

# The Damaging Effects of Large Postal Service Price Increases on Online Retailers, Consumers, and the U.S. Postal Service

By Debra J. Aron, Ph.D.,\* and Justin Lenzo, Ph.D.\*\*

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\* Vice President, Charles River Associates, DAron@crai.com

\*\* Vice President, Charles River Associates, and Adjunct Professor of Law, Northwestern University Pritzker School of Law, JLenzo@crai.com

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## I. INTRODUCTION

The transport and delivery of packages is a substantial component of the U.S. economy. The U.S. package delivery industry generated total revenues of \$129.4 billion in 2019.<sup>1</sup> At \$129.4 billion, the U.S. package delivery industry is larger than the U.S. iron and steel manufacturing industry and more than twice the size of the entire U.S. telephony industry.<sup>2</sup>

The transport and delivery of packages benefits American consumers both directly and indirectly. Directly, consumers use the package delivery system increasingly to receive and, sometimes, return, items purchased online, including health and medical products; clothing and footwear; household supplies and appliances; cosmetics, beauty products, and toiletries; books; toys; and electronic equipment.<sup>3</sup> When package delivery is between businesses and consumers it is known as “B2C.” Consumers also use the package delivery system to send items directly to one another (consumer-to-consumer), known as “C2C.”

Indirectly, businesses send documents, products, tools, and intermediate goods to other businesses as part of the supply chain so that recipients can build their products and provide their services. When businesses send and receive packages with each other the transaction is called “B2B”. The ease, ubiquity, reliability, and cost of mail and package delivery service affects the ability of companies to obtain inputs, tools, and supplies in a cost-effective and timely fashion.<sup>4</sup> These factors, in turn, affect the timeliness with which businesses can supply products to consumers and, by affecting the costs of doing business, affect the prices businesses charge to consumers for the goods and services they provide.

Package delivery service in the U.S. is provided by multiple companies that compete with each other for customers. Providers include the United States Postal Service (USPS or Postal Service), United Parcel Service, Inc. (UPS), FedEx Corporation (FedEx), and other regional and local

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<sup>1</sup> Frank Proud and Paul Chapman, “Global Parcels: Market Insight Report 2020,” Apex Insight Ltd., March 2020 (hereafter, *2020 Apex Report*), p. 123.

<sup>2</sup> “Iron & Steel Manufacturing Industry in the US - Market Research Report,” IBISWorld, May 28, 2020, <https://www.ibisworld.com/united-states/market-research-reports/iron-steel-manufacturing-industry/>; “Telephony,” Statista, <https://www.statista.com/outlook/15020000/109/telephony/united-states>.

<sup>3</sup> John Mazzone, “The Household Diary Study: Mail Use & Attitudes in FY 2019,” United States Postal Service, March 2020 (hereafter, *2019 Household Diary Study*), p. 58.

<sup>4</sup> Freightcom, “The Importance of Selecting the Right Courier for Your B2B or B2C Business,” June 3, 2019, <https://www.freightcom.com/blog/the-importance-of-selecting-the-right-courier-for-your-b2b-or-b2c-business>.

delivery companies.<sup>5</sup> Package delivery has been a growing business in the U.S. every year since at least 2014, with an estimated compound growth rate of over 9 percent per year during that period.<sup>6</sup>

The Postal Service's mail delivery business has been on a long-term decline in volume and revenue<sup>7</sup> as digital communication media have substituted for many functions traditionally provided by physical mail. Long-term declining trends in mail volume and the imposition of pension pre-funding obligations have resulted in increasing financial distress for the Postal Service over the last several years.<sup>8</sup> The Postal Service's competitive package delivery business has been a bright spot with growing volumes, revenues, and profits helping to sustain the Postal Service's nationwide mail and delivery network.<sup>9</sup>

Private competitors, particularly UPS, are seeking regulatory and legislative changes to force the Postal Service to substantially increase prices on its Competitive package delivery services above competitive levels or to force the Postal Service to make changes to its costing methodology that

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<sup>5</sup> See, for instance, FedEx Corporation, Form 10-K, for the fiscal year ended May 31, 2019 (hereafter, *2019 FedEx 10-K*), p. 11; United Parcel Service, Inc., Form 10-K, for the fiscal year ended December 31, 2019 (hereafter, *2019 UPS 10-K*), p. 10; and United States Postal Service, Form 10-K, for the fiscal year ended September 30, 2019 (hereafter, *2019 Postal Service 10-K*), p. 4.

<sup>6</sup> *2020 Apex Report*, p. 124.

<sup>7</sup> "Revenue, Pieces & Weight (RPW) by Classes of Mail and Special Services for Quarters 1-4 YTD, FY 2017, Compared with Corresponding Period of FY 2016 - Mailing Services (Market Dominant Products) and Shipping Services (Competitive Products)," Postal Regulatory Commission, November 16, 2017 (hereafter, *2017 RPW Report*), <https://www.prc.gov/dockets/document/102532>; "Revenue, Pieces & Weight (RPW) by Classes of Mail and Special Services for Quarters 1-4 YTD, FY 2018, Compared with Corresponding Period of FY 2017 - Mailing Services (Market Dominant Products) and Shipping Services (Competitive Products)," Postal Regulatory Commission, November 14, 2018 (hereafter, *2018 RPW Report*), <https://www.prc.gov/dockets/document/107076>; "Revenue, Pieces & Weight (RPW) by Classes of Mail and Special Services for Quarters 1-4 YTD, FY 2019, Compared with Corresponding Period of FY 2018 - Mailing Services (Market Dominant Products) and Shipping Services (Competitive Products)," Postal Regulatory Commission, November 14, 2019 (hereafter, *2019 RPW Report*), <https://www.prc.gov/dockets/document/111039>.

<sup>8</sup> In 2006 the Postal Service became obligated to provide billions of dollars a year to prefund future costs of retiree health care. See POSTAL ACCOUNTABILITY AND ENHANCEMENT ACT (PAEA) 39 U.S.C. § 8909a (December 20, 2006). Some observers believe that this factor alone is responsible for the financial distress of the Postal Service. See, for example, "Be Careful What You Assume," United States Postal Service Office of Inspector General, February 16, 2015, <https://www.uspsoig.gov/blog/be-careful-what-you-assume>; Barry Ritholtz, "Congress, Not Amazon, Messed Up the Post Office," *Bloomberg Opinion*, Corrected April 6, 2018, <https://www.bloomberg.com/opinion/articles/2018-04-04/congress-not-amazon-messed-up-the-u-s-postal-service>; and Sarah Anderson, Scott Klinger, Brian Wakamo, "How Congress Manufactured a Postal Crisis — And How to Fix it" Institute for Policy Studies, July 15, 2019, <https://ips-dc.org/how-congress-manufactured-a-postal-crisis-and-how-to-fix-it/>.

<sup>9</sup> *2020 Apex Report*, p. 101. The USPS's revenues from its Shipping and Packages segment grew at a CAGR of 10 percent over the 2014-2019 period.

would have the same effect by increasing the price floors for these products. Advocacy efforts by the private competitors to make the Postal Service less competitive appear to have gained some traction with the current Administration and some members of Congress. In April 2020, the President of the United States, responding to the financial circumstances of the Postal Service, has called for the Postal Service to quadruple its prices for package delivery:

“The post office, if they raised the price of a package by approximately four times, it would be a whole new ballgame,” the president said during the signing ceremony for the latest coronavirus relief package. “But they don’t want to raise it because they don’t want to insult Amazon, and they don’t want to insult other companies, perhaps, that they like. The post office should raise the price of the packages to the companies. Not to the people, to the companies. If they did that, it would be a whole different story.”<sup>10</sup>

The President further stated that if the Postal Service did not increase package prices, he would not sign a bill providing new borrowing authority to the Postal Service for coronavirus pandemic relief.<sup>11</sup> The press has reported that the Postal Service has begun a review of postal prices charged to its largest customers.<sup>12</sup>

The Postal Accountability and Enhancement Act of 2006 (PAEA) created an independent federal regulatory agency, the Postal Regulatory Commission (PRC). The PRC is required to assess whether the Postal Service is operating in compliance with the statutory and regulatory pricing requirements for its Competitive package products, including the statutory requirement that all Competitive products collectively cover what the PRC determines to be an “appropriate share” of the Postal Service’s institutional costs. The PRC is also charged with ensuring the Postal Service’s Competitive package business complies with statutory pricing and costing rules that prohibit cross subsidization and that require each Competitive package product (including individual contract agreements called Negotiated Service Agreements or NSAs) cover its attributable (incremental) costs. Every year since the PAEA was enacted the PRC has made an affirmative finding that the

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<sup>10</sup> Myah Ward, “Trump: Postal service is a ‘joke’ that must raise prices to get bailout money,” *Politico*, April 24, 2020, <https://www.politico.com/news/2020/04/24/trump-us-postal-service-coronavirus-bailout-206851>.

