create a regulatory pricing umbrella for supracompetitive pricing by private carriers while depriving the Postal Service of volume that is making a contribution to the Postal Service's institutional costs. Parcel shippers, consumers, and the Postal Service would all be worse off. We summarize the reasons in Section II and explain them in more detail in Sections III and IV.

II. SUMMARY OF CRITIQUE OF PROPOSALS ONE AND TWO

Proposals One and Two raise a central question of rate regulation: what standard should regulators use to govern the minimum rates charged by regulated monopolies for their competitive products? For the Postal Service, however, the question has been answered.

(1)

39 U.S.C. § 3631(b) and 3633(a)(1) and (2) require that (1) each competitive product cover its "costs attributable," and (2) market-dominant products not cross-subsidize competitive products. Section 3631(b) defines attributable costs as "the direct and indirect postal costs attributable to such product through reliably identified causal relationships." The Commission has held that market-dominant products do not cross-subsidize competitive products if the revenue generated by the latter covers their incremental costs. The Commission has further held that incremental costs, like attributable costs, may not be assigned to particular products or other increments of volume without reliable evidence of a

causal link between the specific volumes and the costs assigned to those volumes as incremental.

The Commission's implementation of Sections 3631 and 3633 finds support in generally accepted economic principles, the text and legislative history of Title 39, and 45 years of Commission and judicial precedent construing Sections 3631 and 3633 and their predecessors.

One of main tasks of the Commission, like many other regulators of public utilities and common carriers, is to set minimum rate floors—*i.e.*, to regulate how low a regulated firm may set prices for individual services in relation to cost. Throughout most of the 20th century, two rival pricing methods competed for acceptance among economists and regulators: (1) fully allocated cost or fully distributed cost pricing, which requires that the price for each service must cover its marginal or incremental costs plus a pro rata share of fixed and common costs; and (2) economic costing, which requires only that each unit of output cover its marginal cost and each larger increment of output cover its incremental costs, and which permits maximum reasonable rates to be several times higher than either marginal or incremental costs. By the late 20th century, fully allocated costs had been discredited by most economists and rejected by a growing consensus of regulators.

Postal rate regulation has evolved in the same direction. Before 1970, the Post Office Department relied heavily on fully allocated cost methods. During the debates over the legislation that became the Postal Reorganization Act of 1970, Pub. L. No. 91-375, 84 Stat. 719, private parcel carriers urged Congress to require the Postal Service, the proposed

successor to the Post Office Department, to continue using fully-allocated cost pricing. Congress declined to do so, instead requiring only that minimum rates cover attributable costs.

In the first few omnibus rate cases decided by the Commission, it also declined to adopt fully-allocated cost pricing. Instead, the Commission defined attributable costs as roughly equivalent to marginal costs plus any fixed costs that were specific to a particular product.

In the late 1970s, the United States Court of Appeals for the D.C. Circuit overruled the Commission, ordering it to make much heavier use of cost allocations to set minimum rates. In 1983, however, the Supreme Court in turn overruled the D.C. Circuit, holding that the Commission had acted properly in refusing to base rates on “distribution keys or other accounting principles lacking an established causal basis.” *Nat’l Ass’n of Greeting Card Publishers v. USPS*, 462 U.S. 810, 826-29 (1983). Since then, the Commission has repeatedly held that fully allocated costs—and any other cost measure that is unsupported by reliable evidence of causation—play no legitimate role in setting price floors for postal services.

Beginning in the mid-1980s, the Commission began to develop a complementary price floor to protect against cross-subsidy: the requirement that competitive products as a whole must cover their incremental costs. Since then, the Postal Service has developed, and the Commission has accepted, increasingly refined measures of incremental costs. After the enactment of the Postal Accountability and Enhancement Act of 2006, Pub. L. No. 109-435, 120 Stat. 3198 (“PAEA”), which codified the Commission’s insistence on reliable

evidence of causation as the foundation for cost attribution, both the Department of the Treasury and the Commission concluded that the Postal Service's existing cost systems, with only minor refinements, provided reasonable estimates of incremental costs. Relying on these costing systems, the Commission has found in each of its recent annual compliance determinations that the Postal Service has substantially complied with both requirements. Prices on domestic competitive products exceed incremental costs. The overall contribution from competitive products has been growing rapidly and now covers approximately 13 percent of the Postal Service's institutional costs, more than double the 5.5 percent required by the Commission.

The record contains no evidence that the attributable and incremental cost data now relied on by the Commission significantly understate the marginal or incremental costs of competitive products. Although attributable costs in principle may be less than incremental costs when marginal costs decline throughout the entire output range of a firm, in practice the difference between incremental costs and attributable costs is a small fraction of total component variable costs unless the increment of volume at issue is a large majority of total Postal Service volume. Competitive products lack this attribute. All competitive products combined account for only a tiny percentage of total volume when weighted by pieces, and only about 25 percent of total volume when weighted by unit attributable cost.

The record likewise refutes UPS's claim that the Postal Service's pricing of competitive postal products amounts to unfair competition. First, UPS bases this claim in large part on the price cuts that the Postal Service implemented in September 2014 in some competitive products, and the gains in the Postal Service's share of these market segments

that supposedly resulted. The September 2014 price cuts, however, had no net effect on competitive product prices overall: the price reductions were concentrated in the heavy weight cells, and prices in other weight cells increased enough to offset this.

Second, the meaningful time period for assessing the pricing of competitive products is the full period since the products were reclassified as competitive by Congress or the Commission, and thereby were exempted from maximum rate regulation. Over these longer periods, the prices charged by the Postal Service for competitive products have increased much faster than inflation. Since 2007, for example, the average Parcel Select price has increased by 71 percent, while the Consumer Price Index (Urban) has increased by only 16 percent.

Third, the notion that the Postal Service has gained a dominant position vis-à-vis UPS and other private competitors of package and express services is unfounded. According to a UPS response to a Commission information request, the Postal Service's volume share of the market segment consisting of Priority Mail/Ground service and the competing private services—the main focus of UPS's criticisms—is only 16 percent—less than one-third the 50 percent held by UPS.

Finally—and most important—whether the Postal Service is gaining package volume from its private competitors is legally irrelevant. The Commission's task is to protect competition, not particular competitors. The Commission and the courts have held repeatedly that discounting is not unfair competition, even if the discounting captures

significant volume from competitors, as long as the reduced rates cover marginal and incremental costs.

(2)

The Commission could not lawfully adopt Proposal One or Two even if (contrary to fact) the existing measures of attributable or marginal cost contained serious errors. Proposal One would require the Postal Service to allocate to each postal product a pro rata share of all “inframarginal” costs (*i.e.*, costs that vary with the *total* volume of all Postal Service products combined, but do not vary with the last, or marginal unit of output). This would effectively redefine the attributable cost of a service to include an allocated share of *all* variable costs, not just those that varied with the volume of the service in question. Moreover, for the cost components that are defined by a constant elasticity cost function—and therefore have no costs defined as fixed—Proposal One amounts to fully distributed cost. By relying on averages and allocations, Proposal One would reclassify as attributable \$13.4 billion of costs now classified as institutional.

UPS and its expert, Dr. Kevin Neels, defend Proposal One on the theory that attributable cost and incremental cost floors are inadequate to prevent unfair cross subsidy. The argument goes essentially as follows:

- (1) Both cost measures understate the share of total variable costs for which each product is responsible because marginal, attributable and incremental costs are estimated by treating the output at issue as being produced last, or eliminated first, with all other outputs held constant. Because the marginal

costs of most postal cost components decline as volume increases, this “implicit ordering” assumption effectively excludes a significant share of inframarginal costs from the costs assigned to individual classes and products.

- (2) Proposal One would avoid this supposed defect by allocating a pro rata share of all variable costs to individual products.
- (3) The reasonableness of Proposal One is underscored by its similarity to the Shapley Value, an allocation method that was developed from game theory principles in 1953.

These arguments are mistaken. First, attributing costs to individual classes and products that do not cause the costs, and whose elimination would not avoid the costs, is a facial violation of 39 U.S.C. §§ 3622(c)(2), 3631(b) and 3633(a)(1) and (2). These provisions allow costs to be attributed to a class or product, or included in the incremental costs of a class or product, only if the class or product causes the costs. A product, class or other increment of output causes a cost if and only if producing *that increment* increases total cost by that amount, or *not* producing *that increment* reduces total cost by that amount. Proposal One, by contrast, would allocate to each product a pro rata share of *all* variable costs caused by *all products combined*, including the inframarginal costs that would not be eliminated by ceasing production of any individual product, or even all competitive products combined.

The “implicit ordering” assumption of marginal, attributable and incremental costs, far from a defect, follows directly from the statutory causation requirement, and is inherent in the definition of marginal and incremental costs. Determining the amount of costs (if

any) that are caused by an increment of volume, or avoided by a decrement of volume, is a *ceteris paribus* inquiry, which requires that all other outputs be held constant. When a firm has declining marginal costs, eliminating the “implicit ordering” assumption allows the assignment of common or joint costs to individual classes and products that do not individually cause those costs, and thus violates the causation requirement. This defect is inherent in Proposal One, and would not be avoided even if (contrary to fact) reliable measures of inframarginal costs existed.

Second, and in any event, reliable measures of inframarginal costs do not exist. Dr. Neels developed his estimates of inframarginal costs by using a methodology published by Charles McBride, a contractor to the Commission, in 2014. Dr. McBride’s methodology, however, relied on assumptions about the level of inframarginal costs, not reliable econometric or engineering data. Dr. McBride had no choice: there is no reliable way to disaggregate the institutional costs of a postal cost component into the fixed portion and the inframarginal portion.

Fixed costs are defined as the point where the total cost curve intercepts the vertical axis. This intercept represents the point on the cost curve where volume—or, more precisely, component driver activity—is zero. The available econometric estimates of Postal Service cost curves, however, are derived from regressions of costs at output levels far above zero. Extrapolating these data points back to the vertical axis—*i.e.*, the point where volume is zero—amounts to untestable guesswork. Nor does economic theory provide any reliable insights into the magnitude of these costs. Because the law requires reliable evidence of causation to support cost attribution, Dr. McBride’s (and thus Dr. Neels’) estimates about

where the cost curve might hit the vertical axis if output collapsed to zero fail as a matter of law to satisfy the reliable-evidence-of-causation requirement.

UPS and Dr. Neels do not discuss these problems. Instead, they argue that the Commission should adopt Proposal One because it resembles the Shapley Value, the ratemaking standards of the Surface Transportation Board (“STB”) and several state public utility commissions, Article 14 of a European Union directive, and the accounting practices of private corporations. These claims are unfounded.

The Shapley Value, whatever its merits in other contexts, is unacceptable here because it is not designed to satisfy the objectives and constraints codified in Title 39. The PAEA, like most other modern regulatory statutes, seeks to accomplish a complex variety of objectives, including the promotion of both economic efficiency and a variety of non-efficiency goals, many of which are mutually inconsistent. The PAEA also prescribes several bright-line limits on postal prices and the Commission’s regulatory authority. These limits include a price floor for individual services equal to attributable cost, an average revenue floor for competitive products based on their combined incremental costs, an upper bound on class-average price increases for market-dominant products equal to the rate of inflation, and an outright exemption of competitive products from maximum rate regulation. The record contains no evidence that Shapley-based rates would comply with the bright-line standards of PAEA, including the causation requirements of the price floors. Nor does the record provide any basis for assuming that the Shapley allocation method could properly balance the more subjective factors and objectives of PAEA, except in the implausible coincidence that all USPS products had the same elasticity of demand and

made the same contribution to each of the non-efficiency factors that the ratemaking standards of PAEA require the Commission to consider.

The Shapley allocation method cannot justify adoption of Proposal One for a second and independent reason. The inputs to the Shapley Value are a handful of axioms and the predicated behavior of the participants in the game. The Shapley method does not require the econometric estimation of any parameter. As discussed above, however, the PAEA requires reliable evidence of causation before costs may be attributed to individual products. Because the estimates of inframarginal costs offered by Dr. Neels depend on cost estimates that are little more than guesses, Proposal One cannot satisfy the causation requirement for cost attribution.

UPS has failed to identify *any* regulatory body in the United States that has adopted the Shapley method to set minimum prices during the 62 years since it was first published. The Commission considered an Office of Consumer Advocate (“OCA”) proposal to use the Shapley method to set postal rates in R94-1, but declined to adopt the proposal because the Shapley allocation failed to satisfy some of the most critical pricing objectives that the Commission was (and still is) required to promote.

The Surface Transportation Board does not require that minimum railroad rates cover the Shapley Value, average variable costs, or fully allocated costs. Between 1980 and 1995, the ICC, the predecessor of the STB, allowed railroads to reduce rates to as low as short run marginal costs. In 1995, Congress, when transferring the ICC’s regulatory authority to the STB, repealed the provision of law that allowed competitors to challenge

railroad rates as unreasonably low. The Interstate Commerce Act now imposes no cost floor of any kind under railroad rates.

The two state public utilities commissions that UPS portrays as having approved the Shapley method for ratemaking in fact rejected it.

European precedent is also unsupportive. Although Article 14 of the EU postal directive does purport to require that European postal rates cover fully allocated costs, the provision has been highly controversial, and many postal operators have elected not to implement it because they consider fully allocated cost floors on prices to be untenable. In any event, the Postal Service and the Commission are governed by the PAEA, which excludes any role for fully-allocated cost pricing.

Corporate accounting practices also fail to justify adoption of Proposal One. Although some corporations elect to use accounting systems that use fully allocated cost techniques, this practice has been widely criticized by economists. In any event, even companies that use fully allocated costs in internal accounting often price below fully allocated cost when they believe that doing so would increase total profits.

(3)

Proposal Two also violates the statutory causation requirement for cost attribution. The proposal is based on a series of 85 regressions by Dr. Neels that compared changes in mail volume against changes in total costs during the period from Fiscal Years 2007 through 2014 for 84 cost components and Postal Service costs in the aggregate. The regressions

purportedly found \$3.4 billion of “hidden variable costs” in “reported fixed costs.” 39 U.S.C. § 3631(b) requires, however, that a proponent of attributing a cost to an increment of volume demonstrate the existence of a reliable causal relationship between the two. The regressions have not met this burden.

First, Dr. Neels has failed to control for potential confounding causes of changes in costs during the eight-year period analyzed by his regressions. The most obvious potential confounding causes during this period include the 2007-2009 recession, productivity changes, the Postal Service’s capital crunch and its effect on deferrable spending, changes in inflation-adjusted factor prices, statutory changes, and changes in cost methodology and accounting adjustments. His regressions did not control for these potential confounding causes because he included no variables for them. The Commission has long emphasized the importance of controlling for confounding causes in regression analysis. The Commission did so most recently in Docket No. R2013-11 when disallowing recovery of billions of dollars of losses on the ground that the Postal Service’s regression study had failed to include an explanatory variable to separate the effects of the 2007-2009 recession on mail volume from the effects of electronic diversion.

Second, Dr. Neels’ regressions have only eight annual data points—far too few to permit reliable statistical inference.

Third, many of Dr. Neels’ regressions produced anomalous results—e.g., negative intercept terms (which imply that fixed costs are negative), negative slopes (which imply that the incremental costs of additional volume are negative), and inexplicable and

seemingly random patterns in the distribution of the data. Dr. Neels dealt with these problems by discarding the regressions with anomalous results or changing the specifications of the regressions to constrain their outputs into an acceptable range. These responses, however, failed to deal with the underlying problem implied by the anomalous results: the possibility that the underlying methodology or data contain major errors that affect even the regressions with positive intercepts and positive slopes. The “hidden variable costs” found by Dr. Neels are artifacts of confirmation bias, not products of reliable evidence.

Fourth, the results of Dr. Neels’ regressions are highly unstable. In particular, deleting the data for 2007 and 2008, the two most distant and unrepresentative years, makes the slope coefficients negative, causes dramatic increases in the intercept (or constant) values, and makes the 95 percent confidence interval *wider than the total reported fixed costs*.

Finally, the analysis is one-sided. A complete analysis of whether existing Postal Service costing methodologies understate the extent to which costs are fixed would examine not only whether costs now classified as fixed are actually variable, but also whether costs now classified as variable are actually fixed. Dr. Neels, however, considers only the first issue, and ignores the latter. In fact, running similar regressions on costs now classified as variable indicates (by the logic of his model) that those costs contain *\$8.6 billion of hidden fixed costs*. This is more than *double* the \$3.4 billion in supposedly variable costs that Dr. Neels claims to have found hiding in “reported fixed costs.” AFSI does not suggest the Commission act on these results. The methodology cannot support reclassification of costs

in either direction. However, the one-sided nature of his analysis is an independent reason to give it no weight.

III. THE COST STANDARDS USED BY THE COMMISSION TO SET PRICE FLOORS FOR COMPETITIVE PRODUCTS ARE CONSISTENT WITH THE LAW AND SOUND ECONOMIC PRINCIPLES.

Proposals 1 and 2 raise an important question of public utility and common carrier regulation: how low should a regulated monopoly be allowed to price its competitive services? In answering this question, however, the Commission is not writing on a blank slate. It is important to recall how the economics profession, Congress, the Commission and the courts arrived at the current cost standards, and why those standards have been repeatedly reaffirmed.

Title 39, as amended by the Postal Accountability and Enhancement Act of 2006 (“PAEA”), establishes two cost floors on competitive products. First, market-dominant products may not subsidize competitive products. 39 U.S.C. § 3633(a)(1). Second, each competitive product must cover its “costs attributable,” which the statute defines as “the direct and indirect postal costs attributable to such product through reliably identified causal relationships.” *Id.* §§ 3631(b), 3633(a)(2).

To enforce the prohibition against cross-subsidy, the Commission has adopted 39 C.F.R. § 3015.7(a), which provides:

Incremental costs will be used to test for cross-subsidies by market dominant products of competitive products. To the extent that incremental cost data are unavailable, the Commission will use competitive products’ attributable costs

supplemented to include causally related, group-specific costs to test for cross-subsidies.

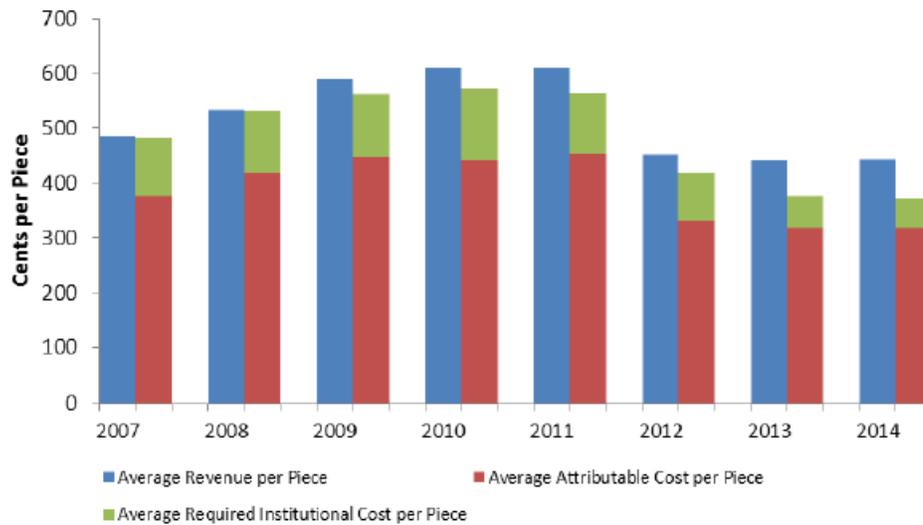
To enforce the attributable cost floor, the Commission requires that “[e]ach competitive product must recover its attributable costs as defined in 39 U.S.C. 3631(b).” *Id.* § 3015.7(b).

The Commission has scrutinized the Postal Service’s competitive rates for compliance with these cost benchmarks in each of the Commission’s annual compliance determinations under 39 U.S.C. §§ 3652 and 3653 during the past six years. In each case, the Commission has found that each of the major domestic competitive products covers its attributable costs, and the competitive products as a whole cover their incremental costs.⁴ The following figure, published by the Commission in 2015, graphically illustrates the revenue-to-attributable cost relationship for competitive products as a whole:

⁴ PRC Docket No. ACR2009, *Fiscal Year 2009 Annual Compliance Determination Report* 115-17 (Mar. 29, 2010); PRC Docket No. ACR2010, *Fiscal Year 2010 Annual Compliance Determination Report* 137-49 (Mar. 29, 2011); PRC Docket No. ACR2011, *Fiscal Year 2011 Annual Compliance Determination Report* 153-64 (Mar. 28, 2012); PRC Docket No. ACR2012, *Fiscal Year 2012 Annual Compliance Determination Report* 161-73 (Mar. 28, 2013); PRC Docket No. ACR2013, *Fiscal Year 2013 Annual Compliance Determination Report* 79-92 (Mar. 27, 2014); PRC Docket No. ACR2014, *Fiscal Year 2014 Annual Compliance Determination Report* 71-86 (Mar. 27, 2015).