<sup>11</sup> Myah Ward, “Trump: Postal service is a ‘joke’ that must raise prices to get bailout money,” *Politico*, April 24, 2020, <https://www.politico.com/news/2020/04/24/trump-us-postal-service-coronavirus-bailout-206851>.

<sup>12</sup> See, for example, Reuters Staff, “U.S. Postal Service reviewing delivery contracts: WashPost,” *Reuters*, May 14, 2020, <https://www.reuters.com/article/us-usa-postoffice/u-s-postal-service-reviewing-delivery-contracts-washpost-idUSKBN22Q332>.

Postal Service’s Competitive products are collectively contributing more than the prevailing “appropriate share” established by the PRC. For example, for fiscal year 2019 (FY 2019) total institutional costs were \$35.2 billion and the PRC established a minimum contribution of approximately \$3.1 billion (8.8 percent of total institutional costs).<sup>13</sup> The PRC determined that the actual contribution to institutional costs from Competitive products in FY 2019 was \$8.25 billion (approximately 23.4 percent of total institutional costs).<sup>14</sup>

The cost attribution methodologies employed by the PRC to determine the attributable costs of Competitive products are consistent with mainstream regulatory economic theory and long-standing precedent in other regulated industries. These cost attribution methodologies are developed through open and transparent administrative processes and have been consistently upheld in federal court.<sup>15</sup> In addition to the sector-specific regulatory oversight of the Postal Regulatory Commission, the Postal Service’s Competitive package business is also fully subject to U.S. antitrust laws and the enforcement jurisdiction of the Federal Trade Commission and the Department of Justice.<sup>16</sup>

It therefore does not appear to be a subject of reasonable controversy that the Postal Service’s current package prices in fact already more than cover their attributable costs and contribute to the overall financial viability of the Postal Service. From FY 2010 to FY 2019, Competitive products have contributed \$49.1 billion towards institutional costs.<sup>17</sup> The unambiguous beneficiary if the

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<sup>13</sup> See Order Adopting Final Rules Relating to the Institutional Cost Contribution Requirement for Competition Products, *Institutional Cost Contribution Requirement for Competitive Products*, United States of America Postal Regulatory Commission, Docket No. RM2017-1 before Commissioners: Robert G. Taub, Nanci E. Langley, Mark Acton, and Tony Hammond, Order No. 4963, January 3, 2019 (hereafter, *01/03/2019 PRC Order*), at Table III-1 (p. 28), <https://www.prc.gov/docs/107/107901/Order4963.pdf>; and Annual Compliance Determination Report: Fiscal Year 2019, United States of America Postal Regulatory Commission, March 25, 2020 (hereafter, *2019 PRC Annual Compliance Report*), pp. 86-87, <https://www.prc.gov/sites/default/files/reports/FY%2019%20ACD.pdf>.

<sup>14</sup> *2019 PRC Annual Compliance Report*, pp. 86-87.

<sup>15</sup> *Direct Marketing Association v. US Postal Service*, 778 F.2d 96 (2d Cir. 1985), *United Parcel Service, Inc. v. U.S. Postal Service*, 184 F.3d 827, 842 (D.C. Cir. 1999), and *United Parcel Service, Inc. v. PRC*, No. 16-1354 (D.C. Cir. 2018).

<sup>16</sup> “Accounting for Laws That Apply Differently to the United States Postal Service and Its Private Competitors: A Report by the Federal Trade Commission,” Federal Trade Commission, December 2007, pp. 4, 52, <https://www.ftc.gov/sites/default/files/documents/reports/accounting-laws-apply-differently-united-states-postal-service-and-its-private-competitors-report/080116postal.pdf>.

<sup>17</sup> Public Cost and Revenue Analysis: Fiscal Year 2010, United States Postal Service; Public Cost and Revenue Analysis: Fiscal Year 2011, United States Postal Service; Public Cost and Revenue Analysis: Fiscal Year 2012, United States Postal Service; Public Cost and Revenue Analysis: Fiscal Year 2013, United States Postal Service; Public Cost and Revenue Analysis: Fiscal Year 2014, United States Postal Service; Public Cost and

Postal Service is required to increase package prices would be the private express delivery companies that are direct competitors of the Postal Service. Indeed, the potential benefits of Postal Service price increases to package delivery competitors such as UPS has not escaped notice of the market analysts. UPS itself has proposed that the price floors on the Postal Service's Competitive package products be increased, and Citibank has estimated that if the UPS proposal had been adopted, UPS's profits would increase by \$3.4 to \$4.4 billion per year.<sup>18</sup>

While it is clear that the Postal Service's competitors would benefit from a mandated increase in Postal Service package prices, the effects on other stakeholders, including consumers, small and large businesses, and the Postal Service and its employees, have not been quantified. The purpose of this whitepaper is to apply economic analysis to examine the likely effects that large mandated price increases by the Postal Service on package delivery would have on American consumers, American businesses, the Postal Service, and the market for package delivery.

## II. SUMMARY OF FINDINGS

There is only one constituency that would benefit from an increase in Postal Service prices for package delivery of the magnitudes proposed—the private carrier competitors to the Postal Service and their shareholders. The President's proposed price increases, or even above-market increases at significantly lower levels, would divert most or all of the entire package delivery business from the Postal Service to its competitors, who would be able to substantially increase their own prices and still retain the entire market. Businesses of all sizes engaged in e-commerce would suffer the consequences of higher package delivery prices. Those consequences include reduced volume of sales of e-commerce products and consequently lower profits to e-commerce businesses.

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Revenue Analysis: Fiscal Year 2015, United States Postal Service; Public Cost and Revenue Analysis: Fiscal Year 2016, United States Postal Service; PRC-LR-ACR2017-1 FY 2017 - Postal Service's Product Finances, Postal Regulatory Commission, Docket No. ACR2017, 17 Summary\_LR1.xlsx, "Appendix A (Incremental Costs)"; Public Cost and Revenue Analysis: Fiscal Year 2018, United States Postal Service; Revised February 11, 2019; and Public Cost and Revenue Analysis: Fiscal Year 2019, United States Postal Service; Revised January 10, 2020 (hereafter, *2019 Postal Service PCRA Report*).

<sup>18</sup> Christian Wetherbee *et al.*, "The Free Shipping Tax: Examining the Unsustainable Pricing Model of the USPS," Citi Research, April 18, 2017, pp. 7-8. Postal Service's Competitive products are priced such that they recoup both the volume variable costs as well as their "appropriate share" of the organization's institutional cost. Citi calculated UPS's projected profit increase under the scenario in which the "appropriate share" of cost attributed to Postal Service's Competitive products is raised from the current 5.5% rate to an updated 24.6% rate proposed by UPS. UPS revised its proposed contribution to 29 percent over the course of the PRC proceeding; however, Citigroup estimated the gain to UPS's profits using the 24.6 percent rate.

Consumers, in turn, would pay higher prices for e-commerce products as the cost of higher shipping costs are passed on by businesses.

Large retailers in the U.S. economy such as Amazon and Walmart would suffer harm, but substantially less harm than small and mid-sized businesses, whose lost profits—both in absolute terms and as a percentage of current profits—would be far higher. This is because large retailers have or can develop the capacity to deliver their own packages. In contrast, small and mid-sized e-commerce retailers do not have the ability to avoid the price increase because they do not have the scale or scope to develop their own self-delivery operations. Accordingly, the costs to small and mid-sized businesses would increase by the full magnitude of the increase in shipping prices.

This paper quantifies the effects of the President’s proposal to increase Postal Service prices for package delivery by a factor of four (or, 300 percent). The analysis finds that for reasonable assumptions about the reactions of UPS and FedEx, the Postal Service would lose its entire package delivery business to its competitors and to self-delivery by the large retailers. Consumers would pay between \$7.86 and \$16.95 more per package delivered to them, as a result of which they would reduce their number of purchases. Nevertheless, consumers would pay \$473 billion to \$865 billion more for the e-commerce purchases that they do make over the next five years. Forcing the Postal Service to exit the package delivery business would also deprive consumers of the unquantified benefits associated with a broader array of choices, and the social benefits associated with heightened incentives for innovation and efficiency driven by more robust competition.

E-commerce businesses, for their part, would suffer a decline in their volume of sales. Small and mid-sized retailers in particular would face hefty cost increases of between \$11.35 and \$26.51 per package, resulting in reduced sales and reduced profits of between \$27 billion and \$49 billion over five years, not counting the losses associated with small businesses for whom the reduction in volume of sales and reduction in associated profits would cause insolvency and exit for failure to cover their fixed costs.