Figure 2

Competitive Average Unit Revenue and Cost, FY 2007-FY 2014

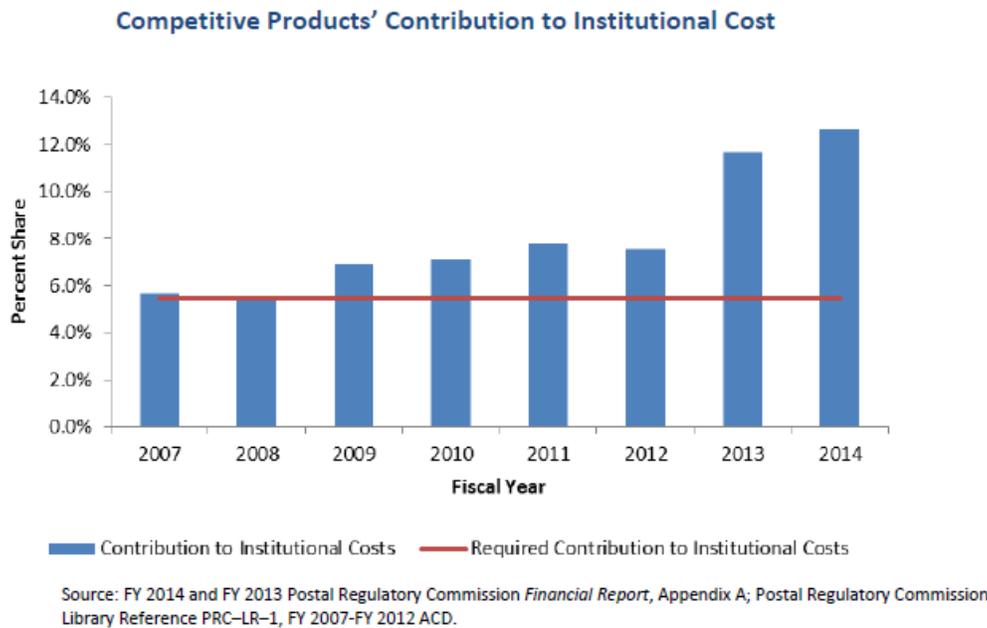


Source: Postal Regulatory Commission derived from U. S. Postal Service *Cost and Revenue Analysis Reports*, FY 2007-FY 2014.

PRC, *Financial Analysis of United States Postal Service Financial Results and 10-K Statement: Fiscal Year 2014* (April 1, 2015) 40, Figure III-7.

Likewise, the net contribution of competitive products to Postal Service institutional costs is large, growing, and well above the minimum prescribed by the Commission under 39 U.S.C. § 3633(a)(3):

Figure 3



Id. at 41, Figure III-8.

The language and legislative history of Section 3633, and the precedent established by the Commission and reviewing courts since the early 1970s under Sections 3631 and 3633 and their predecessor, former 39 U.S.C. § 3622(b)(3), make clear that the Commission's incremental and attributable cost standards satisfy the statute. Further, the post-1970 economic literature on cross-subsidization by multi-product firms shows that the Commission's incremental and attributable cost standards are consistent with the consensus of mainstream economic thinking.

In part A of this section, we define the relevant cost concepts and describe the cost tests generally accepted by most economists as appropriate for protecting against noncompensatory prices and cross-subsidization of competitive products by market-dominant products. In part B, we review the language and history of the cost floors for

competitive products imposed by Congress in 39 U.S.C. § 3631(b), 3633(a)(1), and 3633(a)(2), and show that rates which cover attributable and incremental costs satisfy those statutory requirements. In part C, we respond to UPS's claim that the Commission's specific procedures for estimating these costs understate the attributable and incremental costs actually caused by competitive products. In part D, we respond to UPS's related claim that Postal Service price reductions on competitive products have amounted to unfair competition.

A. The basic economic principles

One of the traditional responsibilities of agencies that regulate network monopolies is to ensure that the prices charged for competitive services cover the economic costs of producing those services. As UPS notes, pricing services below the relevant economic costs of a regulated firm can cause economic inefficiency, force purchasers of market-dominant services to cross-subsidize competitive services offered by the same firm, and exclude efficient competitors. However, it is also true that regulatory price floors set *above* the economic costs of competitive services can reduce economic efficiency and consumer welfare by sending inefficient price signals to consumers, disabling the regulated firm from competing to the full extent permitted by its own cost structure, reducing the overall contribution to fixed, common and joint costs that the regulated firm could otherwise earn from the competitive products, and effectively cartelizing the market segments where the regulated firm and its private competitors compete by erecting a regulatory price umbrella in those markets. Declaration of John C. Panzar for AFSI (filed Jan. 25, 2016) ("Panzar

Decl.”) at 20-31; *see also* pp. 7-9, *supra*.⁵ For this reason, economists and regulators have recognized that allegations by rivals of a regulated firm that it is engaging in cross-subsidy, non-compensatory pricing and unfair competition must be examined with extreme care not to impair legitimate competition. *See* pp. 7-8, *supra*; 3A Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶¶ 723b & 723e (4th ed. 2015).

In the theoretical model of atomistic, single-product firms operating in perfectly competitive markets, the relationship between costs and prices is straightforward. Perfectly competitive firms are price-takers, and produce output only up to the point that the added cost caused by the last unit of output (*i.e.*, the marginal cost) equals the market price of the output.⁶ Over the long run, the market-clearing price also equals the firm’s average total

⁵ *See also* USPS OIG, *A Primer on Postal Costing Issues* at 4, 28; William J. Baumol, Michael F. Koehn & Robert D. Willig, *How Arbitrary is ‘Arbitrary’—or, Toward the Deserved Demise of Full Cost Allocations*, *Public Utilities Fortnightly* 17-18 (Sept. 3, 1987); *Coal Rate Guidelines—Nationwide*, 1 I.C.C.2d 520, 523, 526 (1985), *aff’d*, *Consolidated Rail Corp.*, 812 F.2d at 1453-54; *Potomac Elec. Power Co. v. ICC*, 744 F.2d 185, 193-94 (D.C. Cir. 1984) (“PEPCO”); William J. Baumol & Robert D. Willig, *Pricing Issues in the Deregulation of Railroad Rates*, in *Economic Analysis of Regulated Markets* 20-25 (Jörg Finsinger ed., 1983); *Wheeling-Pittsburgh Steel Corp. v. ICC*, 723 F.2d 346, 355 n.22 (3d Cir. 1983); *Cost Standards for Railroad Rates*, 362 I.C.C. 800, 806-08 (1980), *aff’d*, *Water Transport Ass’n v. ICC*, 684 F.2d 81 (D.C. Cir. 1982); 1 Alfred E. Kahn, *The Economics of Regulation* 155, 199 (1970); William J. Baumol, *et al*, *The Role of Cost in the Minimum Pricing of Railroad Services*, 35 *J. of Business* 357, 360, 364-65 (October 1962).

⁶ Marginal cost is the incremental cost of a single unit of output, or the cost avoided by not producing a single unit of output. In mathematical terms, marginal cost is the limit of the average incremental cost as the increment approaches zero. It is also defined as the slope, or first derivative, of the total cost function. Panzar Decl. at 5; PRC Docket No. PI2008-2, Order No. 56, *Review of Treasury Report* (Jan. 28, 2008) at 4 n.3; *accord* USPS OIG, *A Primer on Postal Costing Issues* at 3 & App. A; 1 Kahn, *The Economics of Regulation* 65-66.

cost of the product. Firms that price below marginal cost over the long run fail. And cross-subsidy is by definition not a concern in single-product firms.⁷

The correct pricing principles are more complex, however, for the Postal Service and other regulated network industries (e.g., railroads, pipelines, electric, gas and water utilities, and telecom carriers). These enterprises typically have important structural characteristics:

- The firm produces multiple outputs.
- A significant share of the costs of these outputs are incurred in common by the production of multiple outputs.
- Economies of scale, scope or density mean that average total costs are declining over much or all of the relevant range of output.
- Elasticities of demand for individual outputs vary widely. The firm enjoys significant pricing power over some outputs, but faces effective competition for others.

For these firms, a rule requiring that all services be priced at their marginal cost would prevent the firm from recovering its total costs, and would thus lead to insolvency. Hence, a firm with these characteristics must price at least some of its outputs above—and sometimes well above—marginal and incremental costs.⁸ *How* regulated monopolies should be allowed to do so is one of the central questions of rate regulation.

⁷ See PRC Docket No. R97-1 Op. & Rec. Decis. (May 11, 1998) ¶¶ 3001-02; N. Gregory Mankiw, *Principles of Microeconomics* 292 (6th ed. 2012); F.M. Scherer and David Ross, *Industrial Market Structure and Economic Performance* 19-20 (3d ed. 1990); James M. Henderson & Richard E. Quandt, *Microeconomic Theory: A Mathematical Approach* 117 (2d ed. 1971); George J. Stigler, *The Theory of Price* 176-78 (3d ed. 1966).

⁸ USPS OIG, *A Primer on Postal Costing Issues* at 2-3, 14-15, 19; PRC Docket No. R94-1 Op. & Rec. Decis. (Nov. 30, 1994) at App. F at 3-4 (support for conditions); PRC Docket No. R84-1 Op. & Rec. Decis. (Sept. 7, 1984) ¶¶ 4102, 4108 (quoting Bruce M. Owen and Robert D. Willig, “Economics and Postal Pricing Policy,” in Joel L. Fleischman, *The Future of the*

Throughout most of the 20th century, two competing paradigms vied to answer this question: (1) pricing based on accounting allocations of fixed and common costs, and (2) economic or differential pricing.

Pricing based on accounting allocations. The allocation approach requires that the price for each service cover not only its marginal or incremental costs, but also a pro rata allocation of the fixed and common costs of the firm as a whole. This approach is commonly known as *fully allocated cost* or *fully distributed cost* pricing. The allocation can be proportional to the relative number of units produced of each class of service), or the total cubic volume of each class, or the weight of each shipment, the weight of each shipment multiplied by the distance of its carriage, or a theoretically infinite variety of other allocation methods, none of which has any causal basis. Ronald R. Braeutigam, *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* 1313 (R. Schmalensee & R. Willig, eds., 1989). Because all costs are allocated, the fully allocated cost of each service typically serves as both the regulatory price ceiling and the price floor. 1 Alfred E. Kahn, *The Economics of Regulation* 150-58, 198-99 (1970).

Relying on fully allocated costs to set prices has several major defects. First, the process of allocating joint and common costs to individual services, regardless of the

Postal Service 229 (1983)); Braeutigam, *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* 1291-98 (Schmalensee & Willig, eds., 1989); *Coal Rate Guidelines*, 1 I.C.C.2d at 526; 1 Kahn, *The Economics of Regulation* 136 (figure); *Toward Postal Excellence: The Report of the President's Commission on Postal Organization* (1968) ("Kappel Commission Report") at 129, 131-34.

allocation method, is inherently arbitrary. The resulting cost figures, because they are untethered from causation, have no basis in economic reality:

FDC [fully distributed cost] approaches have been severely criticized by economists. They emphasize that different FDC allocation methods are essentially arbitrary, and can lead to widely different results (e.g., allocation by volume versus allocation by attributable cost). They also condemn the failure of FDC pricing to maximize economic efficiency. Under traditional FDC pricing, the most important cost concept is not marginal cost, but an “average cost” without a clear rationale.

PRC Docket No. R94-1 Op. & Rec. Decis. (Nov. 30, 1994) at App. F at 7. “[I]t is a commonplace among economists that [fully distributed cost pricing systems] are highly arbitrary and yield ill-designed rate schedules.” PRC Docket No. R87-1 Op. & Rec. Decis. (Mar. 4, 1988) ¶ 3024 n.8. Fully distributed costing “is condemned by the majority of economists because it allocates costs to classes of service by arbitrary criteria that do not reasonably reflect causation.” PRC Docket No. R84-1 Op. & Rec. Decis. (Sept. 7, 1984) ¶ 3052. The “problem with FDC is that institutional costs by definition are not caused by any product. Therefore any method used to allocate institutional costs to products is by its very nature arbitrary.” USPS Office of Inspector General Report No. RARC-WP-12-008, *A Primer on Postal Costing Issues* at 4, 25-27 (March 20, 2012).

Prof. Alfred Kahn, whom UPS cites in support of its proposals,⁹ in fact *opposed* fully allocated cost pricing because of its lack of a foundation in cost causation: “the basic defect of fully distributed costs as a basis for rate making is that they do not necessarily measure

⁹ Petition of USPS for the Initiation of Proceedings to Make Changes to Postal Service Costing Methodologies (“Petition for Rulemaking”) at 19 & n.19 (Oct. 8, 2015).

marginal cost responsibility in a causal sense.” 1 Kahn, *The Economics of Regulation* 151-52; *see generally id.* at 150-55. Other prominent economists have agreed.¹⁰

Second, fully allocated costs, when used as price floors in competitive markets, tend to operate as cartelizing devices, suppressing competition and creating havens of inefficiency. In competitive markets, a firm can meet competition by reducing prices below

¹⁰ “Various means of prorating the common or joint costs can be used, but all of them have an arbitrary element and hence are dangerous to use in prescribing rates.” Braeutigam *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* at 1314 (quoting Ann F. Friedlaender, *The Dilemma of Freight Transport Regulation* (1969)). Fully allocated cost values “are necessarily figments of the imagination,” “cannot pretend to constitute approximations to anything,” and “simply have zero economic content.” Baumol, Koehn & Willig, *How Arbitrary is ‘Arbitrary’—or, Toward the Deserved Demise of Full Cost Allocations*, *Public Utilities Fortnightly* 16-21 (Sept. 3, 1987) (emphasis in original). Economists and regulators have recognized the “destructiveness and inefficiency” of using fully distributed costs “in the process of rate-floor determination.” Baumol & Willig, *Pricing Issues in the Deregulation of Railroad Rates*, in *Economic Analysis of Regulated Markets* 21 (Finsinger ed., 1983). “[A]ny fully distributed allocation based on cost criteria alone [is] a futile exercise” and a “will-o’-the-wisp that cannot be attained.” Melvyn A. Fuss, *Cost Allocation: How Can the Costs of Postal Service Be Determined?* in *Perspectives on Postal Service Issues* at 43, 44 (Roger Sherman, ed., 1980). “Fully allocated costs have no true economic content because their derivation falsely assumes that all costs can be traced to particular kinds or quantities of output and can rationally enter directly into pricing decisions.” William J. Baumol *et al.*, *The Role of Cost in the Minimum Pricing of Railroad Services*, 35 *J. of Business* 357, 360 (October 1962). *See also* 3A Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 741f at 237 (4th ed. 2015) (average total cost tests for predatory pricing “degenerate into nonsense when costs are measured by fully allocated rather than incremental methods”); *MCI Commc’ns Corp. v. Am. Tel. & Tel. Co.*, 708 F.2d 1081, 1116-23 (7th Cir.), *cert. denied* 464 U.S. 891 (1983) (fully distributed cost “is a quite arbitrary allocation of costs among different classes of service.” While popular because of its “ease of application,” FDC “cannot purport to identify those costs which are caused by a product or service, and this is fundamental to economic cost determination.”); *United States v. AMR Corp.*, 335 F.3d 1109, 1117-18 (10th Cir. 2003) (cost measures that include “arbitrary allocations of costs among different classes of service” are “simply not proxies for marginal or incremental cost” and thus are “invalid as a matter of law” as tests for predatory behavior).

fully allocated cost—if necessary, all the way down to the firm’s incremental cost. A fully allocated cost tends to suppress this price competition, particularly if the regulated firm (1) seeks to disrupt an existing oligopoly through aggressive price cuts, (2) has lower incremental costs than its unregulated rivals, or (3) both. Panzar Decl. at 3, 20-30.¹¹

Third, if the demands for some services are sufficiently price-elastic that the contribution-maximizing prices for the services are below fully-allocated cost, imposing a fully-allocated floor on the prices of those services will reduce the firm’s net contribution from those services. Conversely, using fully allocated cost as a rate ceiling limits the contribution to fixed and common costs that a firm can obtain from products and services with inelastic demand. Panzar Decl. at 20-30. As Prof. Kahn explained:

The basic defect of full cost distribution as a basis for pricing is, then, that they ignore the pervasive discrepancies between marginal and average cost. ... Whenever there is some separable portion of the demand sufficiently elastic that a rate below fully-allocated costs for it would add more to total revenue than to total costs, any insistence that each service or group of patrons pay their fully allocated costs would be self-defeating. It would force the firm to charge a price that would result in its turning away business that it would have covered its marginal costs—in other words, would prevent it from obtaining from customers with an elastic demand the maximum possible contribution to overheads. Thus, under the guise of ensuring a fair distribution of common costs and preventing undue discrimination, it would be serving the interests neither of the patrons who would be prepared to take additional quantities if prices were closer to marginal costs, nor of the customers with the more inelastic demand.

¹¹ See also USPS OIG, *A Primer on Postal Costing Issues* at 4; Baumol & Willig, *Pricing Issues in the Deregulation of Railroad Rates*, in *Economic Analysis of Regulated Markets* 20-25 (Finsinger ed., 1983); *Coal Rate Guidelines*, 1 I.C.C.2d at 526; 1 Kahn, *The Economics of Regulation* at 155; 2 Kahn, *The Economics of Regulation* at 21-24, 248-49; Boies, *Experiment in Mercantilism: Minimum Rate Regulation by the Interstate Commerce Commission*, 68 Colum. L. Rev. 599 (April 1968).

1 Kahn, *The Economics of Regulation* 155.¹² At the extreme case, the losses in contribution caused by fully allocated price floors and ceilings may be great enough to make the regulated firm insolvent. *See* p. 8 & n.3, *supra*.

For these reasons, most regulatory economists and regulators reject the use of fully allocated costs as a price floor. *See* pp. 8, 29-33, *supra*.

Price floors based on other methods of allocating systemwide variable or inframarginal costs to individual services, by requiring those services to pay for costs that the services do not cause, have the same defects as fully allocated cost pricing. Panzar Decl. at 3-4, 11-13, 15-31.

Economic pricing. Rather than impose price floors based on arbitrary cost allocations, most economists believe that regulated monopolies should be given flexibility to set prices within a zone of reasonableness bounded below by the incremental and marginal costs of the outputs in question, and bounded above by one of several other standards, none of which rely on arbitrary allocations of fixed and common costs. Panzar Decl. at 2-3, 13-14. The reason that regulated firms should be given flexibility to price individual outputs down to marginal and incremental cost lies in basic principles of cost causation. There is a causal relationship between the quantities of economic goods and services produced by a multi-product entity and the costs incurred by that entity. Incremental costs are the costs that are

¹² *Accord* USPS OIG, *A Primer on Postal Costing Issues* at 28; Baumol, Koehn & Willig, *How Arbitrary is 'Arbitrary'—or, Toward the Deserved Demise of Full Cost Allocations, Public Utilities Fortnightly* 17-18 (Sept. 3, 1987); *Coal Rate Guidelines*, 1 I.C.C.2d at 523, 526; *PEPCO*, 744 F.2d at 193-34; *Wheeling-Pittsburgh*, 723 F.2d at 355 n.22.

caused by the production of a particular *subset* of a firm's outputs. Stated conversely, incremental costs are the costs that would be avoided if a given subset of the firm's outputs were *discontinued*. Incremental cost excludes, by definition, any costs that a firm would still incur even if the specific increment of output were eliminated.¹³

Of particular significance here, the incremental costs of any subset of the firm's output are likely to be lower—often significantly lower—than the average total costs or even an allocated share of total variable costs of the firm. This is especially so when the cost function of a multi-output firm is *sub-additive*—that is, the total costs of producing all of the outputs of the firm together are lower than the total costs of producing the same quantity of outputs divided among two or more smaller firms. UPS has recognized (correctly in our view) that the marginal and average incremental costs of most if not all products, classes and other subsets of the Postal Service's output are likely to be well below fully allocated cost or an allocated share of total variable costs. Report of Kevin Neels Concerning UPS Proposals One, Two, and Three (filed Oct. 8, 2014) ("Neels Report") at 25, Figures 6 and 7.

As noted above, marginal cost is the incremental cost of a *single* unit of output, or the cost *avoided* by not producing a single unit of output. Marginal cost is the limit case of incremental cost as the increment of volume approaches zero. In mathematical terms, marginal cost is defined as the slope of the total cost function, or its partial derivative with respect to volume. Panzar Decl. at 5; USPS OIG, *A Primer on Postal Costing Issues* at 3 &

¹³ Panzar Decl. at 2, 4-5; accord Panzar Report at 5-6; USPS OIG, *A Primer on Postal Costing Issues* at 22; PRC Docket No. PI2008-2, Order No. 56 (Jan. 28, 2008) at 4 n.3; PRC Docket No. RM2007-1, Order No. 26, *Regulations Establishing a System of Ratemaking* (Aug. 15, 2007) at 65 ¶ 3040; 1 Kahn, *The Economics of Regulation* 66.

App. A; PRC Docket No. PI2008-2, Order No. 56, *Review of Treasury Report* (Jan. 28, 2008) at 4 n.3.

Both marginal and incremental costs play roles in defining economically sound price floors. First, the price on each *individual* unit of output should cover its marginal cost. Second, the *average* price charged for any *larger* increment of output (whether product, class, or combination of two or more products or classes) should cover the incremental cost *of that increment of output*. The marginal cost floor ensures that the price is not inefficiently low; the incremental cost test ensures that the increment of output is not being subsidized by other outputs of the firm, or by the firm's owners.¹⁴

The economic standards endorsed by economists for constraining *maximum* rates—*i.e.*, defining the top of the zone of reasonableness—are more varied. The most widely recognized maximum rate standards are as follows:

- (1) If the regulator's goal is simply to maximize economic efficiency (defined as total consumer surplus), prices for individual outputs should be marked up over marginal cost based on Ramsey pricing principles. These principles call for recovering the shortfall between total costs and marginal costs by assigning the highest markups to products with the most inelastic own-price

¹⁴ Panzar Decl. at 2-3 & n.4; PRC Docket No. RM2010-4, Order No. 399, *Order Accepting Analytical Principles Used in Periodic Reporting (Proposals Twenty-two through Twenty-five)* (Jan. 27, 2010) at 2; PRC Docket No. R97-1 Op. & Rec. Decis. (May 11, 1998) at 235-36; Braeutigam *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* 1337-41; Gerald Faulhaber, *Cross-Subsidization: Pricing in Public Enterprises*, 65 *Am. Econ. Rev.* 966 (1975).

elasticities of demand (and, typically, the least intense competition).¹⁵ In the first three omnibus rate cases in the 1970s, the Commission tried to approximate Ramsey prices, approving rate schedules with markups over marginal or variable cost that were, with varying degrees of precision, inversely related to the Postal Service's estimates of the own-price elasticities of demand for individual classes.¹⁶

- (2) If the regulator's goal is to maximize multiple objectives, some of which are inconsistent with efficiency or cannot readily be represented by numerical values, the regulator may strike a judgmental balance of a variety of considerations in prescribing rates (or maximum rates) for the individual outputs of the regulated firm. The Commission followed this approach from PRC Docket Numbers R84-1 through R2006-1.¹⁷

¹⁵ Frank P. Ramsey, *A Contribution to the Theory of Taxation*, 37 *Econ. J.* 47 (March 1927); William J. Baumol & David Bradford, *Optimal Departures from Marginal Cost Pricing*, 60 *Am. Econ. Rev.* 265 (1970); Braeutigam, *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* 1320-27; Jean Tirole, *The Theory of Industrial Organization* 70 (1990). Strict Ramsey pricing also requires further adjustments in markups to reflect cross-elasticities of demand. *Id.*

¹⁶ See PRC Docket No. R71-1 Op. & Rec. Decis. (June 5, 1972) at 47-49, *aff'd*, *Ass'n of American Publishers v. Governors of the USPS*, 485 F.2d 768 (D.C. Cir. 1973); PRC Docket No. R74-1 Op. & Rec. Decis. (Aug. 28, 1975) at 4-7, 76-145, *rev'd*, *Nat'l Ass'n of Greeting Card Publishers v. USPS*, 569 F.2d 570 (D.C. Cir. 1976) ("*NAGCP I*"), *vacated as to other issues*, 434 U.S. 884 (1977); PRC Docket No. R76-1 Op. & Rec. Decis. (June 30, 1976) at 10-13, 75-103.