Instead of increasing its profits, forcing the Postal Service to raise prices above competitive levels would harm the Postal Service. The Postal Service would lose \$38 billion in profits over the next five years, even if overall package market demand did not grow from 2019 levels. That is \$38 billion that could and would otherwise have been applied toward covering the institutional costs



of the Postal Service and keeping postal rates down for its nationwide mail service. Ignoring declines in mail volume that would result, recovering that \$38 billion via increases in rates for non-package services would require price increases of approximately 16 percent on non-package mail services such as first-class envelopes and marketing mail. But cost recovery may not be possible because of price caps and because higher rates for non-package services would only accelerate the decline in demand for those services that is already plaguing the Postal Service. At lower volumes of demand the price increases necessary to recover the forgone profits from the loss of package services would be even higher, further constricting demand. The combination of secular mail volume declines and the compounding losses in contribution from its package business would be devastating for the Postal Service and the essential public mission that it fulfills. Forcing the Postal Service to, effectively, abandon the package delivery business by pricing it out of the competitive package delivery market would result in the loss of approximately 154,000 Postal Service jobs. This estimate does not include the loss of jobs associated with the damaging effect on the Postal Service's non-package services that would be engendered, as just described, by attempting to recover the forgone package profits via higher prices on non-package services. As higher prices for other mail services shrink demand for non-package mail services, jobs would be shed in that part of the business as well.

The analysis also quantifies the effects of 50 percent, 100 percent, and 200 percent price increases. It is only in comparison to the proposed 300 percent increase that these scenarios can be considered less extreme. Each is indeed an extreme price increase that imposes at least billions of dollars of harm on businesses—especially small and mid-sized businesses—and at least tens of billions of dollars of harm on consumers, while devastating the Postal Service.

### III. THE MARKET FOR PACKAGE DELIVERY SERVICES

#### A. Products

Package delivery consists of the transport of a package from its point of origin to its intended destination.<sup>19</sup> The point of origin of a package may be a business, factory, home, or other location. The intended destination may likewise be a business, home, or other location.

Package delivery is what economists refer to as a differentiated good.<sup>20</sup> That is, the service of package delivery comes in many varieties from each provider and the menu of options also varies across providers. The dimensions of service on which package delivery varies include:

- Speed of delivery;
- Predictability of delivery date and, in some cases, delivery time;
- Whether the delivery date and/or time is guaranteed;<sup>21</sup>
- Controllability of the delivery date, time, or location by the recipient;
- Documentation and traceability of package's path through the delivery system to delivery;
- Ease of drop-off or pick up;
- Whether the service accepts packages containing certain types of content;
- Location of origin and/or destination;
- Inclusion of insurance; and
- Reliability of the provider.

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<sup>19</sup> The analysis in this paper generally excludes the following products that are part of a broader delivery and logistics industry: mail (including packages), pallet distribution, LCL (less-than-container-load) shipping, freight forwarding, same-day courier, and contract logistics. *2020 Apex Report*, p. 3.

<sup>20</sup> For discussion of differentiated products in general, see Don E. Waldman and Elizabeth J. Jensen, *INDUSTRIAL ORGANIZATION: THEORY AND PRACTICE*, 2<sup>nd</sup> ed. (Addison Wesley, 2000), pp. 357-358.

<sup>21</sup> Package delivery providers may offer a "guarantee" on certain services that promises delivery by a certain date and/or time at a certain location. If the delivery deadline is not met, the customer may request either credit or a refund of certain delivery costs. However, the provider is typically not held liable for problems or costs arising from a delayed delivery shipped under a guarantee. See, for example, "2020 UPS® Tariff/Terms & Conditions of Service – United States," UPS, Effective July 12, 2020, pp. 26-27, [https://www.ups.com/assets/resources/media/en\\_US/terms\\_service\\_us.pdf](https://www.ups.com/assets/resources/media/en_US/terms_service_us.pdf). For Postal Service, see "110 Retail Mail Priority Mail Express," United States Postal Service, § 2.1, <https://pe.usps.com/text/dmm300/113.htm#1140652>. For FedEx, see "Service Guide, FedEx, Updated July 16, 2020 (hereafter, *2020 FedEx Service Guide*), p. 142, [https://www.fedex.com/content/dam/fedex/us-united-states/services/Service\\_Guide\\_2020.pdf](https://www.fedex.com/content/dam/fedex/us-united-states/services/Service_Guide_2020.pdf).

In this market, the price of the service typically varies according to most or all of these characteristics. In addition, the price of delivery service generally varies according to the characteristics of the package itself, including its weight; shape; size; whether it is insured; and contents of the package.<sup>22</sup> As is commonly the case in economic markets with differentiated products (which is to say, in most economic markets), the providers have sought to differentiate themselves as particularly excelling in certain aspects of the market and for certain customers. In this case, UPS and FedEx have focused on providing guaranteed delivery times, while the Postal Service has offered lower-priced services that generally (with some exceptions) are uninsured and lack delivery guarantees.

## **B. Industry Participants**

All of the major package delivery companies in the U.S. are large enterprises with diversified operations.

UPS, the largest small-package carrier in the world in terms of corporate-wide revenue,<sup>23</sup> handled a total of 5.5 billion packages worldwide in 2019<sup>24</sup> and earned revenue of \$74.1 billion, delivering to more than 220 countries and territories around the globe.<sup>25</sup> In addition to its domestic (U.S.) and international package business, UPS operates a “Supply Chain and Freight” segment that helps businesses optimize activities in more than 200 countries and territories by providing services such as truckload brokerage and logistics.<sup>26</sup> In addition, UPS also operates a sizeable

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<sup>22</sup> For example, both UPS and FedEx have surcharges for shipping hazardous materials and shipments containing dry ice. Also, the Postal Service, UPS, and FedEx all charge a fee to obtain an adult signature from the recipient, a requirement for shipments of alcoholic beverages. See “Surcharge and Other Information,” FedEx, p. 1, [http://www.fedex.com/downloads/gu/rates/g3psurcharge\\_2018.pdf](http://www.fedex.com/downloads/gu/rates/g3psurcharge_2018.pdf); “Other Charges,” UPS, p. 2, [https://www.ups.com/assets/resources/media/en\\_US/additional\\_charges\\_ak-hi\\_retail.pdf](https://www.ups.com/assets/resources/media/en_US/additional_charges_ak-hi_retail.pdf); “Value-Added Services,” UPS, p. 3, [https://www.ups.com/media/en/value-added\\_pricing\\_daily.pdf](https://www.ups.com/media/en/value-added_pricing_daily.pdf); and “Price List,” United States Postal Service, Notice 123, Effective January 26, 2020 (hereafter, *2020 Postal Service Price List*), p. 32, <https://pe.usps.com/cpim/ftp/manuals/dmm300/Notice123.pdf>. “Mail & Shipping Services,” United States Postal Service, <https://www.usps.com/ship/mail-shipping-services.htm>; and “2020 UPS® Rate & Service Guide: Daily Rates,” UPS, 2020 (hereafter, *2020 UPS Rates and Service Guide*), pp. 11-12, [https://www.ups.com/assets/resources/media/en\\_US/daily\\_rates.pdf](https://www.ups.com/assets/resources/media/en_US/daily_rates.pdf).

<sup>23</sup> Jared Ristoff, “Couriers & Local Delivery Services in the US,” IBISWorld US Industry (NAICS) Report 49222, March 2020 (hereafter, *2020 IBIS Report*), p. 35.

<sup>24</sup> *2019 UPS 10-K*, p. 1.

<sup>25</sup> *2019 UPS 10-K*, pp. 3, 21.

<sup>26</sup> *2019 UPS 10-K*, p. 4.

airline for transporting packages and freight,<sup>27</sup> with U.S. air operations centered at its primary hub in Louisville, Kentucky; its European air operations centered around its hub in Cologne, Germany; and its Asian air operations centered around hubs in Shanghai, China; Shenzhen, China; and Hong Kong.<sup>28</sup>

FedEx is the parent holding company of several entities offering transportation, e-commerce, and business services operating under the FedEx brand.<sup>29</sup> In fiscal year 2019, FedEx earned approximately \$69.7 billion in revenues.<sup>30</sup> FedEx operates Federal Express Corporation (“FedEx Express”), which offers time-definite delivery of packages and freight to more than 220 countries and territories,<sup>31</sup> and which owns what is reportedly the largest freight airline in the world.<sup>32</sup> FedEx also operates FedEx Ground, which provides low-cost, day-certain delivery of packages weighing up to 150 pounds to businesses and residences across the U.S. and Canada.<sup>33</sup> In fiscal year 2019, FedEx Express and FedEx Ground together provided delivery services for approximately 3.9 billion packages.<sup>34</sup>

In addition, FedEx operates FedEx Corporate Services, Inc. (“FedEx Services”), which operates FedEx Office and Print Services, Inc. (“FedEx Office”), a copy, printing, and binding business derived from FedEx’s acquisition of the chain Kinkos, Inc.<sup>35</sup> FedEx Office provides customers

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<sup>27</sup> “United Parcel Service (UPS) Fleet Details and History,” Planespotters.net, Updated September 23, 2020, <https://www.planespotters.net/airline/United-Parcel-Service-UPS>.

<sup>28</sup> *2019 UPS 10-K*, p. 17.

<sup>29</sup> *2019 FedEx 10-K*, p. 3. Prior to 2000, FedEx was known as “FDX Corp.” See “FedEx History,” FedEx, <https://www.fedex.com/en-us/about/history.html>.

<sup>30</sup> *2019 FedEx 10-K*, p. 52. FedEx defines fiscal year 2019 as the period between June 1, 2018 through May 31, 2019. *2019 FedEx 10-K*, p. 52.

<sup>31</sup> *2019 FedEx 10-K*, pp. 3, 8. FedEx Express, formerly known as Federal Express, began operations in 1973. “FedEx History,” FedEx, <https://www.fedex.com/en-us/about/history.html>. FedEx Express includes TNT Express B.V. (“TNT Express”), a former company that offered international express transportation, small-package ground delivery and freight services. In May 2016, TNT Express was acquired by FedEx Express in the largest acquisition in FedEx history. *2019 FedEx 10-K*, pp. 8-9.

<sup>32</sup> “WATS World Air Transport Statistics 2019,” International Air Transport Association, 2019, p. 1, <https://www.iata.org/contentassets/a686ff624550453e8bf0c9b3f7f0ab26/wats-2019-mediakit.pdf>. In 2019, FedEx had the highest Freight Ton Kilometers number among worldwide cargo carriers. Also see “Air Carrier Financial: Schedule B-1,” U.S. Department of Transportation, Bureau of Transportation Statistics, June 2020, [https://www.transtats.bts.gov/Tables.asp?DB\\_ID=135](https://www.transtats.bts.gov/Tables.asp?DB_ID=135). FedEx also had the largest air fleet among all cargo carriers in 2020.

<sup>33</sup> *2019 FedEx 10-K*, pp. 3, 11.

<sup>34</sup> *2020 Apex Report*, p. 85; Lisa Baertlein, “Amazon holiday quarter delivers, threatens profit squeeze for UPS and FedEx,” *Reuters*, January 31, 2020, <https://www.reuters.com/article/us-amazon-com-research/amazon-holiday-quarter-delivers-threatens-profit-squeeze-for-ups-and-fedex-idUSKBN1ZU23T>.

<sup>35</sup> *2019 FedEx 10-K*, p. 3; Rick Brooks, “FedEx to Buy Kinko's for \$2.2 Billion,” *The Wall Street Journal*, Updated December 31, 2003, <https://www.wsj.com/articles/SB107278969871498900>; and Kathy Shwiff, “FedEx

retail locations at which they can drop off packages and obtain FedEx packaging materials and other supplies. Another FedEx business, FedEx Freight Corporation (“FedEx Freight”), provides “less-than-truckload” (“LTL”) freight services across North America.<sup>36</sup> FedEx’s other companies provide services that range from customs brokerage and global freight forwarding to e-commerce technology solutions and supply chain management.<sup>37</sup>

The first incarnation of the U.S. Postal Service was established in 1775 by the Second Continental Congress and was led by its first Postmaster General, Benjamin Franklin.<sup>38</sup> In its current form, the Postal Service is an “independent establishment of the executive branch” of the U.S. government created by the Postal Reorganization Act (“PRA”) of 1970.<sup>39</sup> The Postal Service is led by a Board of Governors; nine members of which are appointed by the President and confirmed by the Senate, and the remaining two of which are appointed by the other members.<sup>40</sup> The Postal Service is subject to oversight by Congress and regulation by the PRC and other government agencies.<sup>41</sup>

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Kinko's to Change Name to FedEx Office,” *The Wall Street Journal*, Updated June 3, 2008, <https://www.wsj.com/articles/SB121243867627438977>.

<sup>36</sup> *2019 FedEx 10-K*, pp. 3, 13. LTL freight services are used for shipping smaller freight or when a freight shipment requires the use of less than an entire trailer. The shipper using an LTL service pays for the portion of the space their shipment requires, while other freight from other shippers fill the rest of the space. See “What is LTL Freight Shipping?” Freight Quote by C.H. Robinson, <https://www.freightquote.com/define/what-is-ltl-freight-shipping/>.

<sup>37</sup> *2019 FedEx 10-K*, p. 3.

<sup>38</sup> “Benjamin Franklin: Postmaster General, July 26, 1775, to November 1776,” United States Postal Service, February 2003, <https://about.usps.com/who-we-are/postal-history/pmg-franklin.pdf>.

<sup>39</sup> *2019 Postal Service 10-K*, p. 1. See also how the U.S. Supreme Court defines the Postal Service: *Postal Service v. Flamingo Industries (USA) Ltd.*, 540 U.S. 736 (2004) (<https://supreme.justia.com/cases/federal/us/540/736/>). The Postal Reorganization Act of 1970 also created the Postal Rate Commission. The Postal Rate Commission was an independent agency that exercised regulatory oversight over the Postal Service by primarily “conducting public, on-the-record hearings concerning proposed rate, mail classification or major service changes, and recommending decisions for action by the postal Governors.” “Postal Rate Commission,” *Federal Register*, <https://www.federalregister.gov/agencies/postal-rate-commission>; and “Frequently Asked Questions,” Postal Regulatory Commission, <https://www.prc.gov/faqs>.

<sup>40</sup> *2019 Postal Service 10-K*, p. 1.

<sup>41</sup> *2019 Postal Service 10-K*, p. 7. The Postal Regulatory Commission (“PRC”) is the successor to the Postal Rate Commission. “Postal Rate Commission,” *Federal Register*, <https://www.federalregister.gov/agencies/postal-rate-commission>; and “Frequently Asked Questions,” Postal Regulatory Commission, <https://www.prc.gov/faqs>.

The Postal Service earned revenues of \$71.1 billion in fiscal year 2019.<sup>42</sup> Unlike its major competitors, the Postal Service does not have delivery operations outside the U.S.<sup>43</sup> Like its major competitors in the package delivery business, however, the Postal Service also operates complementary businesses. In the case of the Postal Service, its complementary business is the transport and delivery of non-package mail.

The structure of U.S. postal regulation treats the delivery of packages differently from other mail. The Postal Service is not obligated to provide most of the package services it provides, such as Priority Mail and Priority Mail Express package services. By law,<sup>44</sup> the Postal Service is obligated to deliver the mail,<sup>45</sup> and carriers other than the Postal Service are prohibited, with certain exceptions, from delivering “letters.”<sup>46</sup> In addition, under law, no one other than the Postal Service may place mailable matter on which no postage has been paid in any mailbox. This is known as the “mailbox rule.”<sup>47</sup> The practical effect of these restrictions is that only the Postal Service delivers certain types of physical non-package items, such as social security checks, standard consumer bills, and many types of marketing mail.

The Postal Service categorizes its services into “Competitive” and “Market-Dominant” (“MD”) products. Products that are currently in the MD category include First-Class Mail (under 13 oz for domestic mail), USPS Marketing Mail (under 16 oz), Periodicals (authorized newspaper or other periodical publication), Media/Library Mail, (domestic) Money Orders, and other products specified by statute.<sup>48</sup>

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<sup>42</sup> The Postal Service defines fiscal year 2019 as the period from October 1, 2018 – September 30, 2019. *2019 Postal Service 10-K*, p. 15.

<sup>43</sup> “Complete Guide to USPS® International Shipping: Your step-by-step guide on how to ship packages across the world using the USPS,” Stamps.com, Inc., 2015, p. 3, <https://www.stamps.com/whitepapers/complete-guide-usps-international-shipping.pdf>. Postal Service transports packages to the customs in the destination country, and the host postal office delivery packages to recipients. FedEx and UPS provide both international transportation and delivery service outside the U.S.

<sup>44</sup> 39 U.S.C. § 101(a).

<sup>45</sup> 39 U.S.C. § 101(f).

<sup>46</sup> The restrictions on private delivery of letters derive from a series of laws known as the Private Express Statutes (PES). A “letter” in the sense of these restrictions is defined as “a message directed to a specific person or address and recorded in or on a tangible object” subject to a list of enumerated exceptions. See 39 CFR § 310.1. See also, “1 Introduction,” United States Postal Service, [https://about.usps.com/publications/pub542/pub542\\_ch1\\_001.htm#ep1029138](https://about.usps.com/publications/pub542/pub542_ch1_001.htm#ep1029138).

<sup>47</sup> 18 U.S.C. § 1725. See, also, “508 Recipient Services,” United States Postal Service, § 508.3.1.3, <https://pe.usps.com/text/dmm300/508.htm#ep1051804>.

<sup>48</sup> “Mail Classification Schedule,” Postal Regulatory Commission, Revised through March 31, 2020; “First Class Mail,” United States Postal Service, <https://www.usps.com/ship/first-class-mail.htm>.