¹⁷ See, e.g., PRC Docket No. R84-1 Op. & Rec. Decis. (Sept. 7, 1984) ¶¶ 4101-40, *aff'd*, *Direct Marketing Ass'n, Inc. v. USPS*, 778 F.2d 96, 112 (2d Cir. 1985); PRC Docket No. R87-1 Op. & Rec. Decis. (Mar. 4, 1988) ¶¶ 1007-08, 3003-3005, 3011, 3017-25, 4007, 4042-58, 4072-4113; PRC Docket No. R90-1 Op. & Rec. Decis. (Jan. 4, 1991) ¶ 4008, *aff'd* on this ground, *Mail Order Ass'n of America v. USPS*, 2 F.3d 408, 425-27 (D.C. Cir. 1993); PRC Docket No.

- (3) If the regulator’s primary goal for maximum rate regulation is to protect against cross-subsidy, the regulator may give the regulated firm flexibility to price individual services as high as it chooses, subject to the constraint that the rate for any one service may not exceed its stand-alone costs, and the rate for each combination of services may not exceed the stand-alone costs of that combination.¹⁸ The ICC and its successor, the STB, have been using variations of this approach since the mid-1980s.¹⁹
- (4) Another approach, which has gained widespread popularity since the 1990s, replaces traditional regulation of maximum rates with a “price cap” or “incentive” mechanism that limits price increases to the percentage increase in the Consumer Price Index or some other exogenous index. Congress has required the Commission to use this approach for market-dominant products since 2007. 39 U.S.C. § 3622(d).²⁰

R97-1 Op. & Rec. Decis. (May 11, 1998) at 239-44; PRC Docket No. R2000-1 Op. & Rec. Decis. (Nov. 13, 2000) ¶ 4005; PRC Docket No. R2005-1 Op. & Rec. Decis. (Nov. 1, 2005) at 96 ¶ 5043.

¹⁸ Faulhaber *Cross-Subsidization: Pricing in Public Enterprises*, 65 Am. Econ. Rev. 966 (1975); Braeutigam *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* 1337-41 (1989); Alfred E. Kahn, “Market Power and Deregulated Industries,” 60 *Antitrust L.J.* 857, 859-60 (1992).

¹⁹ See *PEPCO*, 744 F.2d 185 (D.C. Cir. 1984); *Coal Rate Guidelines*, 1 I.C.C.2d 520.

²⁰ See also *Revisions to Oil Pipeline Regulations Pursuant to the Energy Policy Act*, FERC Stats. & Regs. [Regs. Preambles, 1991-1996] ¶ 30,985 (1993), 58 Fed. Reg. 58753 (Nov. 4, 1993); *order on reh'g*, Order No. 561-A, FERC Stats. & Regs. [Regs Preambles, 1991-1996] ¶ 31,000 (1994), 59 Fed. Reg. 40243 (Aug. 8, 1994), *aff'd*, *Association of Oil Pipelines v. FERC*, 83 F.3d 1424 (D.C. Cir. 1996) (adopting index-based regulation of maximum rates charged by oil pipeline industry).

- (5) Finally, products that are effectively competitive may be exempted entirely from maximum rate regulation, on the ground that competition, when effective, is the best regulator. The PAEA exempts competitive postal products from maximum rate regulation. *See* 39 U.S.C. § 3633 (exempting competitive products from maximum rate regulation). *Compare* 49 U.S.C. §§ 10707(a) through (c) (exempting railroad freight transportation offered in competitive markets from maximum rate regulation), *with* 18 C.F.R. §§ 342.4(b), 348.1(c)(1), (2) (exempting transportation services offered by oil pipelines in competitive markets from maximum rate regulation).

The optimal maximum rate standard for the Postal Service is beyond the scope of this proceeding. It is sufficient to note two points. First, *none* of the five maximum rate standards listed above includes (or is premised on) a requirement that minimum rates do more than cover marginal and incremental costs. Second, the zones of reasonableness between the rate floors and rate ceilings allowed under all five regulatory approaches are wide: permissible markups on products with relatively weak competition and relatively inelastic demand can be many times the markups charged on the products with the most inelastic demand and the strongest competition.

B. The Marginal, Attributable And Incremental Cost Standards Developed By The Commission Satisfy 39 U.S.C. §§ 3631(b), 3633(a)(1) and 3633(a)(2).

The text and history of 39 U.S.C. §§ 3631(b), 3633(a)(1) and 3633(a)(2) make clear that these provisions are satisfied by postal rates that cover (1) the marginal cost (or its statutory proxy, attributable cost) of each marginal unit of output and (2) the average

incremental costs of larger increments of volume. The text and history of the statute also make clear that the Commission has no authority to attribute any costs to an individual mail class or product, or include any costs in the incremental costs of any class, product or group of classes or products, without a reliable showing that the costs are *caused* by the particular mail class, product or group at issue. Attributing additional costs to particular mail classes or products without reliable showing of causation is unlawful. Because the PAEA effectively codified the cost standards established by the Commission and the courts under the Postal Reorganization Act of 1970, review of the earlier precedent is essential to understanding the meaning of the current statute.

1. Cost attribution standards before 2007

The Postal Reorganization Act of 1970. Before 1971, the rates and fees charged by the Post Office Department were set by Congress, and coverage of marginal or incremental costs received little priority. *Toward Postal Excellence: The Report of the President's Commission on Postal Organization* ("Kappel Commission Report") at 39 (1968). Between 1926 and 1971, postal pricing relied heavily on the Cost Ascertainment System ("CAS"), an elaborate accounting system that used fully-allocated costing to assign both variable and fixed costs to individual mail classes. *Id.* at 130-31. The Kappel Commission Report and other independent observers sharply criticized the CAS on this ground:

We do not believe that *any* fully-allocated system is appropriate for rate-making. Full-cost allocation blurs the critical distinction between variable and fixed costs and makes it impossible to determine whether a particular class pays its true costs.

Id. at 133; *accord* PRC Docket No. R74-1 Op. and Rec. Decis. (Aug. 28, 1975) at 82-83 (discussing reports of Kappel Commission and Touche, Ross, Bailey and Smart). Instead, the Kappel Commission explained, the rates floor for mail classes with relatively elastic demand should cover only the costs that vary with changes in the volume of each class of mail. Kappel Commission Report at 131. Institutional costs, which cannot be causally attributed to individual mail classes, should be recovered not through “inherently arbitrary” allocation or distribution formulas, but through value-of-service principles based on demand elasticities and other market considerations. *Id.* at 131-32.

The Kappel Commission Report set off a vigorous debate between the proponents of cost allocations and the proponents of causation-based cost attribution. In hearings before Congress, the Post Office Department made clear its intention to abandon the existing fully allocated cost system in favor of incremental costing if the bills ultimately adopted as the Postal Reorganization Act became law.²¹ By contrast, private parcel carriers urged Congress to require that rates for parcel post (the predecessor of today’s package products) cover fully allocated costs. *See* PRC Docket No. R71-1 Op. & Rec. Decis. (June 5, 1972) at 44-46 (discussing legislative history).

Congress declined to prescribe ratemaking by cost allocation. As enacted, the Postal Reorganization Act required that the minimum price floor cover only the costs “attributable

²¹ PRC Docket No. R71-1 Op. & Rec. Decis. (June 5, 1972) at 44 n.1 (citing Hearings on Various Proposals to Reform the Postal Establishment Before the House Comm. on Post Office and Civil Service, 91st Cong., 1st Sess. 1228, 1273 (1969), and Hearings on Postal Rates and Revenues and Cost Analysis Before the Subcomm. On Postal Rates of the House Comm. on Post Office and Civil Service. 91st Cong., 2d Sess. 3 (1970)).

to” each class of mail and service. *Id.*, see also 84 Stat. 760 (codified at former 39 U.S.C. § 3622(b)(3)). By contrast, costs not causally attributable to individual classes were to be recovered from individual classes to the extent that such costs are “reasonably assignable to each class or type” of service in light of the *non-cost* ratemaking factors enumerated in former 39 U.S.C. § 3622(b). 84 Stat. at 760-61 (codified at former 39 U.S.C. § 3622(b)(3)). The attributable cost test made no distinction between market-dominant and competitive products: Section 3622(b)(3) applied to both.

The conference report on the legislation indicated that attributable costs “consist of those costs, both direct and indirect, that vary over the short term in response to changes in volume of a particular class.” H.R. Conf. Rep. No. 91-1363 at 87, reprinted in 1970 U.S.C.C.A.N. 3712 (1970). Moreover, both houses of Congress explicitly rejected the proposal of UPS and other private carriers to impose a fully-allocated cost floor on Postal Service parcel rates. The House explained that it was taking this step to place fourth-class mail rates on the same cost basis as all other rates and thereby provide needed “flexibility.” 110 Cong. Rec. 20455-58 (1970). The Senate report elaborated on this point:

Express companies in the private sector of the economy have expressed their very keen desire to include language in the bill which would require the recovery of fully allocated costs for parcel post. The committee rejects the suggestion on the principle that no particular cost accounting system is recommended and no particular classification of mail is required to recover a designated portion of its cost beyond its incremental costs. That decision is for the Postal Rate Commission to determine, in accordance with the general criteria enacted by law.

S. Rep. No. 91-912 at 17 (1970).

Docket Nos. R71-1, R74-1 and R76-1. Enactment of the Postal Reorganization Act did not end the debate between the proponents of causation-based cost attribution and the advocates of cost allocation methods. In the first three omnibus rate cases (R71-1, R74-1 and R76-1), the Postal Service proposed to attribute to individual mail classes only those costs that varied over the short run with changes in volume; the Postal Service assigned the remaining costs to individual mail classes using a simplified version of Ramsey pricing known as the Inverse Elasticity Rule. *See* PRC Docket No. R76-1 Op. & Rec. Decis. (June 30, 1976) at 123-25, 138.

The Administrative Law Judge who presided over R71-1, Seymour J. Wenner, criticized the Postal Service's approach to attribution as insufficient. He acknowledged, however, that the short period available for preparing and litigating the case precluded the greater cost attribution. For this reason, he contented himself with urging the Postal Service to attribute more costs in future rate cases. PRC Docket No. R71-1, Chief ALJ's Initial Decision on Postal Rate and Fee Increases (Feb. 3, 1972) at 1-20, 29).

The Commission agreed with ALJ Wenner that the absence of any alternative costing methodology on such short notice warranted approval of the Postal Service's approach:

[T]he Postal Service properly attempted to ascertain attributable costs on the basis of causal connection. . . . For postal costing, the problem of cost allocation is especially formidable. If attributable costs are to be separated, it is necessary to isolate the relationship between mail volume and costs for each individual class. This requires that certain other variables, such as productivity changes, population growth, and technological advancement, be held constant. Otherwise, it becomes exceedingly difficult to disentangle the cost-volume relationships.

PRC Docket No. R71-1 Op. & Rec. Decis. (June 5, 1972) at 47-48; *see generally id.* at 47- 49.

The Commission emphasized, however, that it would not necessarily adopt a fully distributed costing system even if the data needed to implement it became available. *Id.* at 49-50. In particular, the Commission rejected the claims of private parcel carriers that the Postal Reorganization Act mandated the adoption of a price floor that covered long-run incremental costs or fully allocated costs:

[W]e disagree with the examiner insofar as he suggests that long-run incremental costs are mandated for the setting of parcel post rates in this or any future case. As we state elsewhere, . . . the Act does not mandate any particular costing methodology. We do not read the competitive impact factor of [former 39 U.S.C.] § 3622(b)(4) to change this requirement with respect to parcel post rates. The legislative history of § 3622(b)(4) makes it clear that Congress rejected the old costing system for parcel post rates linked to fully allocated costs. The private carriers made specific recommendations for legislation that would have perpetuated this system and Congress refused to enact them. [citations omitted] Instead, the drafters noted the specific competitive-impact criterion stated in what became § 3622(b)(4) and said that “[t]o go beyond that point would simply be to recommend provisions of law protecting a particular economic interest or limiting the availability of a Federal parcel delivery service.” [citation omitted] While neither house addressed itself to long-run incremental costs as a mandatory costing methodology for parcel post, Congress’ treatment of the proposals for a fully allocated costing system indicates that it meant to leave this decision to the Commission.

Id. at 198-99.

On judicial review, the D.C. Circuit upheld the Commission’s action as a permissible exercise of discretion, although all three judges also joined in a concurring opinion expressing concern at the Commission’s failure to attribute more costs to individual mail classes. *Ass’n of American Publishers v. Governors of the USPS*, 485 F.2d 768 (D.C. Cir. 1973).

The Postal Service proposed a similar ratemaking approach in the second omnibus rate case, R74-1: attribution of approximately 45 percent of total costs to individual mail classes, and assignment of the remaining 55 percent based on the Inverse Elasticity Rule. ALJ Wenner, again serving as hearing examiner, rejected the Postal Service's approach and attributed approximately 71 percent of total Postal Service costs to individual products using cost allocation techniques. He also used accounting cost allocations to assign most of the remaining 29 percent of total costs to individual classes. See *Nat'l Ass'n of Greeting Card Publishers v. USPS*, 569 F.2d 570, 582-85 (D.C. Cir. 1976) ("*NAGCP I*"), *vacated as to other issues*, 434 U.S. 884 (1977) (summarizing ALJ Wenner's decision).

The Commission, while adopting a longer-run measure of variable costs and a higher level of cost attribution than the Postal Service, otherwise rejected ALJ Wenner's approach. The Commission held that the rate floor for individual mail classes and service need cover only the costs attributable to each class and service, and the best measure of attributable cost was average variable cost (plus any fixed costs that were shown to be specific to individual classes).²² The Commission specifically declined to "go beyond the available data respecting the variability of cost segments in an attempt to attribute as many dollars as possible." PRC Docket No. R74-1 Op. & Rec. Decis. (Aug. 28, 1975) at 4. The Commission treated as institutional the costs not shown to vary with volume, and assigned those costs to classes "on the basis of the standards of [former 39 U.S.C.] § 3622(b)." *Id.* at 7; *see also id.* at 76-145. "Causation," the Commission explained, "is both the statutory and the logical basis

²² The Commission later clarified that "average variable cost" meant "volume variable cost," or marginal cost multiplied by volume. Panzar Decl. at 8-9.

for attribution. Where an analysis based on causation cannot be made because data are lacking, we will do better to acknowledge that fact and press for a better data base than to construct an ‘attribution’ on a basis not contemplated by the statute.” *Id.* at 110-11. The Commission specifically rejected on the same grounds a purported “incremental” cost study offered by UPS:

UPS attempted an avoidable cost (or base cost) approach without measuring the cost consequences that would flow from the elimination of a class or classes of mail. UPS presented an extensive and detailed cost analysis; but, it was in the end essentially a fully distributed approach dependent on the judgment of its witness Morrison, although characterized as an “incremental” costing approach. . . . We now believe . . . that fully distributed costs, as defined above, would not satisfy the standards of [former 39 U.S.C.] § 3622.

Id. at 124-25 & n.3 (internal citations omitted).

The Commission took a similar approach in the third omnibus case, R76-1. While modifying some of the methods proposed by the Postal Service for attributing costs to classes and allocating institutional costs among classes, the Commission adhered to its previous position that costs may be attributed to individual mail classes and services only on reliable proof of causation, and that institutional costs would be assigned on the basis of “market demand factors and relative price sensitivities.” PRC Docket No. R76-1 Op. & Rec. Decis. (June 30, 1976) at 12; *id.* at 10-13, 75-103. As in R74-1, the Commission used “average variable costs”—*i.e.*, marginal costs—as the best measure of the attributable costs for each class and service. *Id.* at 10.²³

²³ In R76-1, the Commission presided *en banc* over the taking of evidence, and did not use a separate hearing examiner. *Id.* at 2.

The D.C. Circuit disagreed, however. In *NAGCP I*, the court overturned the Commission's decision in R74-1. The court held that two main goals of the Postal Reorganization Act—eliminating price discrimination among classes of mail and curtailing discretion in ratemaking—required the Commission to “employ cost-of-service principles to the fullest extent possible.” *Id.* at 587-89, 593. Hence, the court stated, the Act mandates not only attribution of variable costs, but also “extended attribution” of costs that, “although not measurably variable,” can reasonably be determined to result from handling each class of mail. *Id.* at 586. The court directed the Commission to allocate some costs on the basis of “cost accounting principles.” *Id.* at 586, 591. This would require apportioning or distributing costs based on “distribution keys” such as the weight or cubic volume of mail even in the absence of proof that such factors cause costs to vary. *Id.* at 583, 591-93.

R77-1. In R77-1, the next omnibus rate case after *NAGCP I*, the Commission sought to comply with the court's directive to engage in “extended” cost attribution without jettisoning entirely the economic principle that cost attribution should require some showing of causation. The Commission tried to square the circle in two ways. First, the Commission found that the Postal Service had satisfied the court's requirement of “extended attribution” by submitting improved data on long-run cost variability. Second, the Commission assigned to the preferential mail classes (First-Class Mail and newspapers) \$1.256 billion in annual costs that the Commission found to be required by the maintenance of a six-day delivery network, and unnecessary to serve the non-preferential mail classes (*i.e.*, the mail classes with deferrable delivery). PRC Docket No. R77-1 Op. & Rec. Decis. (May 12, 1978) at 8-11, 75-176. On review, the D.C. Circuit upheld the Commission's

compliance with the court's earlier decisions as a permissible exercise of agency discretion. *Nat'l Ass'n of Greeting Card Publishers v. USPS*, 607 F.2d 392, 434 (D.C. Cir. 1979) ("*NAGCP III*").²⁴

R80-1. In the fifth omnibus rate case, Docket No. R80-1, the Commission made clear that it still disagreed with the 1976 D.C. Circuit decision in *NAGCP I*. A "cost is variable if a change in some volume unit such as pieces would cause a change in the cost being analyzed." PRC Docket No. R80-1 Op. & Rec. Decis. (Feb. 19, 1981) at 133. "We are on record as favoring the use of marginal-cost pricing principles in postal ratemaking." *Id.* at 137. In a 68-page appendix, the Commission castigated "extended attribution" as contrary to sound economic principles, and defended the Commission's reliance on causation-based cost attribution as the only economically sound basis for setting price floors. *Id.* at App. B. The Commission felt compelled to comply with the D.C. Circuit decisions in *NAGCP I* and *NAGCP III*, however, and followed essentially the same three-step approach used by the Commission in R77-1, including the use of service-related costs to assign costs lacking any causal link with volume. *Id.* at 107-11.

The Postal Service implemented the Commission's recommended decision under protest, and multiple parties sought judicial review. This time, however, the case was heard by the Second Circuit, which rejected the approach of the D.C. Circuit. *See Newsweek, Inc. v. USPS*, 663 F.2d 1186 (2d Cir. 1981). Nothing in the Postal Reorganization Act or its

²⁴ The D.C. Circuit never reached the merits of the Commission's decision in R76-1, because the Commission's decision in R77-1 rendered R76-1 moot before the court could rule on the earlier case. *NAGCP III*, 607 F.2d at 396 n.3.

legislative history, the Second Circuit found, “reveals that the PRC is bound to ‘attribute’ and ‘assign’ costs of the Postal Service to the maximum extent possible using cost-of-service principles, and allocate only the residual costs using the non-cost factors.” *Id.* at 1197-98. Instead, the Act left the choice of cost attribution methodology to the Commission’s discretion. *Id.* at 1200-01; *see also id.* at 1200 (“There is nothing in the legislative history to suggest that attribution of fifty percent of postal costs is inadequate.”). The court remanded the case to the Commission for reconsideration on these grounds.

On certiorari, the Supreme Court largely agreed with the Second Circuit. *Nat’l Ass’n of Greeting Card Publishers v. USPS*, 462 U.S. 810 (1983) (“*NAGCP IV*”). The Commission’s original two-tier approach to ratemaking, the Supreme Court held, was consistent with the language and legislative history of the 1970 Act. *Id.* at 823-25. With respect to the first tier, cost attribution, the Commission “acted consistently with the statutory mandate and Congress’ policy objectives in refusing to use distribution keys or other accounting principles lacking an established causal basis.” *Id.* at 826-29.²⁵

R84-1. Unshackled from *NAGCP I* and *III*, the Commission returned in the next omnibus rate case, R84-1, to a variant of the two-tier approach used in the first three

²⁵ UPS cites *NAGCP IV* for the proposition that the Commission must “attribute any cost that it determines is causally linked to a specific product,” Proposal One at 14 n.13 (citing 462 U.S. at 833), but omits the Court’s proviso that the attribution methods must “provide reasonable assurance that costs are the result of providing one class of service.” 462 U.S. at 833; *see also id.* at 827 (when “causal analysis is limited by insufficient data, the statute envisions that the Rate Commission will press for . . . better data, rather than construct an ‘attribution,’ based on unsupported inferences of causation” (internal punctuation omitted)).

omnibus rate cases. PRC Docket No. R84-1 Op. & Rec. Decis. (Sept. 7, 1984) at 117-46.²⁶ For the first step, cost attribution, the Commission held that, “while attribution bases are left to the Commission’s judgment, they must be reliable and not arbitrary ones.” *Id.* at 118-19. The Commission “is not required, or indeed allowed, to base inferences of causation on mere speculation or on aprioristic accounting definitions. That would contravene the Supreme Court’s insistence on reliable causal relationships.” *Id.* at 131. Hence, the Commission rejected the second and intermediate step of service-related costing on the ground that the proponents of service-related costing had failed to provide reliable evidence of the cost of a three-day delivery network that would maintain the level of service currently provided to non-preferential mail. *Id.* at 154-56. For the final step, the assignment of institutional costs, the Commission held that it would rely on the multiple non-cost factors enumerated in former 39 U.S.C. § 3622(b)(3). *Id.* at 291-314. On judicial review, the Second Circuit upheld the decision against all challenges. *Direct Marketing Ass’n, Inc. v. USPS*, 778 F.2d 96, 112 (2d Cir. 1985) (“DMA”).