Competitive products are those not classified as MD and include Priority Mail, Priority Mail Express, First-Class Package Service, Retail Ground, Parcel Select, and Parcel Return. Prices for MD products are subject to a statutory price cap designed to protect captive ratepayers. MD prices generally cannot be increased in any year by more than the Consumer Price Index for all Urban Customers (“CPI-U”).<sup>49</sup>

Prices for Competitive products are determined by the Postal Service and are not capped by law, but they are subject to a price floor, as elaborated earlier.

The Postal Service delivered 6.1 billion packages in fiscal year 2019 and delivered over 136.4 billion pieces of other kinds of mail, such as traditional first-class letters.<sup>50</sup> In FY 2019, 34.1 percent of the Postal Service’s revenues were from Competitive services and 65.9 percent were from Market Dominant products.<sup>51</sup> Competitive services revenues are derived almost entirely from package services.<sup>52</sup>

### C. Market Trends

Package and mail delivery services have been subject to a number of long-term trends. With respect to the MD products delivered by the Postal Service, the trend since 2007 has been substantially downward, as email, social media, electronic banking, electronic bill payment, internet shopping, and other innovations have substituted for a very significant portion of traditional bills, catalogs, notices, statements, and other communications. Indeed, MD product

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<sup>49</sup> 39 U.S.C. § 3622.

<sup>50</sup> *2019 Postal Service 10-K*, p. 20. The Postal Service “Shipping and Packages” category includes the following services: Priority Mail, Priority Mail Express, Postal Service Retail Ground, Parcel Select, Parcel Return, Marketing Mail Parcels, First-Class Package Services – Retail, First Class Package Services – Commercial, Parcel Services, and Packages Services. *2019 Postal Service 10-K*, p. 22. The Postal Service defines fiscal year 2019 as the period from October 1, 2018 – September 30, 2019. *2019 Postal Service 10-K*, p. 15.

<sup>51</sup> *2019 RPW Report*. With the surge in e-commerce demand resulting from the COVID-19 pandemic, Competitive product revenues are a higher percentage of overall Postal Service revenues in 2020 to date. “Revenue, Pieces and Weight (RPW) Report by Rate Category and Special Service for Quarter 3, Fiscal Year 2020,” Postal Regulatory Commission, August 7, 2020, <https://www.prc.gov/dockets/document/114156>; “Revenue, Pieces & Weight (RPW) by Classes of Mail and Special Services for Quarter 2, FY 2020, Compared with Corresponding Period of FY 2019,” Postal Regulatory Commission, May 8, 2020, <https://www.prc.gov/dockets/document/113107>; “Revenue, Pieces & Weight (RPW) by Classes of Mail and Special Services for Quarter 1, FY 2020, Compared with Corresponding Period of FY 2019,” Postal Regulatory Commission, February 6, 2020, <https://www.prc.gov/dockets/document/112295>.

<sup>52</sup> While not all Competitive services are package services, the exceptions, such as international money orders, constitute only a small portion of Competitive service revenues.

revenues for the Postal Service have fallen by approximately 30 percent since 2007 and volumes have fallen by 35 percent.<sup>53</sup>

While the internet has substantially depressed the volume of traditional letter mail, the emergence of e-commerce has had the opposite effect on package mail. The volume of packages received and sent by household has increased by 74 percent since 2007.<sup>54</sup> Figure 1 shows the volume trends in mail categories, including packages, since 2007.

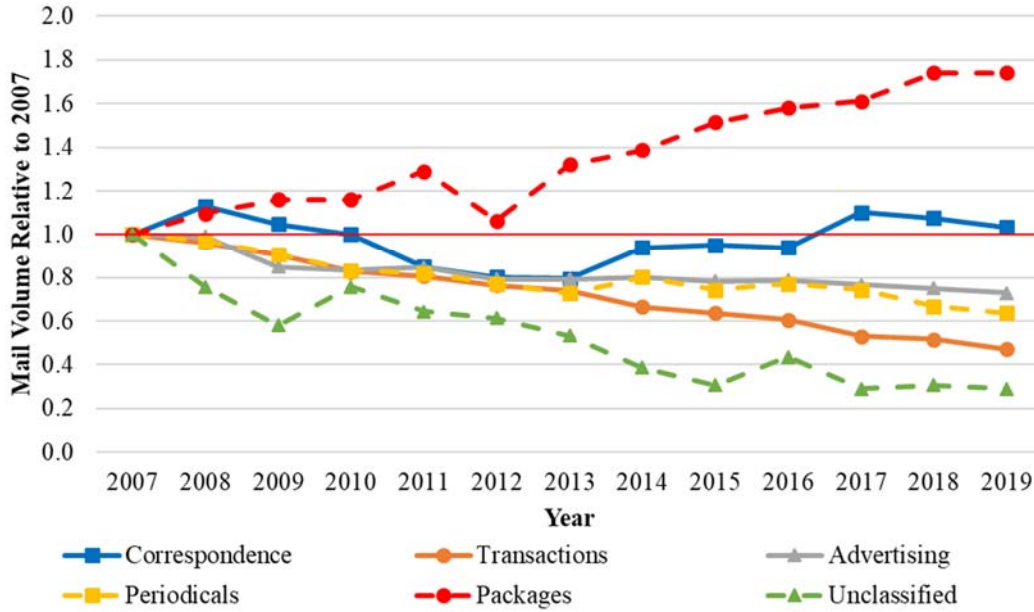
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<sup>53</sup> United States Postal Service - FY2019 Annual Report to Congress (hereafter, *2019 Postal Service AR to Congress*), p. 12; United States Postal Service - FY2016 Annual Report to Congress, p. 28; United States Postal Service, Form 10-K, for the fiscal year ended September 30, 2013 (hereafter, *2013 Postal Service 10-K*), p. 28; *2013 Postal Service 10-K*, p. 106. “Revenue, Pieces & Weight by Classes of Mail and Special Services for Fiscal Year 2008, Compared with Corresponding Period of Fiscal Year 2007,” Postal Regulatory Commission, February 6, 2009, pp. 1, 2 (hereafter, *2008 RPW Report*), <https://www.prc.gov/dockets/document/62064>.

<sup>54</sup> John Mazzone and John Pickett, “The Household Diary Study: Mail Use & Attitudes in FY 2010,” United States Postal Service, April 2011 (hereafter, *2010 Household Diary Study*), p. 2; John Mazzone and Samie Rehman, “The Household Diary Study: Mail Use & Attitudes in FY 2013,” United States Postal Service, May 2014 (hereafter, *2013 Household Diary Study*), p. 2; John Mazzone and Samie Rehman, “The Household Diary Study: Mail Use & Attitudes in FY 2016,” United States Postal Service, February 2017 (hereafter, *2016 Household Diary Study*), p. 2; *2019 Household Diary Study*, p. 2; and John Mazzone and John Pickett, “The Household Diary Study: Mail Use & Attitudes in FY 2007,” United States Postal Service, March 2008 (hereafter, *2008 Household Diary Study*), p. 2.



Figure 1: Postal Service Household Mail Volume Growth by Category



Sources:

- [1] 2019 Household Diary Study, p. 2.
- [2] 2016 Household Diary Study, p. 2.
- [3] 2013 Household Diary Study, p. 2.
- [4] 2010 Household Diary Study, p. 2.
- [5] 2007 Household Diary Study, p. 2.

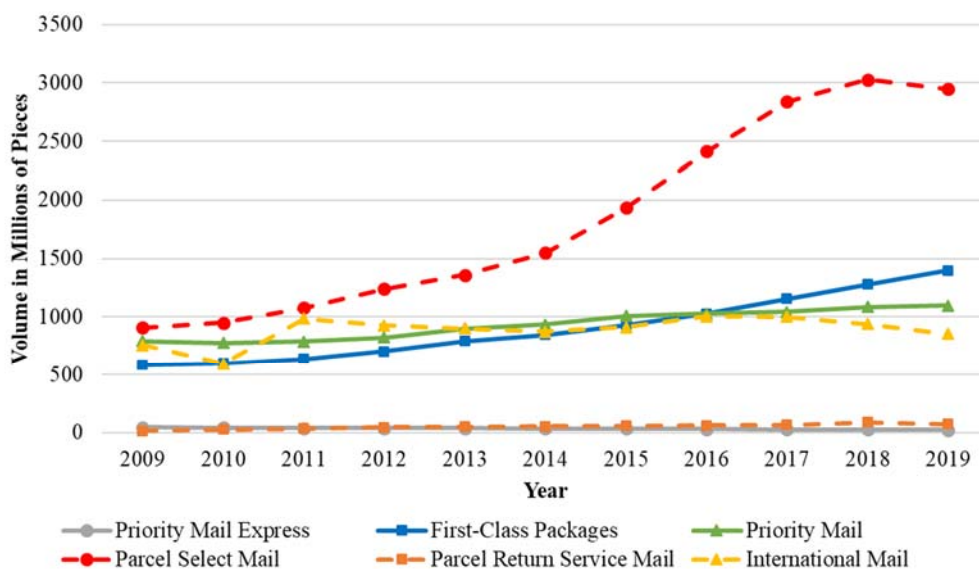
The increase in the volume of packages has been driven by the tremendous increase in online shopping in the U.S., which experienced average annual growth of 13.1 percent from 2007 to 2019.<sup>55</sup> The total volume of packages handled by the Postal Service in the Competitive categories has approximately doubled since 2009, though Priority Mail Express—the Postal Service product most similar to the top-tier FedEx and UPS products—fell by nearly half during that same period, an indication of the impact competition has had on the Postal Service in package delivery.<sup>56</sup> Priority Mail Express is not, and never was, a high-volume product for the Postal Service, however,

<sup>55</sup> 01/03/2019 PRC Order, p. 6; and 2020 Apex Report, p. 26.