Development of cost attribution standards between 1985 and 2007. *DMA* effectively ended the debate over the basic principles of cost attribution under former 39 U.S.C. § 3622(b)(3). Since then, the Commission has repeatedly held that fully allocated costs—or

²⁶ Neither circuit of the Courts of Appeals reviewed the merits of R80-1 again. In September 1981, the Postal Service’s Board of Governors exercised its authority under former 39 U.S.C. § 3625 by modifying the rates recommended by the Commission to provide more aggregate revenue, and to eliminate service-related costs. The Second Circuit, while questioning in dictum the adequacy of the Board’s justification for eliminating service-related costing, held that the Board’s findings on the revenue requirement were sufficient to uphold the Board’s action. *Time, Inc. v. USPS*, 710 F.2d 34, 41 (2d Cir. 1983). In *Newsweek, Inc. v. USPS*, 716 F.2d 993 (2d Cir. 1983), the court dismissed as moot the proceedings over the earlier rate orders in the case. *Id.* at 994.

any other cost measure that is unsupported by reliable evidence of causation—plays no legitimate role in setting price floors for postal services. *See* pp. 30, 48-64, *supra*.

In the omnibus cases decided by the Commission between 1985 and the enactment of the PAEA in December 2006, the focus of the Commission and most parties shifted from a dispute over first principles to detailed disputes over the attribution of specific cost segments and components, and the validity of the special studies offered by the parties to prove (or disprove) the existence of causal cost relationships involving those segments and components. The Commission generally estimated attributable costs as the marginal cost of the marginal unit of output, multiplied by the total output of a mail class, plus the small fraction of fixed costs that the Commission regarded as specific to particular mail classes.²⁷

2. The Commission’s development of a separate incremental cost test for cross-subsidy.

Beginning in the mid-1980s, the Commission began to express concern that coverage of attributable costs might be insufficient in some cases to protect fully against inter-class cross-subsidy, and that an additional safeguard such as an incremental cost floor or a stand-alone cost ceiling might be necessary. *See, e.g.*, PRC Docket No. R84-1 Op. & Rec. Decis.

²⁷ PRC Docket No. R2005-1 Op. & Rec. Decis. (Nov. 1, 2005) at 96 ¶ 5042; PRC Docket No. R2001-1 Op. & Rec. Decis. (Mar. 22, 2002) at 38-39 ¶ 2055; PRC Docket No. R2000-1 Op. & Rec. Decis. (Nov. 13, 2000) ¶ 4003. Product-specific fixed costs are “minor,” and attributable costs “are a close proxy for marginal costs.” PRC Docket No. RM2008-2, Order No. 115, *Order Accepting Certain Analytical Principles for use in the Postal Service’s Periodic Reports* (Oct. 10, 2008) at 15 n.25; *accord* UPS Petition at 7 n.7 (noting that product-specific fixed costs accounted for only 0.54 percent of total attributable costs in Fiscal Year 2014); *see also* PRC Docket No. R97-1 Op. & Rec. Decis. (May 11, 1998) ¶¶ 3394-3402 (listing specific fixed costs attributed by the Commission to individual classes).

¶ 3026 (Sept. 7, 1984). In Docket No. R90-1, the Commission, while conceding that its measure of volume variable costs was essentially a marginal cost concept, and therefore might overstate or understate the true incremental costs of an entire mail class, volume variable cost was the best available proxy for incremental cost then available. PRC Docket No. R90-1 Op. & Rec. Decis. (Jan. 4, 1991) ¶¶ 3114 n.10, 3022-36, *remanded on other grounds, Mail Order Ass'n of America v. USPS*, 2 F.3d 408 (D.C. Cir. 1993). The Commission returned to this question in R94-1, however, inviting interested parties to undertake “further work in the area of subsidy-free pricing benchmarks.” PRC Docket No. R94-1 Op. & Rec. Decis. (Nov. 30, 1994) at App. F at 23 ¶ 167.

In response to this invitation, several parties submitted testimony in R97-1 on the appropriate specification of an incremental cost floor on prices. The Postal Service sponsored testimony by Prof. John Panzar arguing that, while attributable costs were best defined as marginal costs, the Commission should adopt an incremental cost test as a supplemental price floor to prevent cross subsidy of a mail class as a whole. The Postal Service also submitted a study by William Takis, a Price Waterhouse economist, estimating the incremental costs of each mail class.

The Commission, while finding that the incremental cost estimates sponsored by Prof. Panzar and Mr. Takis were insufficiently developed on the record to replace volume variable (or marginal) costs as the primary measure of attributable costs, agreed that the incremental cost test was in principle the “test that the Commission should attempt to apply.” PRC Docket No. R97-1 Op. & Rec. Decis. (May 11, 1998) ¶¶ 4015-26, *reviewed and aff'd on other issues, UPS v. USPS*, 184 F.2d 827 (D.C. Cir. 1999). The Commission also

praised the Takis incremental cost study as an “enormous effort” that “has found practical and mostly reasonable solutions” to the estimation of incremental postal costs. *Id.* ¶¶ 4054-56. The Commission added that, while the “Commission’s calculation of attributable costs by subclass and service does not precisely conform to witness Prof. Panzar’s definitions of either marginal cost or incremental cost,” “they come closest to being the incremental costs associated with the subclasses and services taken one at a time. Therefore, nonnegative markups are good evidence against the presence of most elementary cost subsidies.” *Id.* ¶ 4024.

UPS also advocated adoption of an incremental cost floor in R97-1, and submitted a cost study purporting to estimate the “long run marginal costs” of individual mail classes and subclasses as a proxy for their incremental costs. The Commission rejected the proposal on the grounds that (1) it appeared to be incompatible “with the language and purposes of the Act,” and (2) the functional form of the proposed cost model was misspecified in several major respects. *Id.* at 251-53.

In Docket No. R2000-1, the Postal Service submitted a still more refined incremental cost study in an attempt to overcome the Commission’s objections to the Takis study in Docket No. R97-1. PRC Docket No. R2000-1, Direct Testimony of Michael D. Bradley (USPS-T-22) and Nancy R. Kay (USPS-T-21). The Commission, while again declining to adopt the incremental cost estimates, mainly on the ground that the Postal Service study failed to provide reliable estimates of the incremental cost savings that would result from eliminating mail classes with large mail volumes, praised the Postal Service study as “an earnest response to the Commission’s concerns with Takis’ effort.” PRC Docket No.

R2000-1 Op. & Rec. Decis. (Nov. 13, 2000) ¶¶ 4010, 4043-55. The Commission again found that the evidence that rates for individual mail classes covered their attributable costs provided adequate assurance that the rates were subsidy free:

[F]or the reasons discussed below, the Commission declines to employ the new method of calculating incremental costs espoused by witness Bradley. Nonetheless, the Commission is satisfied, based on this record, that its recommended rates are subsidy free, consistent with the statute. As the Commission observed in Docket No. R97-1, its calculation of attributable costs by subclass is a reasonable proxy for the incremental costs associated with that subclass or type of mail. Thus, “nonnegative markups [above attributable cost] are good evidence against the presence of the most elementary cross subsidies.” *Id.*, para. 4024.

Id. ¶ 4010.

In both R2001-1 and R2005-1, the Postal Service submitted further refinements of its incremental cost analysis. PRC Docket No. R2001-1 Direct Testimony of Nancy R. Kay (USPS-T-21); PRC Docket No. R2001-1 Op. & Rec. Decis. (March 22, 2002) at 39 n.42; PRC Docket No. R2005-1 Direct Testimony of Maura Robinson (USPS-T-27); PRC Docket No. R2005-1 Op. & Rec. Decis. (Nov. 1, 2005) at 96 n.45. Both cases, however, were resolved largely by stipulated settlements, leaving the costing principles approved in R2000-1 in effect without substantial change. *See* PRC Docket No. R2005-1 Op. & Rec. Decis. (Nov. 1, 2005) ¶ 4003.

3. The Postal Accountability and Enhancement Act of 2006

The PAEA, enacted in December 2006, made several changes to provisions of Title 39 concerning minimum rates. First, the legislation replaced former 39 U.S.C. § 3622(b)(3)

with new 39 U.S.C. § 3622(c)(2) as the minimum price standard for market-dominant products:

In establishing or revising such system [for regulating rates on market-dominant mail products], the Postal Regulatory Commission shall take into account . . . the requirement that each class of mail or type of mail service bear the direct and indirect postal costs attributable to each class or type of mail service through reliably identified causal relationships plus that portion of all other costs of the Postal Service reasonably assignable to such class or type.

The most significant change from the prior language was the addition of the qualifier “through reliably identified causal relationships,” a proviso that underscored the need for reliable evidence of causation.

Second, the legislation adopted a similar attributable cost test for the mail products classified by PAEA as “competitive” and therefore newly exempt from maximum rate regulation. 39 U.S.C. § 3633(a)(2) directs the Commission to adopt regulations to “ensure that each competitive product covers its costs attributable.” Section 3631(b) defines the attributable costs of a product as “the direct and indirect postal costs attributable to such product *through reliably identified causal relationships.*” *Id.* § 3631(b) (emphasis added).

Third, the legislation also codified the Commission’s existing policy of scrutinizing cost coverages to protect against cross-subsidization of individual products. 39 U.S.C. § 3633(a)(1) directs the Commission to adopt regulations to “prohibit the subsidization of competitive products by market-dominant products.”²⁸

²⁸ The PAEA also enacted a provision directing the Commission to “ensure that all competitive products collectively cover what the Commission determines to be an appropriate share of the institutional costs of the Postal Service.” 39 U.S.C. § 3633(a)(3),

Neither the language nor the legislative history of PAEA indicate that Congress meant to require any major change in the existing cost tests. New §§ 3622(c)(2) and 3633(a)(2) effectively codify the Commission’s attributable cost standard; and § 3633(a)(1) effectively codifies the Commission’s existing policy against cross-subsidies. PRC Docket No. RM2007-1, Order No. 26, *Regulations Establishing a System of Rulemaking* (Aug. 15, 2007) ¶¶ 3044-47. Both the House and Senate committee reports on PAEA emphasized that its provisions dealing with attributable costs and cross-subsidy were meant to continue existing Commission standards. The House report stated:

In addressing the attributable costs, the Commission should *continue to focus on the need to have reliable indicators of cost causality*. The Commission heard testimony from differing viewpoints, with some urging a higher attribution of costs. The goal of the Commission should be a *technically correct result*, placing accuracy above achieving a particular outcome of higher or lower attribution.

H.R. Rep. No. 109-66, pt. 1 at 49 (2005) (emphasis added). And the Senate report stated that the PAEA was not intended to loosen the causation requirement for cost attribution:

While considering this legislation the Committee heard testimony suggesting that currently accepted levels of cost attribution were both too low and too high, and that specific rules for cost attribution should be incorporated into law. The Committee has decided that the technical decision of what cost analysis methodologies are sufficiently reliable at any given time to form the basis for attribution should be left to the Postal Regulatory Commission, acting with benefit of counsel from all interested persons in open public proceedings.

* * *

The current analysis has been guided by a Supreme Court decision, *National Assoc. of Greeting Card Publishers v. USPS*, 462 U.S. 810, 829–34, (1982), that

(b). Because the Commission has deferred Proposal 3, which concerns this provision, to a later proceeding, AFSI will not discuss the minimum-share provision further here.

carefully analyzed how the term attributable should be interpreted. This definition has been further refined by U.S. Courts of Appeals and is well understood in the industry. The NAGCP Court rejected a contention that it was appropriate to make classes responsible for the recovery of costs for which an extended inference of causation was claimed. It emphasized the need for reliable indicators of causality without specifying any specific method for identifying causality. Governed by this ruling since 1982, the Postal Rate Commission must have reasonable assurance that any costs attributed to a class of mail are incurred as a result of providing that class of mail. *The Committee finds no reason for changing this standard.*

S. Rep. No. 108-318 at 9-10 (2004) (emphasis added).²⁹

The inference that Congress intended to carry forward the Commission's existing interpretation of the term "attributable" cost would have been warranted even if the committee reports had been silent about the intent of 39 U.S.C. §§ 3622(c)(2), 3633(a)(2) and 3633(a)(1). "Congress is presumed to preserve, not abrogate, the background understandings against which it legislates. ... '[L]ongstanding practices' of the Executive Branch can 'place a 'gloss' on Congress's action in enacting' a particular provision. ... Congress is presumed to be aware of established practices and authoritative interpretations of the coordinate branches." *United States v. Wilson*, 290 F.3d 347, 356-57 (D.C. Cir. 2002) (citations to prior precedent omitted).

4. Developments since the enactment of PAEA

In the nine years since the enactment of PAEA, the Commission has expressed no interest in returning to the 1976-1983 era of attribution unsupported by causation. Instead,

²⁹ UPS, while citing language elsewhere in the Senate report indicating that higher cost attribution would be a good thing if justified by the data (Petition for Rulemaking at 17), neglects to mention the passages cited in the text.

the Commission has further refined the attributable and incremental cost tests that were developed before 2007.

(a) Docket No. RM2007-1

In Docket No. RM2007-1, the Commission adopted general rules to implement 39 U.S.C. §§ 3622(c)(2), 3633(a)(2) and 3633(a)(1). To enforce the prohibition against cross-subsidy of competitive products (§ 3633(a)(1)), the Commission adopted 39 C.F.R. § 3015.7(a):

(a) Incremental costs will be used to test for cross-subsidies by market dominant products of competitive products. To the extent that incremental cost data are unavailable, the Commission will use competitive products' attributable costs supplemented to include causally related, group-specific costs to test for cross-subsidies.

The Commission defined incremental costs as “the variable and fixed costs that would be eliminated if a product (or products) was (were) (hypothetically) discontinued.” PRC Docket No. RM2007-1, Order No. 26 (Aug. 15, 2007) at 65. The Commission added that it would continue to estimate incremental costs by using estimates of the attributable cost of each product, “supplemented to include causally related, group-specific costs,” as a proxy measure until reliable direct data on incremental costs are available. *Id.* at 66-67. In reaching this result, the Commission considered and rejected the alternative proposal of UPS to require competitive products to recover not only their incremental costs but a “fair share of the unattributable network costs from which competitive products benefit.” *Id.* at 67 ¶ 3044.

To implement the attributable cost floor prescribed by Section 3633(a)(2), the Commission adopted a rule that “[e]ach competitive product must recover its attributable costs as defined in 39 U.S.C. 3631(b).” PRC Docket No. RM2007-1, Order No. 43, *Regulations Establishing a System of Ratemaking* (Oct. 29, 2007) at 137-38 (adopting 39 C.F.R. § 3015.7(b)). The Commission explained that it had chosen to “employ [the] long-established attribution methods to determine compliance with section 3633(a)(2)” because the section merely “codifies [the Commission’s] long-standing attribution method” under the Postal Reorganization Act.” PRC Docket No. RM2007-1, Order No. 26 (Aug. 15, 2007) at 67-68. In reaching this result, the Commission considered and rejected a proposal by UPS to substitute “long-run incremental costs,” including “shared fixed costs,” as the measure of attributable cost. *Id.* at 67-68 ¶¶ 3045-47. The Commission explained:

Employing long-run incremental costs as a measure of attributable costs renders all costs variable in theory. Furthermore, although the notion of shared fixed costs may be relevant to the issue of cross-subsidies, as discussed in the previous subsection, UPS has not demonstrated any reasonable nexus between those costs, which by definition are fixed regardless of the number of products, and a product’s attributable costs, including those reliably identified based on causal relationships.

Id. ¶ 3047; *see generally id.* ¶¶ 3046-48.

(b) The 2007 Treasury Report and Docket Nos. PI2008-2 and RM2008-5

Section 401(a) of the PAEA, codified at 39 U.S.C. § 2011(h)(1)(a), directed the Department of the Treasury, in consultation with the Commission and an independent accounting firm, to review and make recommendations on the accounting practices and

principles that should be followed by the Postal Service to prevent “the subsidization of [competitive] products by market-dominant products.” Treasury issued its report in December 2007. U.S. Department of the Treasury, *Report on Accounting Principles & Practices for The Operation of the United States Postal Service’s Competitive Products Fund* (2007) (“Treasury Report”).

The report began by noting that the existing Postal Service costing system was designed to report the marginal and incremental costs of each class of product, with marginal cost defined as “the change in total variable cost that results from producing an additional unit of output of a given product” and incremental cost defined as “the amount of cost avoided by eliminating a given product.” Treasury Report at 3. The report affirmed the basic validity of the existing Postal Service cost attribution system. The report recommended that the Postal Service costing system be “modified so that the currently estimated class and subclass costs are remapped and attributed to the competitive products as defined by the PRC,” and the remapped product cost assignment “then be made consistent with the *current* USPS attribution rules and processes for marginal and incremental costs.” *Id.* at 6 (Recommendation 1). Once the “product definition modification required by PAEA” was accomplished, the

volume-variable or marginal product costs reported by the USPS cost system should be used . . . to ensure that competitive products cover their attributable costs. *The reported incremental costs should be used to ensure that cross-subsidization of the competitive products by the market-dominant products is not occurring.*

Id. at 7 (Recommendation 3) (emphasis added).

As required by 39 U.S.C. § 2011(h)(2)(A), the Commission opened a docket for public comment on the Treasury report. PRC Docket No. PI2008-2, Order No. 56, *Review of Treasury Report* (Jan. 28, 2008), 73 Fed. Reg. 6081 (Jan. 28, 2008). The Commission specifically asked for comments on Treasury recommendation 3. *Id.* at 9-10, 73 Fed. Reg. at 6083. The Commission added that, in its view, the incremental cost test provided a complete and sufficient protection against cross-subsidy:

Incremental or avoidable cost of a product is the total cost incurred *as a result* of the provision of all units of that product. Incremental cost incorporates all variable and fixed costs *specific to a particular product*. Thus, if each product covers its avoidable cost then no single product is being cross-subsidized.

Id., 73 Fed. Reg. at 6082 n.3 (emphasis added) (citing William J. Baumol, John C. Panzar & Robert D. Willig, *Contestable Markets and the Theory of Industrial Structure* 351-56 (1982)).

The parties that filed comments in response to the notice included UPS. While asserting that the existing attribution methods should be changed for several cost segments (city carrier costs, rural carrier costs, motor vehicle service costs, and depreciation costs), UPS stated that it “support[ed] the Commission’s decision to adopt its long standing method of attribution.” UPS comments in PI2008-2 (April 1, 2008) at 2. UPS added that “each competitive product” should also be required to “cover its incremental cost.” *Id.* UPS did not contend that any higher cost floors (e.g., fully allocated cost, average variable cost, or Shapley allocations) were necessary to protect against cross-subsidy of competitive products by market-dominant products.

The Commission responded to the comments in a separate docket. PRC Docket No. RM2008-5, Order No. 106, *Accounting Practices and Tax Rules for Competitive Products* (Sept. 11, 2008). The Commission proposed to reaffirm its existing definition of attributable costs as volume variable costs plus product-specific costs that have an established causal relationship with individual classes and products. *Id.* at 12. With respect to the use of incremental costs as a test for cross-subsidy, the Commission held that 39 U.S.C. § 3633(a)(1) requires only that “incremental costs apply to competitive products as a group, not to individual competitive products.” PRC Docket No. RM2008-5, Order No. 106 (Sept. 11, 2008) at 14.

(c) Docket No. RM2010-4

In Docket No. RM2010-4, the Postal Service petitioned the Commission to approve a hybrid methodology for calculating the incremental cost of competitive products. The methodology was the same one used by the Postal Service in its analysis of incremental cost coverage in R2001-1 and R2005-1. PRC Docket No. RM2010-4, *Petition of the USPS Requesting Initiation of a Proceeding to Consider Proposed Changes in Analytic Principles (Proposals Twenty-two – Twenty-five)* (Oct. 23, 2009) (Proposal 22). The methodology calculates incremental cost for each cost component used by any individual competitive product or combination of products as the sum of (1) the common fixed cost, product specific or group specific fixed costs, and (2) costs caused by provision of the relevant cost driver—or, stated otherwise, the “decrement in total cost of the component that would occur if the product or group of products were not to be provided.” *Id.* at 2-3 (Proposal 22). The “overall product or product group incremental cost is calculated by summing the incremental costs calculated

for each component.” *Id.* at 3. The Postal Service noted that the resulting measures of costs would be no lower than, and generally would be higher than, the attributable costs of the same components. *Id.* at 4-6. The Postal Service proposed to use this standard as the test for cross-subsidy of competitive mail products beginning with the Annual Compliance Report for Fiscal Year 2009. *Id.* at 6.

The Commission, while noting that the Postal Service model might “overstate” actual incremental costs for mail products with large volumes, approved the Postal Service incremental cost methodology as a test for cross-subsidy under 39 U.S.C. § 3633(a)(1). PRC Docket No. RM2010-4, Order No. 399, *Order Accepting Analytical Principles Used in Periodic Reporting (Proposals Twenty-two through Twenty-five)* (Jan. 27, 2010) at 2-5; accord PRC Docket No. ACR2015, *Fiscal Year 2014 Annual Compliance Determination* (Mar. 27, 2015) at 71.

**(d) The Commission’s Annual Compliance Determinations
Since Fiscal Year 2009**

Since 2009, the Commission has repeatedly applied (1) the hybrid incremental cost methodology approved in Docket No. RM2010-4 and (2) the approved standards for cost attribution to test whether the revenue generated by the Postal Service’s competitive products covers their incremental costs and attributable costs. For each year, the Commission has determined that package services and other competitive domestic products (1) have fully covered both their incremental costs, (2) generally have covered their attributable costs, and (3) have made contributions to Postal Service institutional costs that

are large, growing, and well above the minimum contribution prescribed by the Commission under 39 U.S.C. § 3633(a)(3).³⁰

For Fiscal Year 2014, the Commission found that Postal Service competitive products had incremental costs of \$11.2 billion, while generating total revenues of \$15.3 billion. Accordingly, the Commission found that “revenues from Market Dominant products did not subsidize Competitive products, satisfying 39 U.S.C. § 3633(a)(1).” *Fiscal Year 2014 Annual Compliance Determination* 71-72. Moreover, every competitive domestic product with rates of general applicability “covered its attributable costs and complied with the statutory requirements of 39 U.S.C. § 3633(a)(2).” *Id.* at 72.

For competitive domestic products consisting of rate contracts with individual counterparties, the Commission found that all of the contracts other than 31 contracts involving First-Class Package Service products covered their attributable costs. The Commission made no findings on the attributable cost coverage of the latter 31 contracts because the Postal Service had not filed contract-specific data for them. As the Postal Service noted, however, the contracts did not provide discounts from the published First-Class Package Service rates, which the Commission found to cover attributable costs. *Id.* at 72-73.

³⁰ PRC Docket No. ACR2009, *Fiscal Year 2009 Annual Compliance Determination* 115-17 (Mar. 29, 2010); PRC Docket No. ACR2010, *Fiscal Year 2010 Annual Compliance Determination* 137-49 (Mar. 29, 2011); PRC Docket No. ACR2011, *Fiscal Year 2011 Annual Compliance Determination* 153-64 (Mar. 28, 2012); PRC Docket No. ACR2012, *Fiscal Year 2012 Annual Compliance Determination* 161-73 (Mar. 28, 2013); PRC Docket No. ACR2013, *Fiscal Year 2013 Annual Compliance Determination* 79-92 (Mar. 27, 2014); PRC Docket No. ACR2014, *Fiscal Year 2014 Annual Compliance Determination* 71-86 (Mar. 27, 2015).

Overall, the Commission found that competitive products contributed \$4.3 billion to the Postal Service's institutional costs. This equaled about 13 percent of total institutional costs. *Id.* at 82-83. This was well above the minimum contribution of 5.5 percent prescribed by the Commission in Docket No. RM2012-3. *Id.*; see also PRC Docket No. RM2012-3, Order No. 1449, *Order Reviewing Competitive Products' Appropriate Share Contribution to Institutional Costs* (Aug. 23, 2012) at 24-25; p. 25 (Figure 3), *supra* (Commission bar graph showing the same results).

C. The record contains no evidence that attributable and incremental cost data relied on by the Commission in recent years significantly understate the marginal and incremental costs of competitive products.

Neither Dr. Neels nor UPS has offered any evidence that the estimates of attributable and incremental costs developed by the Postal Service and approved by the Commission in recent years materially understate the Postal Service's true marginal and incremental costs, let alone understate those costs by a wide enough margin to overcome the evidence that competitive products are producing a large and growing net contribution to institutional costs. Nor does any such evidence appear in the public record.

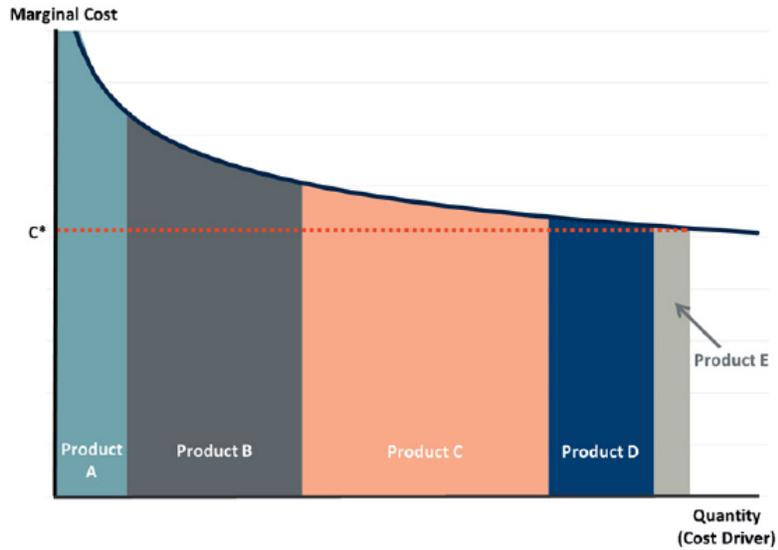
To be sure, all cost estimates can be improved, and the marginal cost roots of the Commission's methodology for computing volume variable costs in theory may lead to an understatement of the Postal Service's actual incremental costs, particularly when the incremental volume is defined as a very large percentage of the Postal Service's total volume. Indeed, Prof. Panzar made this very point in his 2014 report to the Commission. John C. Panzar, *The Role of Costs for Postal Regulation* 5-22 (2014) ("Panzar Report"); accord

Panzar Decl. at 8-10; PRC Docket No. RM2010-4, Order No. 399 (Jan. 27, 2010) at 3-4 (“if marginal costs decline continuously, incremental costs will be higher than attributable costs”). It is also possible that current Postal Service measures of incremental cost may *overstate* actual incremental costs. *Id.* at 4 (citing R2000-1 Op. & Rec. Decis. (Nov. 13, 2000) ¶¶ 4051-52).

These theoretical issues, however, have little practical significance here. Except when the increment of volume at issue is a large majority of total Postal Service volume, the difference between incremental costs and attributable costs is a small fraction of total component variable costs. Prof. Panzar’s 2014 report to the Commission quantifies this. Panzar Decl. at 10 (discussing Panzar Report at 23-25). Further, the Postal Service’s Annual Compliance Reports confirm that the attributable and incremental costs of domestic competitive products are similar. For Fiscal Year 2015, the data show that the attributable and incremental costs of all domestic competitive products combined were \$10.7 billion and \$11.0 billion, respectively. USPS Fiscal Year 2015 Annual Compliance Report (filed December 29, 2015) at 65. For Fiscal Year 2014, the attributable and incremental costs of all domestic competitive products combined were \$9.6 billion and \$9.8 billion. USPS Fiscal Year 2014 Annual Compliance Report (filed Dec. 29, 2014) at 46.

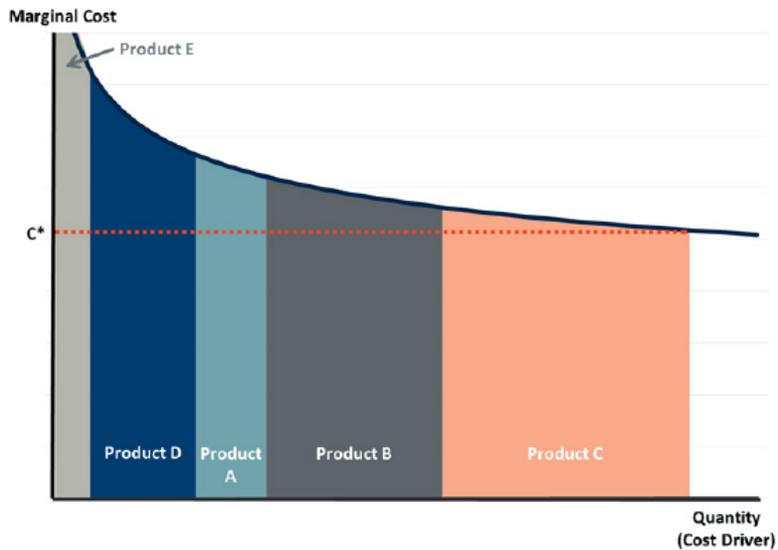
Figure 6 on page 25 of Dr. Neels’ report (reproduced below as Figure 4) provides graphical confirmation of why the differences are so small. At the right-hand tail of the marginal cost curve, the slope of the curve is shallow. As a result, the difference between the marginal costs of the first and last units of Product E, the incremental product, is miniscule:

Figure 4



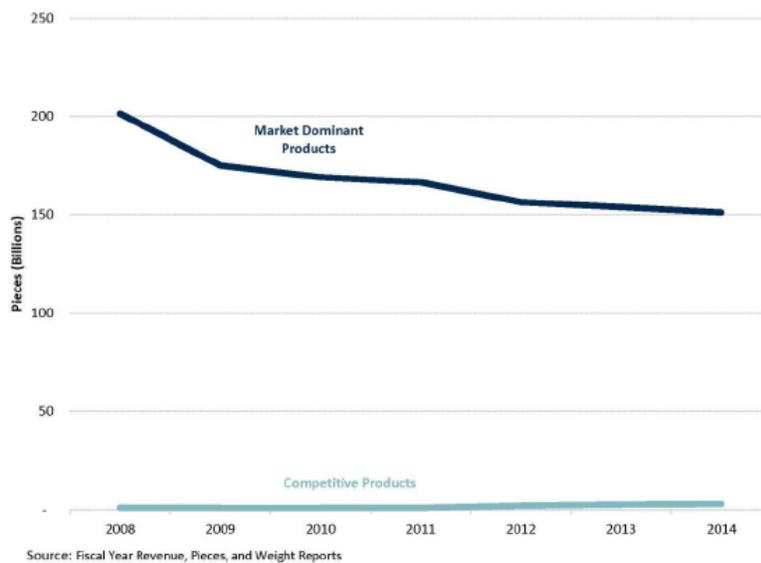
Even in figure 7 on the same page of Dr. Neels' report, which treats Product C, the biggest single product of the hypothetical firm, as the incremental product, the difference between the marginal costs of the first and last units of that product is relatively small:

Figure 5



In the real world, all competitive products combined represent a small fraction of total Postal Service volume than even Product E in Dr. Neels' Figure 6. The response of UPS to a Commission information request illustrates this graphically. Despite the decline in market-dominant volume and the rise in competitive product volume since 2008, competitive products still account for only a small fraction of total Postal Service volume:

Figure 6



UPS Response to Chairman Information Request (“CHIR”) No 3, question 2(b) at 3 (revised Dec. 10, 2015).

Even weighted by unit attributable costs, all competitive products together account for only about one-fourth of total Postal Service volume. Neels Report at 7-8. UPS offers no evidence that the difference between marginal cost and average incremental cost for any competitive product (or competitive products generally) is larger than these figures or Prof. Panzar’s 2014 report suggest.

UPS repeats its contention from Docket No. RM2015-7 that existing Postal Service cost models understate the attributable costs of City Carrier Street Time. Proposal One at 17-18. The Commission, however, rejected the alternative attribution methods proposed by UPS as unsupported, and accepted the Postal Service's cost model as consistent with the best evidence of record. PRC Docket No. RM2015-7, Order No. 2792, *Order Approving Analytical Principles Used in Periodic Reporting (Proposal Thirteen)* (Oct. 29, 2015) at 64-66.

UPS also cites a 2014 report to the Commission by Robert Cohen and John Waller for the proposition that the Postal Service "has shown insufficient interest in improving the attribution of costs to products." UPS Petition at 18-19 (citing Cohen and Waller, *The Postal Service Variability Ratio and Some Implications* 12-13 (2014)). The report makes no such claim. The purpose of the report was to investigate why the ratio of Postal Service attributable costs to Postal Service institutional costs has varied over the years. The cited passage stated only that "[o]ver time, the methodological changes for calculating attributable costs in some cost segments have had small effects on the ratio of attributable and institutional costs (*i.e.*, vehicle service drives and purchased transportation)." *Id.* at 12. The report made no finding that the current measures of Postal Service attributable costs in fact understate the incremental costs of individual products or groups of products. Indeed, the word "incremental" appears nowhere in the report.

UPS's reliance on a 2014 report by A.T. Kearney to the Postal Service's Office of Inspector General is also misplaced. UPS cites the report for the proposition that the Postal Service should develop cost data that are more "current and granular." Petition of USPS for the Initiation of Proceedings to Make Changes to Postal Service Costing Methodologies

(“Petition for Rulemaking”) at 19-20 (Oct. 8, 2015) (quoting OIG Report RARC-WP-14-005, *Greenfield Costing Methodology: An Opportunity to Delivery Transformative Change* (Jan. 7, 2014)). The A.T. Kearney report made no finding, however, that a more “current and granular” costing system would result in the attribution of a larger share of total costs.

Finally, UPS asserts that the current share of total Postal Service costs now classified as institutional, 46 percent, is circumstantial evidence that the current costing system is defective. UPS Petition at 11, 17-21. But UPS offers no evidence that the actual ratio is lower. Postal costs have long been recognized to have a large institutional component. *See, e.g.*, Kappel Commission Report at 131 (finding that 40-50% of Post Office Department costs are institutional); *Newsweek, Inc. v. USPS*, 663 F.2d 1186, 1200 (2d Cir. 1981) (“There is nothing in the legislative history to suggest that attribution of fifty percent of postal costs is inadequate.”). The Cohen-Waller paper, which investigated the reasons for the relatively stable ratio of attributable to institutional costs from 1980 through 2013, made no finding that the actual ratio is higher today.

D. UPS Has Made No Showing That Postal Service’s Pricing Of Its Competitive Products Amounts To Unfair Competition.

The absence of any evidence that the Postal Service’s prices on domestic competitive products fail to cover attributable costs also disposes of UPS’s claim that the prices amount to unfair competition. UPS contends that the Postal Service implemented “deep” and “massive” rate discounts in 2014 on a number of competitive products, and that “staggering” and “disruptive” growth in volume and gains in “market share at the expense

of private competitors” ensued. UPS response to CHIR 1, question 2.d at 8-17 (Dec. 10, 2015). These contentions are both untrue and legally irrelevant.

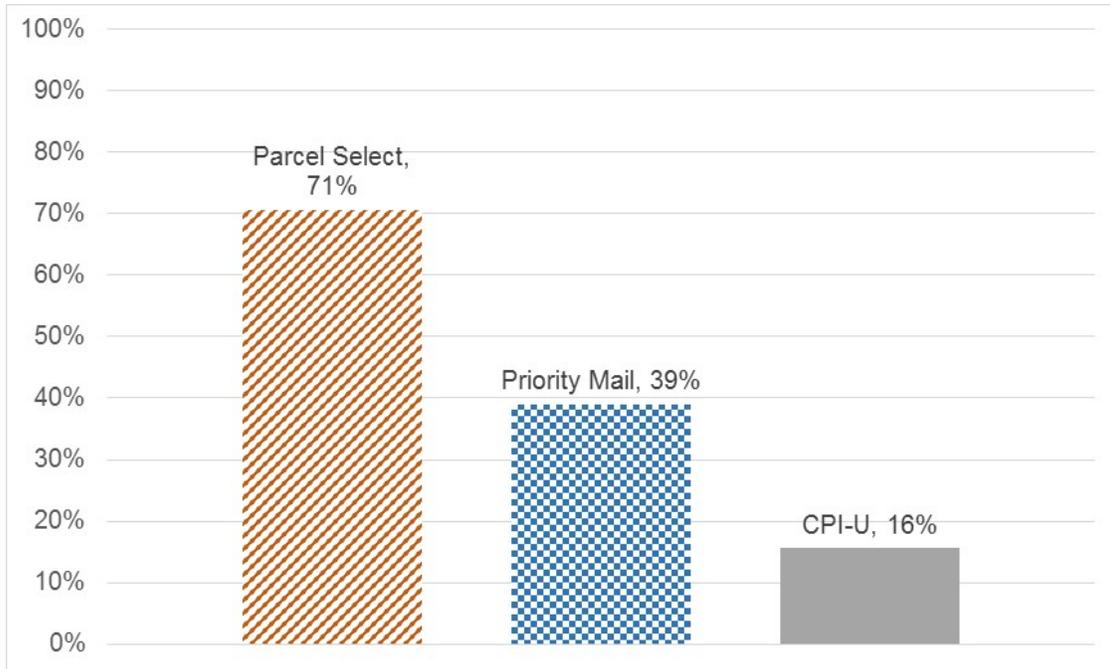
First, UPS misstates the overall effect of the 2014 changes in Priority Mail rates. The deepest rate reductions implemented by the Postal Service involved rate cells for heavyweight pieces that weighed far more than the average weight of Priority Mail (36 ounces per FY 2015 Public CRA). Moreover, the rate reductions were offset by increases in other, larger-volume rate cells. *The product-wide average rate change resulting from the September 2014 Priority Mail rate adjustment was zero.* UPS response to CHIR No. 1 at 11; PRC Docket No. CP2014-55, Public Representative Comments on Postal Service Notice Concerning Changes in Rates of General Applicability for Priority Mail Established in Governors’ Decision No. 14-3 (July 17, 2014) at 2.

Second, UPS’s focus on the price cuts taken by the Postal Service in 2014 is far too narrow: over the longer span since 2007, when Congress relieved competitive products from maximum rate regulation, the overall prices charged by the Postal Service for its competitive products have significantly *increased*, not decreased. The following two figures show this for Priority Mail, Parcel Select, and Parcel Select Lightweight), the products that UPS focused on in its petition for rulemaking and responses to CHIR No. 1. All three products have experienced price increases since enactment of PAEA that far exceed inflation as measured by the Consumer Price Index. *See* Library Reference AFSI-LR-RM2016-2/2.³¹ The same is also true for other competitive products. *See id.*

³¹ The Parcel Select Lightweight chart focuses on the period after this product was reclassified as competitive, but the product also received comparably large rate increases when classified as a market-dominant product.

Figure 7

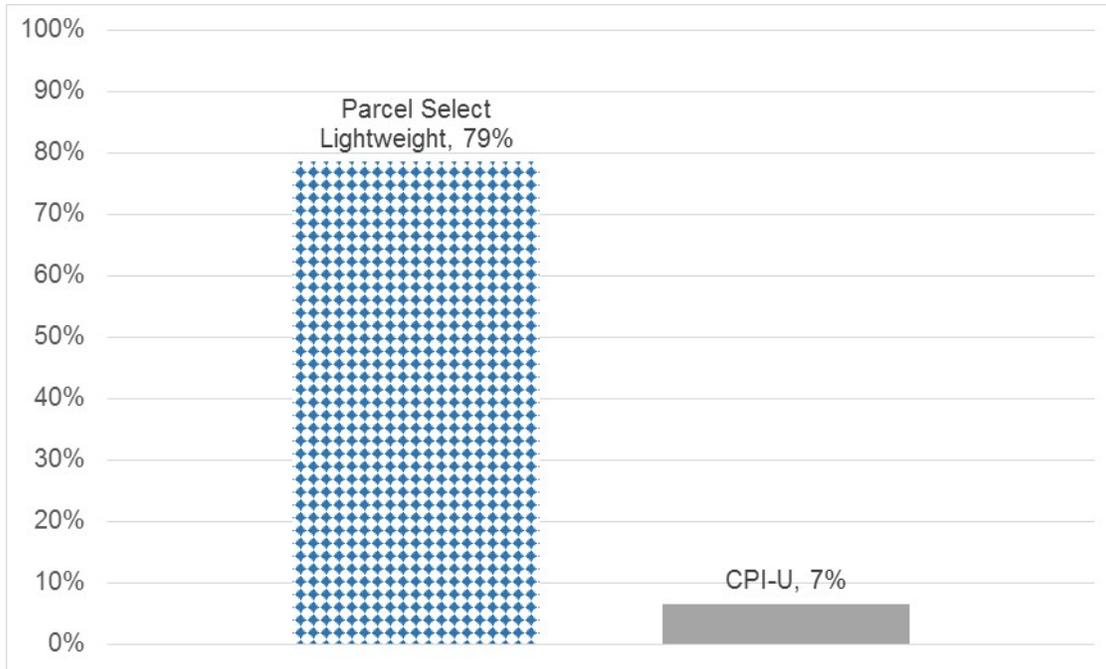
Cumulative 2007-2016 Parcel Select and Priority Mail Price Increases



Source: AFSI-LR-RM2016-2/2, AFSI-LR RM2016-2-2.xlsx, "CP Increase Summary"

Figure 8

Cumulative 2011-2016 Parcel Select Lightweight Price Increase



Source: AFSI-LR RM2016-2/2, AFSI-LR-RM2016-2-2.xlsx, “CP Increase Summary”

Third, the Postal Service’s overall share of the market segments in which its competitive products compete is relatively small. For the Priority Mail/Ground product (the product that was the subject of UPS’s response to CHIR 1, Q2(d), regarding the September 2014 rate adjustment), the Postal Service’s overall share of volume is only 16 percent. CHIR No. 1 Market Share Analysis.xls (filed by UPS on January 8, 2016, with its response to CHIR 5), Tab “PM_GND Market,” Row “Priority Mail Share.” Measured in terms of revenue, the Postal Service’s share is even smaller. UPS response to CHIR 5, Question 1(e). Contrary to UPS’s statements about the dramatic effect of the September 2014 rate adjustment, the Priority Mail market segment share has been quite stable (between 15 and 17 percent), albeit slightly increasing after the September 2014 Priority Mail rate

adjustment and the expanded use of dimensional weight pricing by UPS and FedEx. *Id.*³² By contrast, the competing UPS product, “UPS Ground,” has a market segment share of more than 50 percent—triple the share of the Postal Service Priority Mail product. *Id.* These relatively small shares are an independent reason that noncompensatory pricing of competitive products would not be a profitable strategy for the Postal Service. 3A Areeda & Hovenkamp, Antitrust Law, at 100 nn.3 & 4; *id.* at 102-03.