<sup>56</sup> Volume growth is reported since 2009 because this was the first year volumes for Competitive products were broken out by category. 2019 Postal Service AR to Congress, p. 13; United States Postal Service - FY2016 Annual Report to Congress (hereafter, 2016 Postal Service AR to Congress), p. 29; 2013 Postal Service 10-K, p. 107.

relative to its other products.<sup>57</sup> Indeed, as will be shown later, FedEx and UPS collectively deliver over 30 times as many overnight packages annually as does the Postal Service.<sup>58</sup> Rather, Parcel Select—which includes the Postal Service’s last-mile delivery service used by FedEx, UPS, and numerous large customers—is by far the Postal Service’s largest-volume product by number of pieces, followed by First-Class Packages and then Priority Mail. Figure 2 shows the volumes of pieces by product type for Postal Service Competitive package services.

Figure 2: Postal Service Competitive Products Volume Trends



**Notes:**  
Retail Ground is combined with Priority Mail.

**Sources:**  
[1] 2019 Postal Service AR to Congress, p. 13.  
[2] 2019 Postal Service AR to Congress, p. 29.  
[3] 2013 Postal Service 10-K, p. 107.

Although Parcel Select remains the Postal Service’s largest package product category, its growth has slowed in recent years, as Figure 2 shows, and the volume of Parcel Select pieces handled by the Postal Service declined for the first time in 2019. The deceleration in Parcel Select growth and

<sup>57</sup> In 2019, Priority Mail Express accounted for 1% of revenue from all types of shipping and mailing services. 2019 Postal Service AR to Congress, p. 13.

<sup>58</sup> See Table 1 infra.

its recent downturn are undoubtedly the result of competitors and customers alike bringing more last-mile delivery in-house.<sup>59</sup>

The COVID-19 pandemic has accelerated the growth in e-commerce package volumes. Although B2B volume has decreased,<sup>60</sup> the overall volume of packages being delivered has seen a recent surge, driven by B2C commerce, as many Americans are working from home, some are in self-quarantine, many brick and mortar shops are closed, and many people are avoiding in-person shopping even where it is available.<sup>61</sup> Total e-commerce sales grew by 30.1% in the first half of 2020 compared to the same quarters in the previous year, whereas the year-over-year growth of e-commerce sales was only 12.7% in the first half of 2019.<sup>62</sup> Package shipments of prescription drugs also grew significantly in March and April 2020.<sup>63</sup>

The package delivery system has evolved from a convenience to, for many Americans, a necessity for the protection of their own health and that of other people. According to one consumer survey, many consumers intend to keep the behaviors they have adopted during the pandemic and continue to shop online in the future to avoid visits to physical stores.<sup>64</sup> Hence, the pandemic may

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<sup>59</sup> “FedEx Ground Announces Seven-Day Residential Delivery Year-round,” FedEx News Release, May 30, 2019 (hereafter, *05/30/2019 FedEx – 7 Day Year-round*), <https://newsroom.fedex.com/newsroom/fedex-ground-announces-seven-day-residential-delivery-year-round/>. FedEx reportedly plans to integrate its SmartPost product into its Ground network for final delivery by the end of 2020. Also, see Ravi Shanker *et al.*, “Freight Transportation and Internet: Amazon Logistics: What Happens after the First 2 Billion Packages?” Morgan Stanley Report, December 12, 2019 (hereafter, *12/12/2019 Morgan Stanley Report*), p. 3.

<sup>60</sup> Jeff Berman, “Shifts in parcel market conditions brought on by COVID-19 are still evolving,” *Logistics Management*, June 23, 2020, [https://www.logisticsmgmt.com/article/shifts\\_in\\_parcel\\_market\\_conditions\\_brought\\_on\\_by\\_covid\\_19\\_are\\_still\\_evolve](https://www.logisticsmgmt.com/article/shifts_in_parcel_market_conditions_brought_on_by_covid_19_are_still_evolve). E-commerce growth pace expected to quicken because of COVID-19, Wayne Risher, “E-commerce growth pace expected to quicken because of COVID-19,” *The Daily Memphian*, April 20, 2020, [https://dailyemphian.com/section/business/article/13082/e-commerce-growth-pace-expected-to-quicken-becauseE-commerce?fbclid=IwAR3UcBF1fA6O5y7WggrX4GJXoEcWHWoZW4qvEqvG5IhOvKjliMi\\_0cy4Drw](https://dailyemphian.com/section/business/article/13082/e-commerce-growth-pace-expected-to-quicken-becauseE-commerce?fbclid=IwAR3UcBF1fA6O5y7WggrX4GJXoEcWHWoZW4qvEqvG5IhOvKjliMi_0cy4Drw).

<sup>61</sup> April Berthene, “Online merchants gain an extra \$107 billion in 2020 thanks to pandemic,” *Digital Commerce 360*, September 14, 2020, <https://www.digitalcommerce360.com/article/coronavirus-impact-online-retail/>; *2020 Apex Report*, p. 29.

<sup>62</sup> E-commerce trends amid coronavirus pandemic in charts, Fareeha Ali, “Charts: How the coronavirus is changing e-commerce,” *Digital Commerce*, August 25, 2020, p. 3, <https://www.digitalcommerce360.com/2020/08/25/e-commerce-during-coronavirus-pandemic-in-charts/>.

<sup>63</sup> Jared S. Hopkins, “Mail-Order Drug Delivery Rises During Coronavirus Lockdowns,” *The Wall Street Journal*, May 12, 2020, <https://www.wsj.com/articles/mail-order-drug-delivery-rises-during-coronavirus-lockdowns-11589281203>.

<sup>64</sup> Shruti Bhargava *et al.*, “Survey: US consumer sentiment during the coronavirus crisis,” McKinsey & Company, August 28, 2020, <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/survey-us-consumer-sentiment-during-the-coronavirus-crisis>.

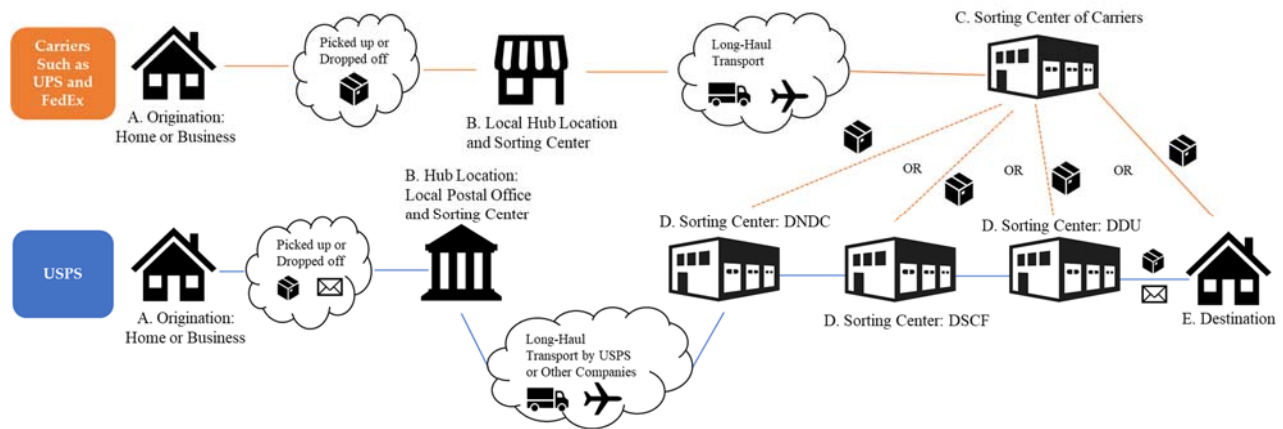
permanently accelerate and intensify the upward trend in demand for package delivery that was already pronounced in previous years.

#### D. Market Structure and Economics

Tracing through the effects of a significant increase in package prices charged by the Postal Service requires understanding features of the package delivery market structure. The package delivery industry is an interconnected, network industry and the major providers do business with one another as well as with their (other) customers. A notable feature of this industry is that, like in many other network industries, the major competitors are not only suppliers to businesses and consumers who wish to send packages, but they are also suppliers to and customers of one another. In particular, as a package travels from origin to destination, it may be transported by more than one carrier or company.