Finally—and most important—whether the Postal Service is discounting aggressively and thereby capturing significant volume from private competitors is ultimately irrelevant. Discounting to gain market segment share from competitors, even if the discounting is “deep” and “massive” and the resulting gains in market segment share “staggering” and “disruptive,” does not constitute unfair competition if the discounted rates cover the marginal cost of individual services, and the rates for larger increments of competitive volume cover their average incremental costs. Panzar Decl. at 2-3, 13-14. The Commission’s “task is to protect *competition*, not particular competitors.” *DMA*, 778 F.2d at 106 (citing *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 488 (1977)); PRC Docket No. MC2012-14, Order No. 1448, *Valassis NSA* (Aug. 23, 2012) at 26-27, *aff’d Newspaper Ass’n of America v. PRC*, 734 F.3d 1208, 1214-16 (D.C. Cir. 2013). Even “aggressive price reductions” that capture significant volume from private competitors are

³² UPS’s claim that it can disentangle the effect of the September 2014 Priority Mail rate adjustment from UPS’s and FedEx’s expansion of dimensional weight pricing based upon an analysis of the timing of volume changes. UPS response to CHIR 5, Q1(a)(iii)) is not credible. The UPS analysis assumes, among other things, that users of these mail and parcel products responded to the announcement and implementation of changes in rates and rate design immediately and without a lag.

not unfair competition and do not cause unreasonable harm to the marketplace, but are hallmarks of healthy competition as long as the discounted postal rates cover the marginal, attributable and incremental costs of the postal services at issue and therefore benefit the Postal Service. *DMA*, 778 F.2d at 105; *accord* PRC Docket No. PI2008-2, Order No. 56 (Jan. 28, 2008) at 4 n.3 (citing William J. Baumol, John C. Panzar & Robert D. Willig, *Contestable Markets and the Theory of Industrial Structure* 351-56 (1982)) (“if each product covers its avoidable cost then no single product is being cross-subsidized.”); PRC Docket No. MC2012-14, Order No. 1448, *Valassis NSA* (Aug. 23, 2012) at 26-33, *aff’d*, *Newspaper Ass’n of America*, 734 F.3d at 1214-16 (D.C. Cir. 2013) (a rate discount NSA would produce unreasonable harm to the marketplace only if the discounted price amounted to “anticompetitive pricing” in the sense of “pricing below cost”; when “prices under the NSA are compensatory, *i.e.*, in excess of attributable costs,” the Postal Service pricing policy “is not anti-competitive.”).

IV. PROPOSALS ONE AND TWO ARE UNSUPPORTED BY RELIABLE EVIDENCE OF CAUSATION AND ARE THEREFORE UNLAWFUL.

Two years ago, responding to allegations by UPS that the Postal Service’s existing cost attribution methodologies were defective, the Commission stated that “[p]arties alleging that the attribution of total postal cost methodology is not reliable must suggest improvements in order to merit consideration.” PRC Docket No. ACR2013, *Fiscal Year 2013 Annual Compliance Determination* 95 (Mar. 27, 2014). Neither Proposal One nor Proposal Two would improve the attribution of postal costs, or any other aspect of postal costing.

Adoption of Proposal One would increase the costs attributed to competitive products by approximately \$2.7 billion dollars annually. The proposal would do this by allocating to each postal product a pro rata share of *all* costs that vary with the *total* volume of all Postal Service products combined. Adoption of Proposal Two would increase the costs attributed to competitive products by additional \$725 million annually. The proposal would do this by treating as volume variable a variety of costs now treated by the Commission as fixed. Adoption of both Proposals One and Two would increase the costs attributed to competitive products by 31 percent, or \$3.4 billion annually. Library Reference AFSI-LR-RM2016-2/2, tab “Impact of Prop 1 & 2.” Applying the same proposals to market-dominant products would collectively increase the costs attributed to them by 47 percent, or more than \$13 billion annually. *Id.*

Neither Proposal One nor Proposal Two satisfies the legal and economic requirements for cost attribution. We discuss the proposals in turn in parts A and B.

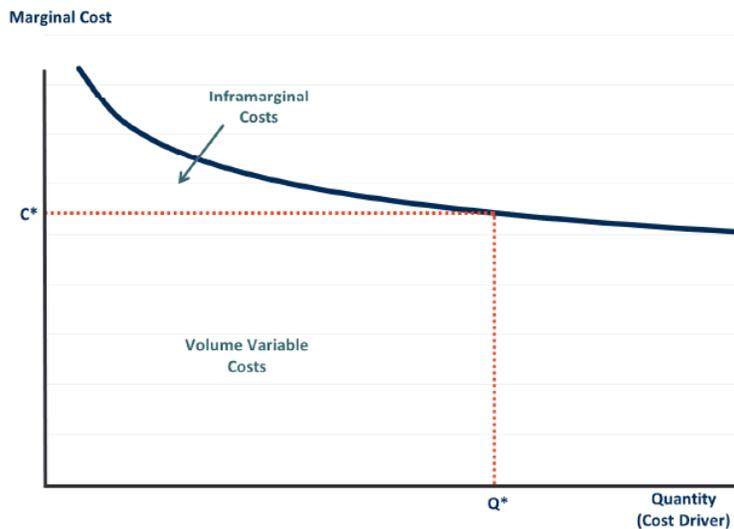
A. Proposal One

1. Description of proposal

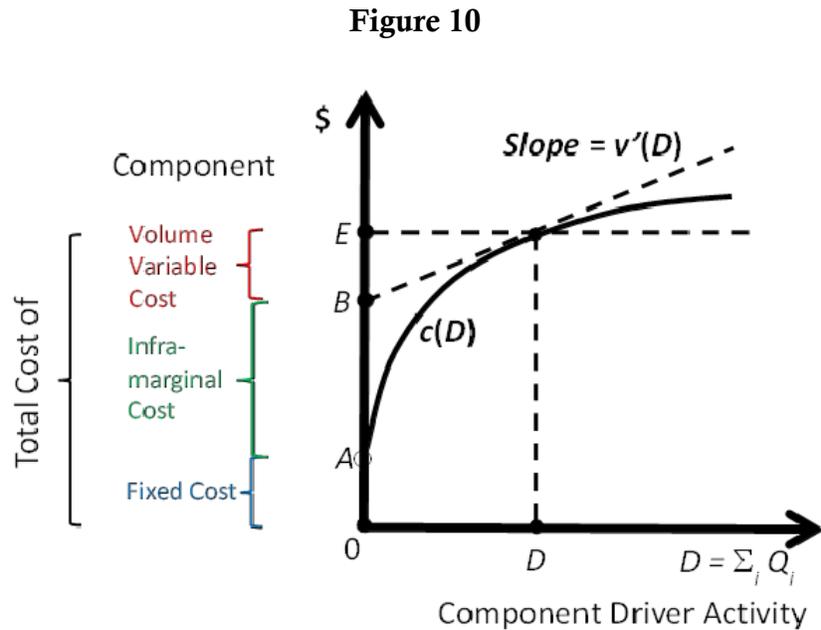
The objective of Proposal One is straightforward: without modifying the basic structure of the Postal Service’s Cost and Revenue Analysis (“CRA”) system, the proposal would *attribute all* component variable costs to individual services. Proposal One would require this attribution even for costs that would not be avoided by the complete elimination of the individual product at issue, or all competitive products combined. Panzar Decl. at 1-2.

UPS's case for this approach may be summarized as follows: The marginal costs of postal outputs are generally declining over the range of output from the first unit produced to the last, or marginal unit. Hence, the "volume variable" cost of any postal product (*i.e.*, the rectangle defined by multiplying the marginal cost of the product by volume) is less than the total area under the marginal cost curve over the entire range of output from the first unit to the marginal (or last) unit. UPS Proposal One at 2-4; Neels Report at 11. Dr. Neels defines the area below the marginal cost curve but above the horizontal line defined by the marginal cost of the last unit of output as "inframarginal" cost. UPS Proposal One at 4-5; Neels Report at 11-16. Dr. Neels illustrates this concept in figure 4 on page 11 of his report. The figure, reproduced below, represents "inframarginal" costs as the area bounded by the vertical axis, the marginal cost curve, and the dotted horizontal line C^* between quantity 0 and quantity Q^* :

Figure 9



Inframarginal costs may also be depicted as a subset of total costs. The following figure, which first appeared on page 19 of Prof. Panzar’s 2014 report to the Commission, illustrates this:



Dr. Neels and UPS argue that all “inframarginal” costs—in the above figure, the variable costs between A and B on the vertical axis—should be treated as attributable costs, and that these costs should be attributed by allocating them to individual products in proportion to marginal costs (or, for cost components that are entirely fixed, in proportion to piece volume). Further, Proposal One would require that the rates for each competitive product cover all of the costs so allocated. Proposal One at 19-21; Neels Report at 16-29. The resulting allocation of costs to individual products would be unsupported by causation, and the resulting attributable cost values almost certainly would exceed the marginal and incremental costs of any product. See Neels Report at 25 (Figures 6 and 7) (illustrating that,

for a firm with declining marginal costs, the volume-weighted average of the marginal cost curve exceeds both marginal cost and the incremental cost of any output).

Dr. Neels does not dispute this fact, asserting that the costs allocated to individual outputs *should* exceed marginal and incremental costs because those cost measures treat the marginal or incremental volume as the “last” unit or increment of volume to be produced, an assumption that he asserts is improper and unfair. Neels Report at 21-22. To eliminate this “implicit ordering,” Dr. Neels proposes to distribute *all* variable costs to individual products using an allocation method that yields the “Shapley Value.” This allocation method is based on a game-theoretic approach devised by a mathematician, Lloyd Shapley, in 1953 for allocating the total surplus generated in a cooperative game among all of its players. Since then, a number of economists have developed methods for using the Shapley method to allocate the joint and common costs of a regulated firm among its ratepayers. Proposal One at 10-11, 13-14, 21-26; Neels Report at 22-29. Dr. Neels states that he has relied on a version of the Shapley method that allocates costs by randomly shuffling the “implicit order” in which individual outputs are produced. If enough iterations are performed, averaging the results allocates to each product a pro rata share of the total variable costs of all outputs of the Postal Service. Dr. Neels and UPS conclude that the Shapley method provides a sufficient economic foundation for adopting Proposal One. Proposal One at 10-11, 13-14, 21-26; Neels Report at 22-29; UPS responses to CHIR 4, Questions 2 and 3 (Jan. 8, 2016). For the reasons we next explain, this claim is unfounded.

2. Proposal One would violate 39 U.S.C. §§ 3622(c)(2), 3631(b), and 3633(a)(1) and (2) by attributing costs to individual classes and products that do not cause those costs.

Proposal One would return postal ratemaking to the pre-1970 era by jettisoning causation-based cost attribution in favor of fully distributed costs and other arbitrary cost allocations. The proposal would require that the minimum prices charged for virtually *every* mail class and product whose production uses a cost component must include an allocated or distributed share of *all* inframarginal costs of the cost component—including costs that would not be avoided by the discontinuance of the increment of volume at issue, and therefore are not caused by that increment of volume. Panzar Decl. at 10-11.³³

For each of the cost components that are estimated with a constant cost elasticity function (*i.e.*, which are defined to have no fixed or start-up costs), the price floor dictated by Proposal One would equal the *fully allocated cost* of the component. Panzar Decl. at 11. In Fiscal Year 2014, the Postal Service had 20 such components; they accounted for \$22 billion of the Postal Service’s attributable costs that year. Library Reference AFSI-LR-RM2016-2/2, tab “Costs in CES Comps.” Proposal One would attribute \$11.8 billion in supposed inframarginal costs to the same components. The result would be an increase of more than 50 percent in the costs attributed to these components. *Id.*

³³ There would be a few exceptions. The CPI cap imposed by 39 U.S.C. § 3622(d) on class average rate increases would limit the effect of Proposal One on Periodicals Mail. Moreover, the Commission has allowed the phasing in of rate increases on noncompensatory products to mitigate rate shock. *See USPS v. PRC*, 676 F.3d 1105 (D.C. Cir. 2012). Even with these exceptions, however, adoption of Proposal One would ultimately require massive rate increases on a broad range of competitive and market-dominant products.

For cost components whose provision requires some fixed (start-up) costs, the price floor dictated by the proposal would equal the sum of (1) an allocated share of the *total* variable costs incurred in producing *all* of the outputs that use the cost component, plus (2) whatever fixed costs are assigned to the each class or product under 39 U.S.C. § 3633(b). *Id.*³⁴

Because Proposal One would attribute the entire pool of inframarginal costs to individual classes and products through accounting allocations without evidence of causation, the proposal would violate 39 U.S.C. §§ 3622(c)(2), 3631(b) and 3633(a)(1) and (2). As UPS acknowledges, PAEA requires that the rates charged for competitive products cover the costs that are directly and indirectly “attributable” to those products “through reliably identified causal relationships.” Proposal One at 12 (citing 39 U.S.C. §§ 3631(b) and 3633(a)(2)); *see also* pp. 53-56, *supra*. Most inframarginal costs are not caused by individual competitive products, and thus may not be attributed to them. Likewise, the prohibition against cross-subsidy of competitive products, 39 U.S.C. § 3633(a)(1), does not support a rule requiring that the price of each competitive product (or all competitive products together) cover a distributed allocation of the aggregate inframarginal costs of the cost components used to produce the product or products. Unless a cost would disappear if the Postal Service stopped supplying a given increment of output, the increment of output does not cause the cost, and the cost may not be included in the incremental cost price floor used to test for cross-subsidy. *See* Panzar Decl. at 1, 4-5, 11-12.

³⁴ Dr. Neels states that UPS will seek in Proposal Three to require fixed costs to be allocated similarly in setting the appropriate share of institutional costs that must be paid by competitive products. Neels Report at 58-59.

The arguments offered in an attempt to reconcile Proposal One with the causation requirement of the statute do not withstand scrutiny.

(1) The first argument is that the proposal satisfies the causation requirement because all variable costs in the aggregate are caused by all products in the aggregate. *See, e.g.*, Proposal One at 13 (asserting that, because “the 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 flaw in this logic is that the causal relationship required by 39 U.S.C. §§ 3622(c)(2), 3631(b) and 3633(a)(1) and (2) between volume and costs is individual, not collective. Costs may not be attributed to any *particular* mail class or other subset of total volume, however, except to the extent that the costs vary with *that subset of volume*. Panzar Decl. at 2, 4-5, 12-13; *accord NAGCP IV*, 462 U.S. at 833 (attribution methods must “provide reasonable assurance that costs are the result of providing *one class of service*” (emphasis added)).

While all of the variable costs of a component are indeed caused in common by all of the services, it does not follow, that any *particular* portion of variable costs (e.g., inframarginal costs) can be attributed to any *particular* service (or subset of services). To the contrary, costs may be considered to be caused by a *particular* service (or subset of services) only to the extent that those costs that (i) are brought into existence by adding *that* service (or subset of services); *or* (ii) would be avoided if the provision of *that* service (or subset of services) were discontinued. Panzar Decl. at 4-5, 12-13; Panzar Report at 3-8.

UPS's reliance on a Commission statement in R80-1 illustrates the confusion that results from overlooking the distinction between collective causal responsibility and class- or product-specific causal responsibility:

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.

PRC Docket No. R80-1 Op. & Rec. Decis. (Feb. 19, 1981) at App. B at 26 (quoted in Proposal One at 14). While the quoted statement is unexceptionable, the key question here is *what* costs vary with *what* volume changes. The third sentence of the quotation recognizes the distinction between the collective and the individual: "A variable cost is one that will change because of a change in the volume of *a class of mail*." *Id.* (emphasis added).

(2) Also unfounded is the contention that using Shapley cost allocations to define price floors is necessary because attributable and incremental costs allow the Postal Service to "disregard large volumes of variable costs when setting prices for its competitive products," resulting in a "playing field that is heavily tilted in its favor." Proposal One at 14. As explained above, however, the requirements that (a) each marginal output covers its marginal cost, (b) each product covers its incremental cost, and (c) each combination of two or more products collectively covers the incremental costs of the combination are sufficient to prevent cross-subsidy of competitive products and keep the playing field level. *See* pp. 33-35, 37 & n.18, *supra*; Panzar Decl. at 13-14.

(3) Equally without merit is the related claim that requiring competitive rates to cover Shapley cost allocations is necessary to prevent the Postal Service from capturing the “economies of scope and scale” created from serving market-dominant products for the Postal Service’s “competitive products business.” Proposal One at 25. It is entirely proper for a firm to pass through most (or even all) of its economies of scale and scope to customers in competitive markets through lower prices, as long as the rates paid by those customers cover the marginal and incremental costs of serving them. Panzar Decl. at 14-15 (citing Ronald R. Braeutigam, *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* 1337-41 (R. Schmalensee & R. Willig, eds., 1989)); 1 Kahn, *The Economics of Regulation* at 141. This is particularly true when (as here) the regulated firm competes directly with unregulated firms. Professor Kahn emphasized this fact in the analogous context of price competition between regulated gas and electric companies versus unregulated heating oil distributors:

Where the gas and electric companies are competing with unregulated heating oil distributors, there may be no alternative to permitting whatever rate reductions are required, down to marginal costs, to achieve the efficient distribution of the business.

1 Kahn, *The Economics of Regulation* 172-73 n.25.

(4) Likewise unfounded is the notion that a larger share of network costs should be attributed to competitive products because the Postal Service’s investment in new plant and vehicle capacity will mainly serve competitive products. If portions of new or additional investment are reliably shown to be caused by particular competitive products,

than those amounts are properly attributed to the competitive products. Otherwise, however, they must be treated as institutional.

(5) Dr. Neels and UPS contend that the Postal Service's longstanding practice of using "distribution keys" to attribute volume variable costs to individual classes and products confirms that distribution keys can properly be used to allocate "inframarginal" costs to individual classes and products. Proposal One at 19-21; Neels Report at 22. This does not follow. Distribution keys are properly used to attribute costs only when two conditions hold: (1) the distribution keys are valid, and (2) the component variability factor is correct. In those circumstances, "the volume variable costs assigned to each service will exactly equal the marginal cost of that service multiplied by the quantity of that service." Panzar Decl. at 16 & n.13. When costs are *not* caused by a particular class, product or other increment of output, however, use of the distribution keys is improper. The existence (or not) of the underlying causal link between volumes and costs, not the existence of the distribution keys, determines whether their use is legitimate. Panzar Decl. at 15-17.

(6) UPS cites or quotes snippets from several Commission and court decisions supposedly blessing the attribution of inframarginal costs in the manner akin to Proposal One. Proposal One at 13-14 & n.13; *id.* at 16-17, 19 & n.18. These precedents do not support this claim.

The Commission rejected the views of the hearing examiner in R71-1 on the appropriate role of cost allocations in setting postal rates. *See pp. 42-45, supra.*

In Docket No. R80-1, the Commission assailed “extended attribution” as unsound, and reiterated its continued support for “marginal-cost pricing principles in postal ratemaking.” *See* p. 47, *supra*. On review of R80-1, the Supreme Court refused to read into the Postal Reorganization Act any mandate for “extended attribution of costs” holding instead that any cost attribution methods adopted by the Commission must “provide reasonable assurance that costs are the result of providing one class of service.” *NAGCP IV*, 462 U.S. at 833.

Finally, the Commission’s statement in R94-1 that “if the cause of costs can be reliably identified, it is the Commission’s statutory duty to attribute them” (Op. & Rec. Decis. (Nov. 30, 1994) at III-44 ¶ 3147) does not support the attribution of costs whose cause *cannot* “be reliably identified.”

- 3. Even if the attribution of all inframarginal costs to individual classes and products were correct in principle, Proposal One would violate 39 U.S.C. §§ 3622(c)(2) and 3631(b) because no reliable method of calculating inframarginal costs now exists.**

Proposal One would violate the causation requirement of 39 U.S.C. §§ 3622(c)(2) and 3631(b) even if (contrary to fact) the attribution of infra-marginal costs were correct in principle. As discussed above, both legal provisions condition cost attribution on “reliably identified causal relationships.” *Id.* But no reliable method for quantifying the inframarginal costs of individual products or cost components exists.

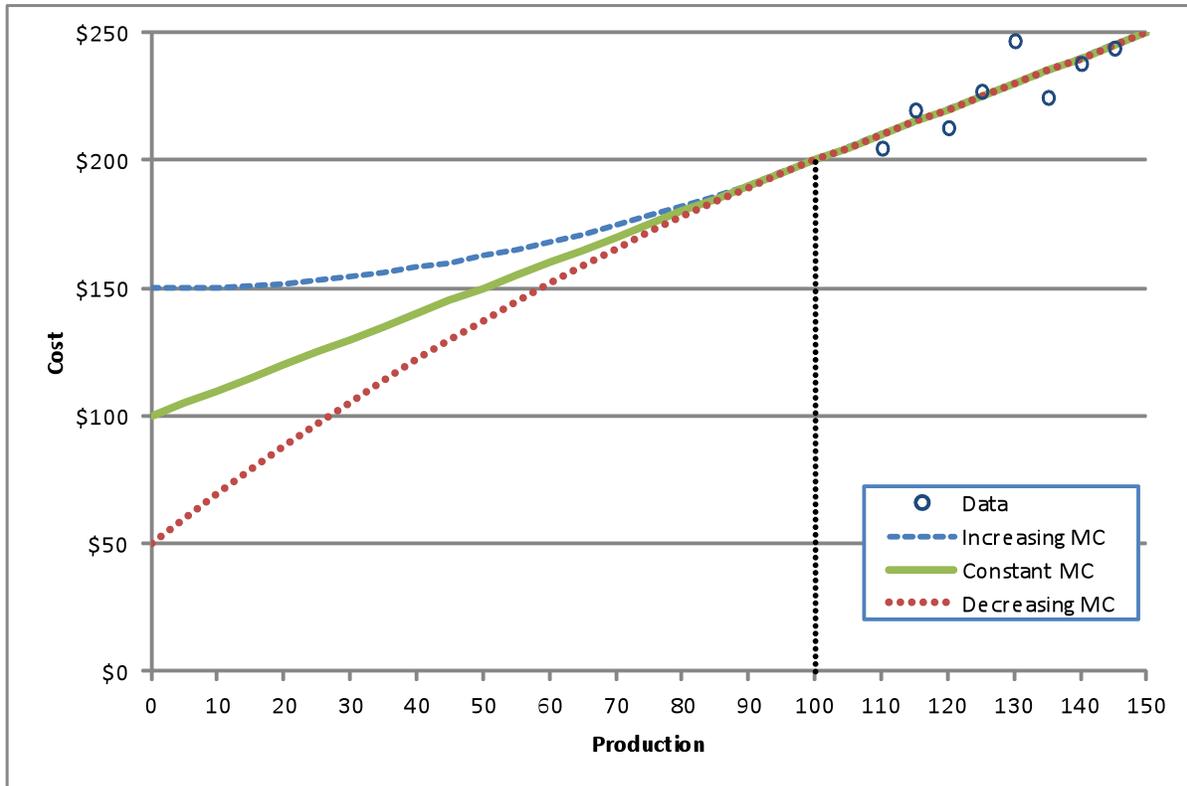
Dr. Neels developed his estimates of inframarginal costs by using a method published in 2014 by a contractor to the Commission, Charles McBride. Neels Report at

20. Dr. McBride in turn based his assumptions about the shape of the cost function for each cost component (and the magnitude of its fixed costs, if any) on the “R2006-1 Postal Service assumptions regarding the classification of all cost components as far as the level of volume-variable cost variability and whether or not the component was considered to be in the constant elasticity family of cost functions.” Charles McBride, *The Calculation of Postal Inframarginal Costs* 8 (2014).

The basic problem with this approach is that Postal Service’s estimated cost functions cannot reliably estimate where the cost curve intercepts the total cost (*i.e.*, vertical) axis (point A in Figure 10, *supra*), and thus cannot reliably disaggregate institutional costs into fixed and inframarginal costs. The estimated point where the cost curve crosses the vertical axis is driven largely by the assumed functional form of the cost function at low volumes. Nearly all econometric estimates of Postal Service cost functions are derived from observations of costs and their related drivers at volume or component levels that have actually occurred in recent years. These observations can produce reasonable econometric estimates of marginal costs (and the incremental costs of products whose volumes are small percentages of total Postal Service volume). But the data cannot produce reasonable estimates of fixed costs—*i.e.*, the costs incurred when volume is zero. For nearly all cost components, *all volume and component levels experienced in recent years have been far above zero*. Without data points at or close to output levels of zero, trying to infer the shape of the cost curve—let alone its intercept point on the vertical (cost) axis—is no more than untestable guesswork. Jan. 25, 2016 Declaration of T. Scott Thompson (“Thompson Decl.”) ¶¶ 61-72; Panzar Decl. at 6 n.7.

Dr. Thompson illustrates this point with the following hypothetical example, which illustrates why an analyst cannot reliably extend a regression curve to the vertical axis when all of the data points are far to its right (Thompson Decl. ¶¶ 65-66):

Figure 11



The data to which the regression curves are fitted all represent levels of output that are well above zero. Hence, estimating the height of the intercept on the vertical axis requires extrapolating the path of the cost function far to the left of the data points. This extrapolation is likely to cause error in two ways. First, minor inaccuracies in the data can cause major errors in the projected height of the intercept point. Second, major error can also result from the wrong choice of functional form. In the figure above, the choice between a constant marginal cost function, an increasing marginal cost function and

decreasing marginal cost function can cause enormous variations in the projected fixed costs. The analyst cannot reliably determine from the data set which functional form is best because *all three functional forms fit the data well within the range of the data*. Thompson Decl. ¶¶ 65-68.

Dr. McBride himself expressed reservations in his 2014 report about the reliability of the Postal Service costing assumptions on which he relied:

We feel obliged to say that we have 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. This problem may be due to the fact that the concept of incremental cost was rejected by the Commission in this early period, and that this lack of interest resulted in the absence of the usual litigation-based scrutiny of any new costing concept. It should be kept in mind when reviewing the numerical results for inframarginal costs presented in Tables 2 and 3 and elsewhere in this paper.

McBride, *The Calculation of Postal Inframarginal Costs* 8.

Because knowing the height of the intercept point on the vertical axis is necessary to partition institutional costs into inframarginal and fixed costs, no reliable econometric method therefore exists for calculating either inframarginal or fixed costs. Nor is any such method likely to exist unless Postal Service volume collapses almost completely. Further, there is no accepted economic theory that would provide a reliable way to calculate the fixed costs in the absence of econometric data. Panzar Decl. at 6 n.7.

The Commission has previously noted the unreliability of “economically estimated cost equations” when the functions are “evaluated outside the bounds of the sample used to

fit them.” PRC Docket No. R97-1 Op. & Rec. Decis. (May 11, 1998) ¶ 4056 (third bullet); *id.* at App. F at 33 (“econometricians are reluctant to extrapolate econometric results far beyond the ranges of values for the variables in the sample.”). The problem is multiplied here, where the Commission is being asked to accept proposed estimates of inframarginal costs that are residuals of fixed cost estimates derived *entirely* from extrapolations from the variables in the sample, all of which reflect actual historical quantities of output, to the intercept point on the vertical axis, which by definition represents a hypothetical (and counterfactual) state of *zero* output. The radical extent of the extrapolation “sacrifices any possibility of accurately describing costs.” *Id.*

4. The non-postal and foreign precedents cited by UPS do not support the adoption of Proposal One.

Dr. Neels and UPS do not discuss the 30 years of Commission precedent since *NAGCP IV* rejecting cost allocation unsupported by causation as a method of minimum rate regulation. Instead, they cite a variety of non-postal and foreign contexts in which cost allocations assertedly play a role in setting minimum prices: (a) the Shapley Value; (b) the railroad rate standards enforced by the STB; (c) the telecommunications pricing standards enforced by the California and Maine public utilities commissions; (d) regulation of certain prices by postal operators in the European Union, and (e) the cost accounting practices of some private corporations. UPS’s reliance on these precedents is misplaced.

(a) The Shapley allocation method

As noted above, Dr. Neels and UPS seek to justify Proposal One in large part because of its similarity to a version of the Shapley Value method. The Shapley method, however, cannot serve as a lawful method of cost attribution under PAEA.

The Shapley Value for each player or customer includes an allocated share of common costs for which the player or customer has no causal responsibility. As discussed above, the very aspect of the Shapley approach that Dr. Neels describes as its greatest virtue—its allocation of variable costs to each increment of output in an “order-neutral” fashion rather than by treating each increment as being produced last—is a fatal defect. The statutory cost floors prescribed by the PAEA are attributable and incremental costs. Determining the attributable and incremental costs of an increment of output *requires* treating it as having been produced last. This “implicit ordering” of outputs is the *sine qua non* of marginal, attributable and incremental costs. Panzar Decl. at 4-5, 18-19; Panzar Report at 5; accord Alfred E. Kahn, *Whom the Gods Would Destroy, or How Not To Deregulate* 14 (2001) (“[T]he incremental cost of common service B is the difference between the cost of providing its common product A on a stand-alone basis and the cost of providing A and B together.”); 1 Kahn, *The Economics of Regulation* 140 (“As far as causal cost responsibility is concerned, all customers are marginal”). Hence, the prices that result from the Shapley method cannot satisfy 39 U.S.C. §§ 3622(c)(2), 3631(b) or 3633(a)(1) and (2). Panzar Decl. at 17-19.

Nor could the Shapley Value lawfully be used as a tool of postal *pricing*. The thought experiments published by economists on the use of the Shapley Value to set regulated prices

prescribe relatively few conditions (or “axioms”) for the game. *See* Neels Report at 22-23 nn.30-36 (citing literature); UPS response to CHIR 4, question 3 at 6 n.5 (citing literature); Braeutigam, *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* 1315. But the requirements and objectives of postal ratemaking are much more complex and demanding.

As discussed above, 39 U.S.C. §§ 3622(c)(2), 3631(b) and 3633(a) require that attributable and incremental costs, the two measures of cost used to define the price floors, include only costs that are reliably shown to be caused by the particular increments of volume at issue. Section 3622(d) generally limits the average price increase for each class of mail to the rate of increase in the Consumer Price Index. And 39 U.S.C. § 3633 exempts competitive products from maximum rate regulation. The record provides no evidence that the Shapley approach can be reconciled with these requirements.

The Shapley approach is also ill-suited to the task of “balancing” the “host of qualitative pricing standards” enumerated in the factors and objectives of 39 U.S.C. § 3622(b) and (c). PRC Docket No. RM2009-3, Order No. 536, *Order Adopting Analytical Principles Regarding Workshare Discount Methodology* (Sept. 14, 2010) at 35. These direct the Commission, for example, to take economic efficiency into account. *See* 39 U.S.C. §§ 3622(b)(1) and (c)(2), (3), (7), (8), (9), (10) and (12). Because mailers have elasticities of demand that vary widely by product, economic efficiency requires that mark-ups over marginal or attributable cost vary with elasticities of demand. Title 39 also requires the Commission to consider a welter of other ratemaking factors and objectives, some of which are inconsistent with economic efficiency or each other, in setting prices. Congress has

directed the Commission to perform this task through a “subjective balancing” of the qualitative pricing standards. PRC Docket No. RM2009-3, Order No. 536 (Sept. 14, 2010) at 35. To outsource this task to a mechanical allocation formula would abdicate the Commission’s responsibilities.

For example, applying the Shapley approach at the product level would not yield economically efficient prices except in the extremely unlikely event that fully-distributed cost prices coincided with Ramsey prices.³⁵ Nor would the Shapley approach optimize the *non-efficiency* factors and objectives of statutory lists such as 39 U.S.C. § 3622(b) and (c), except in the unlikely event that each of the numerous products offered by the regulated firm promoted the statutory objectives to an identical degree. And the Shapley approach would also violate the objective of giving the Postal Service an opportunity to earn “adequate revenues” (§ 3622(b)(5)) and improve its “net financial position” (§ 3622(c)(10)(A)(i)) by offering reduced rates when competition and demand elasticities warrant. The Shapley approach would *reduce* Postal Service earnings whenever the demand for an individual product was elastic enough that its contribution-maximizing prices were below the level arbitrarily dictated by the Shapley approach. Panzar Decl. at 17, 20-31. Finally, the Shapley approach is likely to harm mailers, shippers and consumers—and contravene the policies of 39 U.S.C. §§ 3622(c)(3) and (4)—by suppressing competition between the Postal

³⁵ 1 Kahn, *The Economics of Regulation* at 155; Braeutigam, *Optimal Policies for Natural Monopolies*, in 2 *Handbook of Industrial Organization* 1315 n.36 (“the ‘axiomatic approach’ bears no necessary relationship to the pricing which is economically efficient”); Ronald R. Braeutigam, *An Analysis of Fully Distributed Cost Pricing in Regulated Industries*, 11 *Bell J. of Econ.* 182-96 (1980); *Coal Rate Guidelines*, 1 I.C.C.2d at 526.

Service and private carriers, thereby raising the prices charged by both. Panzar Decl. at 20-31.

Given these defects, it is unsurprising that the Commission has not approved the use of the Shapley Value to set minimum postal rates. In Docket No. R94-1, the Commission's Office of Consumer Advocate, invoking Shapley pricing principles, proposed that the Commission require the Postal Service to set rates with uniform mark-ups over attributable cost. The Mail Order Association of America opposed the proposal, arguing that the Shapley axioms were inconsistent with the pricing standards of the Postal Reorganization Act. The Commission, observing that the "usefulness of the game theory and axiomatic approaches [to pricing] depend on the regulating agency's primary pricing objective," did not adopt the OCA proposal. PRC Docket No. R94-1 Op. & Rec. Decis. (Nov. 30, 1994) at App. F at 8-9 ¶¶ 122-25. The Commission noted, *inter alia*, that Shapley axioms require that the Postal Service "must allocate all common costs"; that "all goods with the same costs (e.g., marginal cost) have the same price"; that "prices derived from this approach have no special claim to welfare maximization"; and that the result was a form of fully allocated cost pricing, with "common costs ... added to the variable cost of each service in such a way the shares of common costs borne by any two services match their relative shares of variable costs." *Id.* ¶ 123. Since 1994, no one has tried to revive the OCA proposal until now.

(b) Regulation of minimum railroad rates by the Surface Transportation Board

Nor is the Shapley method currently used to regulate the minimum prices of any other multiproduct firm under a regulatory regime akin to postal rate regulation. CHIR 4,

question 3, asked UPS to “provide an example of a regulated public utility or industry which directly applies any form of Shapley values in allocating common costs to products.” In response to this, UPS offered only a single example: regulation of railroad rates by the STB. UPS contends that railroad rate regulation by the STB uses “average variable costs” in a manner that is implicitly “consistent with use of the Shapley Value.” UPS response to CHIR 4, question 3 at 6-9. This is incorrect. The STB does not use the Shapley Value *or any other method of allocating total variable costs* to set minimum rates. In fact, the Interstate Commerce Act does not authorize competitors of railroads to challenge rates as unduly low in *any* circumstances.

In 1976, Congress amended the Interstate Commerce Act to allow railroads to set prices for competitive products as low as the carriers’ “going concern value.” The ICC implemented the legislation by adopting a rule allowing railroads to price down to “directly variable cost,” a proxy for *short-run marginal cost*. The D.C. Circuit upheld this standard over the objections of the barge industry, a direct competitor of railroads. *Water Transport Ass’n v. ICC*, 684 F.2d 81, 85 (D.C. Cir. 1982).³⁶

In 1995, Congress amended the Interstate Commerce Act to eliminate any remaining regulatory jurisdiction over minimum rates for both competitive and market-dominant services. The Act no longer has any provision allowing competitors of railroads to

³⁶ See also *Coal Rate Guidelines*, 1 I.C.C.2d at 541; Railroad Accounting Principles Board, *Railroad Accounting Principles* ii (Sept. 1, 1987) (“Avoidable costs shall be used” in minimum rate regulation); *id.* at 28 (“The relevant costs” for minimum rate regulation “are those which are avoidable if the traffic subject to minimum rate considerations does not move (Causality Principle).”).

challenge rates as unreasonably low. ICC Termination Act of 1995, Pub. L. No. 104-88, § 102(a), 109 Stat. 804 (repealing, *inter alia*, former 49 U.S.C. § 10701a(c)); H.R. Rep. No. 104-311, at 82-83, 97, reprinted in 1995 U.S.C.C.A.N. 794, 809 (1995) (stating that the legislation eliminated minimum rate regulation).

“Average variable costs” still play a role, albeit limited, in regulating *maximum* railroad rates. The Interstate Commerce Act requires the STB to use average variable costs as part of a threshold jurisdictional screen: if a rate for a particular service does not exceed 180 percent of average variable cost, the railroad providing the service is conclusively presumed to lack market dominance, and the rate is therefore exempt from maximum rate regulation. 49 U.S.C. §§ 10707(c), 10707(d)(1)(A). Exceeding the 180 percent threshold, however, does not establish a presumption that the railroad has market dominance, let alone that the rate is unreasonably high. *Id.* §§ 10707(c), 10707(d)(2). Moreover, the ultimate determination of maximum rate reasonableness does not turn on fully allocated costs or Shapley allocation methods. The predecessor of the STB, the ICC, repudiated fully-allocated cost ratemaking more than 30 years ago. *Coal Rate Guidelines—Nationwide*, 1 I.C.C.2d 520, 523, 526-28 (1985), *aff’d Consolidated Rail Corp. v. United States*, 812 F.2d 1444 (3d Cir. 1987). As the ICC explained:

The differential between marginal costs and average costs cannot be assigned directly to specific movements by any conventional accounting methodology. Hence, we refer to it as the “unattributable costs.” These are the costs which must be recovered through differential pricing.

Id. at 526. Instead, the ICC granted the railroads broad pricing flexibility, limited only by a stand-alone cost rate ceiling and other constraints. *Id.* at 534-48. The STB uses largely the

same constraints today. Average variable cost plays only a minor role in these standards, mainly as an input to certain simplifying standards adopted by the STB to reduce the costs of litigating maximum rate cases, particularly those involving small freight volumes. *CSX Transp., Inc. v. STB*, 754 F.3d 1056 (D.C. Cir. 2014); *BNSF Railway Co. v. STB*, 526 F.3d 770 (D.C. Cir. 2008).

(c) Decisions of state regulatory commissions

UPS also cites a 2003 decision of the California Public Utility Commission and a 1994 decision of the Maine Public Utility Commission as examples of cases in which the Shapley Value was “*explicitly* recommended or used as a method of cost allocation.” UPS response to CHIR 4, question 3 at 6 n.5. UPS’s reliance on these cases is misplaced. In both cases, the state commissions *rejected* the cost studies that relied on the Shapley methodology. *Rulemaking on the Commission’s Own Motion to Govern Open Access to Bottleneck Services*, 2003 Cal PUC LEXIS 80 (Jan. 30, 2003) at *33, 55-56 (noting proposal to allocate 25 percent of the cost of the high-frequency portion of the local telephone loop (“HFPL”) to the charges imposed on competing local exchange carriers (“CLECs”) for access to the loop); *id.* at 56 (declining to adopt proposal); *accord id.*; Opinion on Request for Intervenor Compensation, 2003 WL 21396267 (Cal. P.U.C. June 5, 2003) § 3.1 (noting that PUC declined to adopt Shapley approach); *Investigation Into New England Telephone Company’s Cost of Service and Rate Design*, 1994 Me. PUC LEXIS 9 at *7-9, 68-70, 88, 1994 WL 287424, (Apr. 13, 1994). The reasoning of the Maine PUC is worth quoting at length:

In calculating incremental costs, Staff used the “Shapley value” method of allocating the joint and common costs among the services offered by NET [New England Telephone]. The Staff analysis determined what it called

“incremental” costs for various classes of service by using the Shapley values and the change in costs under various service combinations or “coalitions.”

The Shapley value analysis reflects principles of cost allocation, rather than principles of incremental cost measurement associated with an individual service. The Shapley value analysis assigns a portion of joint and common costs to each service. While an analysis of this kind may provide some guidance in evaluating the equities of dividing revenue requirements, it sheds little light on the analysis of cost causation.

The long run incremental cost of common facilities (i.e., loops, switches), by definition, cannot be measured as solely related to usage changes in either local or toll. One logical response to this fact would be to exclude these common costs from any of the incremental cost calculations; the incremental cost of common facilities would be treated in the reconciliation. Stand-alone studies, on the other hand, should include the full cost of common facilities in studies of local and toll service, because these costs would be required if either service were provided alone.

The Shapley value analysis shares many of the problems associated with all methods of joint and common cost allocation, including NET’s approach, which are by their nature arbitrary to some degree. ... On balance, we conclude that the uncertainties and infirmities of the Shapley analysis prevent us from concluding that the revenues for basic service exceed stand-alone costs even as adjusted by Shapley values.

* * *

In Staff’s view, the higher loop performance design criteria and accelerated depreciation rates are a result of NET’s introduction of digital service. Staff has, however, presented no cost analysis to support its contention, other than its “incremental” analysis which allocates costs using Shapley values. We will therefore not adopt Staff’s recommendation.

1994 Me. PUC LEXIS 9 at *68-70, 88.

(d) Minimum rate floors for European postal operators based on fully allocated cost

Dr. Neels observes that Article 14 of a European Union Directive requires European postal operators to maintain accounting systems that differentiate between the costs of fulfilling universal service obligations and the costs of other services. Neels Report at 56-57. Dr. Neels' reliance on Article 14 is misplaced for several reasons.

First, Article 14, as an EU directive, has no binding effect unless implemented by enabling legislation in a particular EU member country. Many observers have criticized the fully-allocated cost price floor provisions of Article 14 on grounds akin to those discussed in these comments, and the fully-allocated cost pricing provisions appear to be honored more in the breach than the observance. The Office of Inspector General of the Postal Service noted this in 2013:

Three foreign postal operators reported using FDC to establish a floor for pricing. One used FDC as a cross-subsidy test while three reported no testing for cross-subsidy. Another used it for calculating Universal Service Obligations (USO) and a third used it to report to their regulatory authority. Only one made the number public. All postal operators recognized that setting all prices close to FDC ensured that all costs were covered and that a profit was generated but many claimed that it was not a tenable or sustainable position for all products due to the impact on customer usage. One postal operator explicitly stated that an attempt to use FDC as a price floor resulted in prices so high that customers abandoned the mail to such an extent that net revenue decreased. Therefore, most postal operators and all nonpostal businesses recognized that it could not be a universal price floor and that it was necessary to price below FDC for many products.

Economists have asserted that distributing nonvolume variable costs by using arbitrary allocation rules could be counterproductive. While the European Union Postal Directives are often cited as requiring FDC as a cost floor, many of those interviewed in this benchmark study claimed their prices merely needed to have a cost-based orientation. That is, their prices needed

to be related to product cost. They asserted that there was some flexibility in the type of cost used and that it was not required to be FDC in all cases. The nonuniversal use of FDC as a basis for pricing demonstrates this more flexible interpretation.

OIG Report No. MS-MA-13-004, *Benchmarking of Costing Methodologies* at 16 (Aug. 14, 2013) (emphasis added).

In the present context, moreover, the merits of the EU approach are moot. As discussed above, PAEA prescribed very different standards to enforce the economic separation of market-dominant and competitive products and prevent the Postal Service from using the former to subsidize the latter. Those standards leave no room for pricing based on fully allocated costs or other arbitrary allocation methods. 39 U.S.C. §§ 2011, 3631, 3633-3634; *see also* pp. 58-61, *supra* (discussing 2007 Treasury report and PRC Docket Numbers PI2008-2 and RM2008-5).

(e) The internal accounting systems of private corporations

Dr. Neels contends that Proposal One is also consistent with the treatment of overhead costs by private firms in their internal cost accounting systems. Neels Report at 53-56. UPS adds that it uses “activity based costing” to allocate “all of its variable costs to its products,” so the Postal Service should too. UPS response to CHIR 4, question 1.a. These claims are without merit.