Figure 3 depicts a stylized version of the logistics network for origination, transport, and termination of delivery of a package.

Figure 3: Logistics Network for Delivery Services



One can think of the package delivery business as consisting of at least three services: the origination of the package delivery service, long haul transport (if needed) of the package, and its termination to the ultimate destination.

The company that originates the package service has the relationship with the customer, takes receipt of the package from the customer, receives payment for the service of transporting and

delivering it all the way to its the destination, assumes responsibility for the package's delivery to the destination, provides sorting services at the originating side, and transports the package typically to a hub location from which it will be transported to another hub facility closer to the final destination. In Figure 3, origination is depicted as the path from point A to point B.

The transport of the package from point B to point C (or, for the Postal Service, to one of the points D) may be within a city or town, or may be across the country (or, for international packages, to another country). This leg of the journey may include long-haul transport by air depending on how far the package must ultimately travel and the promised speed of the service chosen by the customer. This stage will also typically require another sorting function at point C.

From C, packages originated by carriers other than the Postal Service may be delivered by the carrier to the ultimate recipient of the package at point E. Alternatively, the package may be delivered by the carrier to a Postal Service sorting center (one of the points D), from which the Postal Service will deliver the package to the ultimate recipient. The Postal Service destination sorting centers are called Destination Network Distribution Centers (DNDCs), Destination Sectional Center Facilities (DSCFs), and Destination Delivery Units (DDUs). The company that terminates, or "delivers," the package transports it from a point near the destination, such as C or D, to the ultimate recipient of the package at point E. This leg of service is typically called "last-mile delivery."

While all three of the major package delivery companies in the U.S. provide end-to-end service (i.e., origination, transport, and termination) for some packages, the carriers differ in their comparative advantages with respect to these three stages of delivery. In a process referred to by economists as "coopetition," the competitors in the package delivery industry have voluntarily and rationally taken advantage of their respective comparative advantages and have chosen to provide services to each other where mutually profitable.

The Postal Service has historically had a comparative economic advantage in costs relative to its competitors in last-mile delivery. That is, the Postal Service has been able to provide last-mile domestic delivery at a high level of operational efficiency relative to its competitors, and therefore at a low relative cost. As a result, the Postal Service is a major supplier of last-mile delivery

services not only for its own originated packages but also to both UPS<sup>65</sup> and FedEx,<sup>66</sup> as well as to other package delivery companies including DHL Global Mail, Pitney Bowes, and OSM Worldwide.<sup>67</sup>

In 2019, Parcel Select, the product segment of the Postal Service that provides last-mile delivery services for companies like FedEx, UPS, and others, generated 30 percent of the Postal Service's domestic packages revenue and accounted for 48 percent of the Postal Service's domestic packages volume.<sup>68</sup>

In contrast to its competitive advantage in last-mile delivery, the Postal Service has a comparative disadvantage in long-haul transport. The Postal Service does not provide the majority of its own ground-based long-haul transport, but, rather, outsources it to trucking and rail providers.<sup>69</sup> In addition, unlike its two major competitors, the Postal Service does not own a fleet of airplanes for long-haul transport and does not provide its own long-haul air transport service.<sup>70</sup> Instead, FedEx, UPS, and several commercial (passenger) airlines are major suppliers to the Postal Service of air transportation.<sup>71</sup> The Postal Service contracts with FedEx Express for its air transport of Postal Service Priority Mail Express and Priority Mail within the U.S.<sup>72</sup> FedEx Express also provides

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<sup>65</sup> UPS SurePost is a UPS ground service that delivers “non-urgent, lightweight residential shipments...with final delivery often provided by the U.S. Postal Service.” *2019 UPS 10-K*, p. 3.

<sup>66</sup> FedEx SmartPost is a FedEx Ground service that delivers high volumes of “low-weight, less time-sensitive business-to-consumer packages” and primarily uses the Postal Service for last-mile delivery to households in the U.S. *2019 FedEx 10-K*, pp. 3, 12.

<sup>67</sup> Frank Proud and Paul Chapman, “Global Parcels: Market Insight Report 2019,” Apex Insight Ltd., March 2019 (hereafter, *2019 Apex Report*), p. 118.

<sup>68</sup> *2019 Postal Service AR to Congress*, p. 13.

<sup>69</sup> Postal Service has the policy of Highway Contract Routes to hire contractors from trucking companies for mail transportation and delivery. Contractors need to provide and maintain a vehicle. “Transportation Network Optimization and Service Performance,” United States Postal Service Office of Inspector General, Report Number: 20-144-R20, June 5, 2020, <https://www.uspsoig.gov/document/transportation-network-optimization-and-service-performance>. Also, see: “Highway Contract Routes – Contract Delivery Service,” United States Postal Service, July 2013, p. 19, <https://www.nalc.org/workplace-issues/resources/manuals/other/SP-1-July-2013-Highway-Contract-Routes.pdf>.

<sup>70</sup> *2019 Postal Service 10-K*, p. 11.

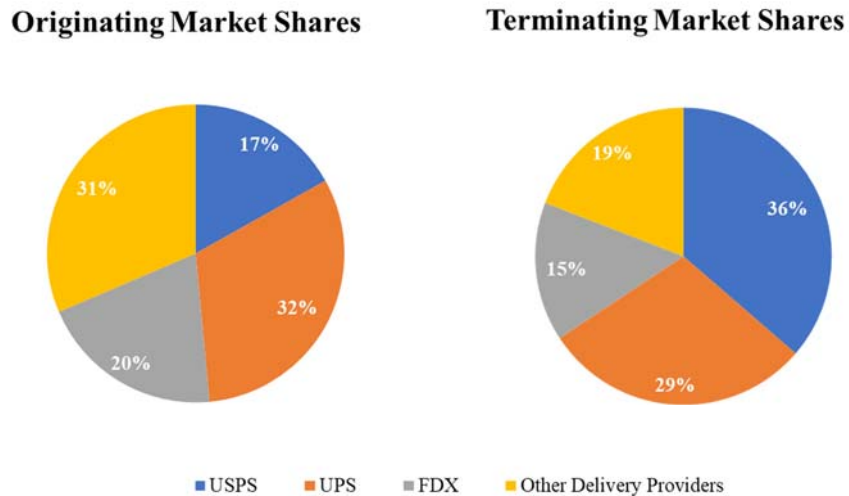
<sup>71</sup> The Postal Service is the largest customer of FedEx Express, which provides domestic airport-to-airport transportation for the Postal Service's First Class Mail, Priority Mail Express, and Priority Mail services. *2019 FedEx 10-K*, pp. 9, 92. See also, *2019 Apex Report*, p. 132. The Postal Service has also contracted with UPS and several commercial airlines to assist in the transportation of mail using their networks of flights. See, “Audit Report: U.S. Postal Service Transportation Network Operations and Cost Optimization Practices,” United States Postal Service Office of Inspector General, Report Number 19XG002NL000-R20, November 7, 2019, pp. 15-20, <https://www.uspsoig.gov/sites/default/files/document-library-files/2019/19XG002NL000-R20.pdf>.

<sup>72</sup> *2019 Apex Report*, p. 149.

transportation and last-mile delivery outside the U.S. for the Postal Service’s international delivery service called Global Express Guaranteed.<sup>73</sup>

Figures 4 show estimated market shares of 2019 U.S. package volumes. The difference between the two charts in the figure is that the left chart presents market shares from the perspective of origination of service, whereas the right chart presents market shares from the perspective of termination of service. Because the originator has the customer relationship, the originating market shares are relevant for assessing customers’ perceptions of the prices, reliability, and attractiveness of the products provided by the carriers. The terminating market shares are relevant for assessing how much of last-mile delivery each carrier is serving.

Figure 4: U.S. Originating and Terminating Market Shares of Delivery Providers by Volume in 2019



**Notes:**

For the terminating market shares, the UPS SurePost and FedEx SmartPost volumes in 2016 were used to estimate their shipping volumes through Parcel Select in 2019.

**Sources:**

- [1] *2019 RPW Report*, p. 3.
- [2] "Final Revenue, Pieces, and Weight by Classes of Mail and Special Services for fiscal year 2016 (Oct. 1, 2015-Sep. 30, 2016) Compared with the Corresponding Period of Fiscal Year 2015," United States Postal Service, p. 3, <https://about.usps.com/who-we-are/financials/revenue-pieces-weight-reports/fy2016.pdf>, p. 3.
- [3] *2019 UPS 10-K*, p. 39.
- [4] *2019 FedEx 10-K*, pp. 67, 70.
- [5] *10/10/2019 Pitney Bowes Press Release*.
- [6] "Monthly Retail Trade," United States Census Bureau, <https://www.census.gov/retail/index.html#ecommerce>.
- [7] Mark B. Solomon, "USPS warns defection of three key customers could hurt package business," *DC VELOCITY*, February 9, 2017, <https://www.dcvelocity.com/articles/28600-usps-warns-defection-of-three-key-customers-could-hurt-package-business>.