The use of cost allocations of common and fixed costs by some corporate accounting departments is hardly proof that this practice is sound. What is true for regulated monopolies also holds for unregulated private firms: pricing based on arbitrary allocations

of joint, common and fixed costs can reduce both consumer welfare and corporate profits. “The basic economic theory of the firm . . . claims that decisions should be made according to marginal costs and not by the total average cost per product. . . . Unfortunately, in practice most organizations prefer absorption costing, even though it involves arbitrary allocation of overhead costs.” Nitza Geri & Boaz Ronen, *Relevance lost: the rise and fall of activity-based cost*, 24 *Human Systems Management* 133, 134 (2005).

In particular, the assumption that overhead costs are proportional to overhead activities, and that marginal cost is equal to average cost, an assumption underlying many cost accounting systems, has been empirically disproven for most overhead accounts. Eric Noreen & Naomi Soderstrom, *Are overhead costs strictly proportional to activity?*, 17 *J. of Accounting and Economics* 255-78 (1994); *see also* 1 Kahn, *The Economics of Regulation* 77-83 (explaining why the efficient recovery of joint and common costs by regulated and unregulated firms cannot be determined solely by cost allocations); Jean Tirole, *The Theory of Industrial Organization* 137-138 (1990).

In 2013, the Postal Service’s Office of Inspector General submitted a benchmarking questionnaire to four large American companies concerning their use of fully allocated cost as a price floor. The companies included UPS and the trucking company J.B. Hunt, “two businesses with operations similar to the Postal Service”; and the Tennessee Valley Authority and Southern California Edison, “two organizations in the regulated industry.” OIG Report No. MS-MA-13-004 at 13. Only one of the four companies (presumably UPS, in light of its CHIR response) stated that they used fully allocated cost as a basis for pricing. *Id.* at 8 (Table 3, “Fully-Distributed Cost” row).

Moreover, even UPS's own prices do not appear to be constrained by the accounting cost allocations it would impose on the Postal Service. In its Form 10-K for 2014, UPS identifies as a business risk the possibility that its major customers could "demand pricing concessions for our services" or "require us to provide enhanced services that increase our costs." UPS Form 10-K for 2014 at 15. In other words, UPS is prepared to offer selective discounts on the prices of its services when necessary to compete effectively. There is nothing wrong with this: as shown above, discounting is a legitimate feature of competition.³⁷ But UPS could not compete in this way if its own prices were constrained by the Shapley allocation methodology advanced in Proposal One.

UPS's claims about the superiority of activity based costing ("ABC") are also unjustified. The Postal Service's own accounting systems are based on ABC. Treasury Report at 3 ("USPS currently uses an Activity Based Costing (ABC) system that aims to generate economic costs."). The real issue, however, is *which* ABC system is used; ABC is not immune from the problems of traditional accounting systems. Professors Geri and Ronen explain:

[A]s ABC is essentially a refinement of absorption costing, it suffers from the weakness that are typical of absorption costing . . . ABC is based on subjective arbitrary cost allocations. . . . ABC regards the relation between activities and resource consumption as linear, absolute and certain. . . . All in all, allocation of all kind is arbitrary, and the use of any method based on

³⁷ See also Fuss, *Cost Allocation: How Can the Costs of Postal Service Be Determined? in Perspectives on Postal Service Issues* 30 n.1 (Sherman, ed., 1980) ("Multiproduct firms with common costs of production also exist in more competitive industries. Cost separation controversies do not arise in these industries because the marketplace in effect allocates costs.").

full allocation (traditional cost accounting or ABC) may cause a misleading decision-making process.

Geri & Ronen, *Relevance lost: the rise and fall of activity-based cost* 135, 24 *Human Systems Management* 133, 135; *see also* T. Colwyn Jones & David Dugdale, *The ABC Bandwagon and the juggernaut of modernity*, 27 *Accounting, Organizations and Society* 121-63 (Jan./March 2002). For these reasons, much of the “first-wave ABC” doctrine has been “jettisoned” in favor of “second-wave ABC”—a “quite different” accounting method that relies on a “contribution margin approach rather than an absorption costing system.” *Id.*³⁸

B. Proposal Two

1. Description of the proposal

For Proposal Two, Dr. Neels claims to have found 37 cost pools that contain costs that the Postal Service classifies as fixed, but which are “actually fully or partially variable, as demonstrated by econometric tests with statistically significant results.” Proposal One at 1; Neels Report at 31-51. UPS proposes that 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.” Proposal One at 1.

³⁸ The issue of activity-based costing as a tool of postal ratemaking is not new. It was proposed before the President’s Commission on the USPS in 2003. In response, Magazine Publishers of America (“MPA”) filed comments criticizing the use of the versions of ABC that relied on allocations of averages. MPA Final Comments to the President’s Commission on the USPS at 6-8. The final recommendations of the President’s Commission did not include ABC or fully allocated costs. Report of the President’s Commission on the USPS, *Embracing the Future* (July 31, 2003).

Dr. Neels arrived at this proposal via the following procedure. First, he defined fixed costs as “costs that do not change in response to changes in the volume of any product and are not incurred to support the provision of any specific product.” Neels Report at 9. He then “isolated” the fixed costs for each Postal Service cost component by subtracting volume variable costs and product-specific fixed costs from total costs to obtain institutional costs, which equal the sum of inframarginal costs and fixed costs not attributed to specific products. He then subtracted an estimate of inframarginal costs (if any) from this measure of institutional costs. The remainder, which Dr. Neels calls “reported fixed costs,” was the starting point for his search for “hidden” variable costs. Thompson Decl. ¶¶ 14-17.

Dr. Neels next excluded from his statistical modeling of individual cost components (1) any cost components for which these “reported fixed costs” are zero in any year or where institutional costs were negative in Fiscal Year 2014; (2) any cost components that were new during the period of study; and (3) component 681 (Domestic Alaska Air). After these exclusions, 84 cost components remained. Thompson Decl. ¶ 18.

Dr. Neels then performed a set of 85 regressions—one performed on each of these 84 components plus one performed on a measure of “total fixed cost.” Each regression had a single dependent variable for cost and a single independent variable, or regressor, described as “weighted mail volume.” The first regression compared “weighted mail volume” with “total fixed cost.” The remaining 84 regressions focused on a separate measurement of fixed costs for each of the individual 84 cost components. Each regression was calculated from eight annual data points measuring these variables in each of the Postal Service fiscal years 2007-2014. Based on a finding of a “positive and significant slope” in 37 of these

regressions, Dr. Neels concluded that the corresponding cost components have “hidden variable costs.” For those 37 components, Dr. Neels then estimated the magnitude of the “hidden variable” costs by multiplying the slope coefficients in the 37 corresponding regressions by the corresponding measure of weighted mail volume. Thompson Decl. ¶ 19.

2. UPS, as the proponent of greater cost attribution, bears the burden of proof.

In evaluating Proposal Two, it is important to keep in mind who bears the burden of proof. UPS asserts that the burden is on the proponents of classifying costs as institutional: “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.” Proposal Two at 1. This has it backwards. As noted above, 39 U.S.C. § 3631(b) limits “costs attributable” to costs that can be linked to individual products through “reliably identified causal relationships.” Section 3631(b) essentially codifies *NAGCP IV*, which upheld the Commission’s refusal “to use distribution keys or other accounting principles lacking an established causal basis” as consistent “with the statutory mandate and Congress’ policy objectives.” *NAGCP IV*, 462 U.S. at 826-29. UPS, the proponent of reclassifying certain fixed costs as variable and attributable, thus bears the burden of proof. The Neels Report analysis cited in Proposal Two is the only quantitative support offered by either UPS or Dr. Neels in support of Proposal Two. Thompson Decl. ¶ 24 & n.15. Hence, the validity of the proposal depends on the validity of Dr. Neels’ regression analysis.

3. **Proposal Two suffers from major flaws.**

In Docket No. R97-1, Dr. Neels testified for UPS that, “If the data upon which [a regression] study is based are unreliable, if the model is misspecified, or if the analysis is technically flawed, one should be extremely cautious in basing conclusions regarding variability on the study’s results, regardless of the specific numerical value of the estimate.” PRC Docket No. R97-1 Op. & Rec. Decis. (May 11, 1998) at App. F at 2 (quoting Dr. Neels). The regression study underlying Proposal Two suffers from numerous flaws in data, model specification, and analysis. We summarize the five most important here; supporting details appear in the Declarations of Dr. Thompson and Mr. Glick.

(a) Dr. Neels has failed to control for potential confounding causes of the decline in postal costs between Fiscal Year 2007 and Fiscal Year 2014.

The most immediate flaw in the regression analysis is its failure to identify and control for potential causes of changes in reported fixed costs *other than* weighted mail volume. Without additional explanatory variables to control for possible alternative causes, his univariate regressions cannot prove a causal relationship between volume and costs. Thompson Decl. ¶ 20.

The level of reported fixed costs could have been influenced by many causal factors other than volume during Fiscal Years 2007 to 2014. The most obvious potential confounding causes include: (1) the 2007-2009 recession; (2) productivity changes; (3) the capital crunch and its effect on annual investments and deferrable expenses; (4) changes in real (inflation-adjusted) input factor prices between Fiscal Year 2007 and Fiscal Year 2014

and their effect on the mix of inputs used by the Postal Service during the same period; (5) statutory changes; and (6) cost methodology changes and accounting adjustments. Additionally, there are likely numerous mundane changes affecting component-level costs over time and thus the accuracy of component-level regressions. Examples include shifts in costs between one cost component, *e.g.*, Rural Carrier – Other Routes, and another, *e.g.*, Rural Carrier – Evaluated Routes and changes in pension plan eligibility. Thompson Decl. ¶¶ 25-37; Jan. 25, 2016 Declaration of Sander Glick (“Glick Decl.”) ¶¶ 5-14. A thorough component-by-component analysis would be necessary to rule out the presence of confounding factors.

The Commission has long emphasized the importance of controlling for potential confounding causes in regression analysis. In Docket No. R76-1, *Rate and Fee Increases, 1975*, for example, the Office of the Consumer submitted a regression study that compared Postal Service costs with various measures of mail volume at 87 large post offices. The Commission, noting that both the cost and volume variables “might be independently varying over time resulting in a ‘spurious’ correlation of the data,” found that the inference of causation drawn by OOC from the correlation “was not supported, and seems insupportable.” PRC Docket No. R76-1 Op. & Rec. Decis. (June 30, 1976) at 90-91 & n.3.

Likewise, in Docket No. R87-1, the Commission noted that “time series analysis by its very nature is subject to ‘unwanted side effects,’ *i.e.*, non-volume exogenous variables which vary over time, such as national economic activity levels, postal budgeting and management policies, postal productivity, and changes in physical mail characteristics.” PRC Docket No. R87-1 Op. & Rec. Decis. (Mar. 4, 1988) at 214 ¶ 3266. Failing to control

adequately for confounding causes “makes time series analysis results extremely sensitive to the choice of time period.” *Id.* Largely for this reason, the Commission concluded in R87-1 that “no reliable independent estimate of city carrier street time variability has been obtained using the aggregate time series approach.” *Id.* ¶ 3265.

Similarly, in Order No. 1926 in Docket No. R2013-11, the Commission disallowed recovery of billions of dollars of contribution attributed by the Postal Service to the 2007-2009 recession on the ground that the Postal Service regression study had failed to include an explanatory variable that could separate the effects of the recession on mail volume from the effects of internet or electronic diversion. PRC Docket No. R2013-11, Order No. 1926, *Rate Adjustment Due to Extraordinary or Exceptional Circumstances* (Dec. 24, 2013) at 64-69. On judicial review, the Court of Appeals upheld this part of the Commission’s decision:

The Postal Service bore the burden of showing its net losses from the recession. And substantial evidence supported the Commission's determination that the Postal Service had not proved that its linear intervention variables reliably captured only the effects of the recession. Most glaringly, Thress's models had no separate variable to account for loss of mail volume to the Internet. So if people shifted to email at a faster pace during the recession than before, that effect would have been swept up wholesale in the linear intervention variables as attributable to the recession, rather than as, perhaps, the simple progress of inevitable change.

Alliance of Nonprofit Mailers v. PRC, 790 F.3d 186, 195 (D.C. Cir. 2015).

Dr. Neels’ failure to rule out confounding causation for the changes in reported fixed costs between Fiscal Year 2007 and Fiscal Year 2014 cannot be excused on the theory that reported fixed costs should exhibit no variation at all over time—from any cause—so that the change in costs over the study period proves that they were variable. The notion that

fixed costs do not vary over time for any reason contradicts the very definition of fixed costs. Costs are fixed rather than variable, as a matter of economics, when they do not vary with the level of output, holding constant the set of products offered, available technology, and the regulatory and economic environment. Nothing in the definition of fixed costs implies that they do not vary with factors *other than* the level of output. Stated otherwise, fixed cost is a *ceteris paribus* concept that recognizes the possible variability of fixed costs when factors other than output change. Dr. Neels simply assumes away the possibility that *ceteris* are not always *paribus*. Thompson Decl. ¶¶ 34-37; Glick Decl. ¶¶ 3-8.³⁹

(b) Dr. Neels' regressions have only eight annual data points.

Dr. Neels' regression analysis is undermined by a second major flaw: the small size of his data set. Each of Dr. Neels' regressions is calculated from just eight annual data points. A data set this small is insufficient to allow reasonable statistical inference. Thompson Decl. ¶¶ 38-39; *cf.* PRC Docket No. R76-1 Op. & Rec. Decis. (June 30, 1976) at 85 & n.2 (rejecting as unreliable a time-series regression of volumes against costs based on "10 or more years" of data).

³⁹ By excluding reported fixed costs for workers compensation and annuitant health benefit/Civil Service Retirement System ("CSRS") from his systemwide regression because they fluctuate over time for reasons other than volume changes, Dr. Neels makes clear that he understands the importance of confounding factors. Glick Decl. ¶ 6. While the confounding factors affecting these two cost categories of costs may be the most obvious, they are not the only ones. *Id.* ¶¶ 5, 7-29; Thompson Decl. ¶¶ 29-31, 37.

(c) Dr. Neels has cherry-picked his regression results to obscure the flaws they imply in his methodology.

A third flaw in Dr. Neels' analysis is his selective use of the regression results he obtained. For 31 of the 37 regressions that he interpreted as revealing "hidden variable costs," the constant term of the regression, which Dr. Neels interprets as "the predicted 'truly' fixed cost for that component," was negative. Acknowledging that a negative fixed cost "is not conceptually plausible," Dr. Neels arbitrarily replaced each of these regressions with an alternative regression lacking a constant term, thereby forcing the result that these cost components have no "truly" fixed costs. He did not investigate the possibility that the negative constant terms were symptoms of statistical error, data errors or misspecifications in the functional forms of his models that could also have tainted the results of the regressions that showed both positive constant terms and positive slopes. Thompson Decl. ¶ 56.

Moreover, for 17 of the remaining 47 component-specific regressions, the regression results indicate the slope coefficient is negative, a result that is also anomalous. (The marginal or incremental cost of additional volume would be expected to be positive or zero, not negative.) Dr. Neels concedes that "[t]aken on its face, this result would imply that adding mail to the system reduces fixed cost"—a result that he acknowledges "a priori to be implausible." These anomalous results cannot be explained away as "statistical noise": the cause appears to be more fundamental than random error. UPS later reported that 8 of the 17 negative slope coefficients are statistically significant, and that the "implied variable costs" for 11 of the 17 associated cost components "are strongly negative." In fact, UPS reported that for seven of the components "the negative 'hidden variable costs' outweigh the

total cost of the segment,” a result they characterized as “an even less plausible result.” Thompson Decl. ¶¶ 47-50, 57.

The results for the 84 univariate “component level” linear regressions that Dr. Neels calculated are also anomalous in other respects. The variety of patterns in the underlying data is striking. In some cases, one sees evidence of variables displaying trends, which as noted previously can lead to spurious correlations. The scatter plots for others appear to display a nonlinear pattern. For some cost components, data points for 2007-2009 differ markedly from more recent data. For many components there is no obvious pattern. The sheer variety of these data suggests that no simple univariate statistical model could be adequate for all of them. Thompson Decl. ¶¶ 47-48.

A proper analysis would consider the possibility that these counterintuitive but statistically significant results reflect some underlying flaw in his methodology. Instead, Dr. Neels adopted a series of *ad hoc* “decision tree” rules that suppressed the inconvenient results. Whenever slopes were negative, a result that otherwise would imply negative hidden variable costs and often would imply “truly fixed” costs far in excess of actual costs, he excluded the results. When an intercept was negative, which would imply that “truly fixed” costs are negative and often would imply that “hidden” variable costs exceed actual costs, he arbitrarily replaced his original regression with an alternative regression that forced the intercept to zero. When even these measures failed to prevent “hidden variable costs” from exceeding actual costs for some components, Dr. Neels capped his estimate of hidden variable costs for those components for 2014 at the actual cost levels. Thompson Decl. ¶¶ 55-57.

Testifying for UPS in 1997, Dr. Neels observed that, “One should always be suspicious of decisions to discard data when those decisions alter the conclusions of the analysis in substantively important ways.” PRC Docket No. R97-1, Direct Testimony of Kevin Neels (UPS-T-1) at 33. In the present case, the extensive discarding of results that did not support the Proposal Two hypothesis warrants the inference that the regression results are based not on reliable evidence, but on “confirmation bias.” Thompson Decl. ¶ 57.

(d) The correlations reported by Dr. Neels between volume and cost vanish if data from 2007-2008 are removed from his data set.

The specification errors in Dr. Neels’ model and the inadequate size of his data set are underscored by the instability of his results. They are highly sensitive to changes in the period analyzed, and the confidence intervals for his results are very wide. Thompson Decl. ¶¶ 40-50. In particular, deleting the data for 2007 and 2008, the two most distant and unrepresentative years, makes the slope coefficient negative—a result that Neels concedes is implausible. Thus, only the presence of the two oldest and most unrepresentative years in the data allows Neels to find “hidden” variable costs in the total fixed costs he considered. *Id.* ¶¶ 41-42, 44.

The intercept (or “constant”) values in these regressions have the same vulnerability. Simply excluding 2007 from the analysis increases Neels’ “Truly Fixed Costs” by \$1.60 billion (*i.e.*, from \$8.87 billion to \$10.47 billion)—an increase of 18 percent. Deleting both 2007 and 2008 increases the “Truly Fixed Costs” estimated by the regression much further,

to \$13.29 billion—a figure that exceeds total reported fixed costs in every year except 2014. Thompson Decl. ¶ 43.

Dr. Neels did not report confidence intervals for the “hidden” variable costs he claims to have uncovered. His own regressions indicate, however, that a very wide range of statistical uncertainty surrounds his estimates. Moreover, when either 2007, or 2007 and 2008, are excluded from the regressions, the upper bound on “hidden” variable costs changes relatively little, but the lower bound becomes negative. This implies that Dr. Neels’ “hidden” variables costs would not be appear to be statistically significantly different from zero without Dr. Neels’ inclusion of the two oldest and least representative data points in the regression. In fact when both 2007 and 2008 are excluded, *the 95% confidence interval is wider than the total reported fixed costs.* Thompson Decl. ¶ 45. These results illustrate the Commission’s observation that “an imaginative analyst can obtain almost any desired variability estimate by carefully choosing the variables and the time period to be used in the analysis.” PRC Docket No. R97-1 Op. & Rec. Decis. (May 11, 1998) at App. F at 6 (quoting PRC Docket Number R87-1 Op. & Rec. Decis. (Mar. 4, 1988) at 214 ¶ 3265). *Cf. Reed Constr, Data Inc. v. McGraw-Hill Cos.*, 49 F. Supp. 3d 385, 400 (S.D.N.Y. 2014) (“[A] regression analysis must examine an appropriate selection of data. When constructing a benchmark statistic, the regression analyst may not ‘cherry-pick’ the time frame or data points so as to make her ultimate conclusion stronger.” (citation omitted)).

(e) Dr. Neels has biased his results by failing to run his regression model on costs now classified as volume variable.

Dr. Neels' analysis is also one-sided. A complete analysis of the variability of Postal Service costs with volume should examine not only whether costs currently regarded as fixed actually contain hidden variable costs, but whether costs currently regarded as volume variable actually contain hidden fixed costs. The Neels Report, however, considers only the former question, and ignores the latter. Thompson Decl. ¶¶ 57 n.32, 58.

To test whether cost components classified as varying with volume might in fact have hidden fixed costs, Dr. Thompson ran a regression using a methodology similar to that used by Dr. Neels with total attributable cost (across all components except 202 and 204) as a dependent variable, and weighted volume as an independent variable over the period from Fiscal Year 2007 to Fiscal Year 2014. Both the slope and intercept are positive and statistically significant. In fact, the slope is an order of magnitude greater than the one reported by Dr. Neels' Table 8, and the adjusted R-square statistic is also much greater. Significantly, the intercept coefficient of the regression is *\$8.6 billion*—implying, by Dr. Neels' logic, that *\$8.6 billion of fixed costs are hidden in Postal Service costs that are now reported as attributable*. This is more than *double* the \$3.4 billion in supposedly hidden variable costs that Dr. Neels claims to have ferreted out from costs now reported as fixed. Thompson Decl. ¶¶ 58-59.

Neither Dr. Thompson nor AFSI suggest that these results offer a reliable basis for reclassifying \$8.6 billion (or any other amount) of variable costs as fixed. Dr. Neels' methodology is too flawed to support reclassification of costs in either direction. Dr. Neels'

failure to run his regressions on attributable costs, however, is further confirmation of the one-sided and selective nature of his analysis. Thompson Decl. ¶ 60.

CONCLUSION

For the foregoing reasons, the Commission should decline to adopt Proposals One and Two.

Respectfully submitted,

/s/

David M. Levy
Robert P. Davis
Peter S. Frechette
VENABLE LLP
575 7th Street, N.W.
Washington, DC 20004
(202) 344-4732

Counsel for Amazon Fulfillment Services, Inc.

January 25, 2016