The figure illustrates that the Postal Service handles a much larger share of package volume in the last-mile portion of the delivery network than it originates. The difference between the 17 percent

<sup>73</sup> *2019 FedEx 10-K*, p. 9. Also, see: "Global Express Guaranteed® Service Guide – Volume 19," United States Postal Service, October 1, 2019, p. 4, <https://about.usps.com/publications/pub141.pdf>.

volume share of packages for which delivery originates with the Postal Service and the 36 percent volume share for which the Postal Service terminates delivery results from the Postal Service’s provision of last-mile delivery service to other originators through Parcel Select services. The figures show that the share gain from origination to termination for the Postal Service largely comes from the “Other” category. Much of this “Other” category is composed of package deliveries that originate with retailers’ internal delivery operations, with the rest being smaller delivery providers. The Postal Service’s higher termination share is the result of these other delivery operations (as well as the private carriers to a lesser degree) passing the packages off to a postal facility for last-mile delivery.

The figures also show that U.S. package delivery is a concentrated market, whether assessed from the perspective of origination or termination. Indeed, according to a global analysis by Apex Insight Ltd., a London-based research analyst company, the U.S. package delivery market is more concentrated than other parcel markets around the world.<sup>74</sup> Concentrated markets are conducive to higher-than-competitive prices in some circumstances. Of the three major carriers, UPS has the largest share of origination volume—almost twice that of the Postal Service. FedEx’s origination share also exceeds that of the Postal Service. However, the Postal Service leads the market in terms of last-mile delivery, a result of the use of Parcel Select services discussed above.

The use of the Postal Service for last-mile delivery by other delivery providers reflects the structural economic differences across phases of the delivery network and between the Postal Service and other delivery providers. The economics of long-haul delivery and last-mile delivery are quite different from one another and affect the decisions that package delivery providers make as to whether, and where, to outsource rather than self-supply those functions. Because the Postal Service uses the same last-mile delivery network to deliver packages that it uses, under its universal service obligations, to deliver mail to nearly every home and business in the U.S., the Postal Service benefits from significant economies of scale and scope in last-mile delivery of packages. It is substantially less costly to deliver packages as part of a combined operation with mail delivery than to do so on a stand-alone basis.<sup>75</sup>

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<sup>74</sup> *2020 Apex Report*, p. 125.

<sup>75</sup> John C. Panzar, “Protecting the Package Delivery Market and the Economy from Distortions Resulting from Fully Distributed Cost Pricing,” Evanston, 2020, p. 6.



The cost savings associated with the use of the same network not only contribute to the success of the Postal Service in last-mile delivery by allowing it to charge attractive prices for that service, but they also contribute to the efficiency of the industry and of the economy more generally. When the Postal Service can set prices for last-mile delivery, and for package delivery in general, to reflect its efficiencies due to its economies of scale and scope, customers are encouraged to take advantage of those economies, contributing to an efficient allocation of society's resources.

The costs of last-mile delivery vary across destinations. Factors that tend to make some locations costlier than others as delivery destinations include the distance of the destination from the nearest distribution point; the volume of product to be delivered to the destination; and the propinquity of the destination to other destinations at which product may be delivered. The latter characteristic is referred to as route density, while the volume of the product being delivered to the particular destination (the home, office, or building) is referred to as drop density.<sup>76</sup> Both of these densities logically correlate to the population density within an area.<sup>77</sup> The cost characteristics of delivery to a particular location may vary day by day and package by package, depending on whether other packages are slated for delivery that day to the same location and/or to nearby locations.

Other than the Postal Service, competitive providers in package delivery do not have an obligation to provide geographically ubiquitous service. Rather, competitive providers decide based on their costs and their alternatives whether to offer service to particular locations or to outsource delivery.

The delivery network of the Postal Service reaches nearly every home and business in the U.S. at least six days every week. This is because, as the carrier of the U.S. mail, the Postal Service has a "universal service" obligation for mail delivery.<sup>78</sup> It is obligated by law to provide nationwide service to "bind the nation," though this delivery is not required to be to the door.<sup>79</sup> The universal

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<sup>76</sup> Fadi Chamoun *et al.*, *Industrials – Transportation: Delivery Dilemma: How E-Commerce Is Disrupting Last Mile Logistics*, BMO Capital Markets Report, December 10, 2019 (hereafter, *12/10/2019 BMO Report*), pp. 7-8.

<sup>77</sup> Kenneth K. Boyer, Andrea M. Prud'homme, and Wenming Chung, "The Last Mile Challenge: Evaluating the Effects of Customer Density and Delivery Window Patterns," *Journal of Business Logistics* 30, no. 1 (2009) (hereafter, *2009 Boyer et al.*), pp. 186-187, 189, 195, 197; and Roel Gevaers, Eddy Van de Voorde, and Thierry Vanelander, "Cost Modelling and Simulation of Last-mile Characteristics in an Innovative B2C Supply Chain Environment with Implications on Urban Areas and Cities," *Procedia - Social and Behavioral Sciences* 125 (2014) (hereafter, *2014 Gevaers et al.*), pp. 407-408.

<sup>78</sup> "Guiding Principles for a New Universal Service Obligation," United States Postal Service Office of Inspector General, Report Number RARC-WP-15-001, November 17, 2014 (hereafter, *11/17/2014 Postal Service USO Report*), p. 2.

<sup>79</sup> 39 U.S.C. § 101(a).

service obligation (“USO”) dictates the parameters for the Postal Service to provide types of mail service to meet the needs of different categories of mail and mail users,<sup>80</sup> reasonable and equitable rates of postage and fees for postal service,<sup>81</sup> prompt, reliable, and efficient services,<sup>82</sup> and the “maximum degree of effective and regular postal services to rural areas, communities, and small towns where post offices are not self-sustaining,”<sup>83</sup> among other requirements. The Postal Service also has a legal obligation to provide delivery services not less than on a 6-day-per-week schedule.<sup>84</sup>

Because the Postal Service must provide ubiquitous mail service, and because there are economies of scope between package and other mail delivery in the last mile, the Postal Service is highly efficient in the delivery of packages to low-density areas in comparison to other carriers, where other carriers may not have the volume of packages for delivery on a stand-alone basis to reach an efficient scale in those areas. As a business matter, companies such as UPS and FedEx, who do not have an obligation to serve low-density areas, and who are not already delivering other mail, may find that it is more economically rational to outsource last-mile delivery to the Postal Service in certain areas that are particularly high-cost for them when they can purchase last-mile delivery from the Postal Service at a price that is lower than their own costs. When the prices charged by the Postal Service for last-mile delivery makes it costlier to pay the Postal Service to deliver a package over the last mile than it would cost to deliver it themselves, of course, these companies will rationally choose to self-deliver.

And in fact, as discussed above, FedEx and UPS have purchased last-mile service for years from the Postal Service when and where they find it more efficient to do so than to self-supply last-mile delivery.<sup>85</sup> Because of demand for last-mile delivery service from UPS, FedEx, and other delivery providers, approximately half of the Postal Service’s total volume of package delivery is for

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<sup>80</sup> 39 U.S.C. § 403(b)(2).

<sup>81</sup> 39 U.S.C. § 404(b).

<sup>82</sup> 39 U.S.C. § 101(a).

<sup>83</sup> 39 U.S.C. § 101(b) and 39 U.S.C. § 404(d)(2)(A)(iii).

<sup>84</sup> *11/17/2014 Postal Service USO Report*, pp. 6, 8.

<sup>85</sup> UPS’s SurePost and FedEx’s SmartPost are the services where each carrier sometimes passes the package to the Postal Service at a destination unit for last-mile delivery. As of 2015, the Postal Service handled last-mile delivery for approximately 70 percent of UPS’s SurePost packages. See *12/10/2019 BMO Report*, p. 47. The Postal Service handled about 80 percent of FedEx’s SmartPost packages. However, in May 2019, FedEx announced that it was planning to integrate nearly all SmartPost volume into its FedEx Ground network for last-mile delivery by the end of 2020. See *05/30/2019 FedEx – 7 Day Year-round*.

packages injected downstream into its network—i.e., packages that the Postal Service did not originate or transport long-haul.<sup>86</sup>

Competitive delivery providers can benefit from the Postal Service’s efficiencies and economies of scope in last-mile delivery where and when it benefits them because the Postal Service charges prices for the service of last-mile delivery that reflect its efficiencies.<sup>87</sup> The ability of the Postal Service’s competitors, and therefore the competitors’ customers, to benefit from the efficiencies of the Postal Service derived from these economies of scope reflects the interconnectedness of the delivery marketplace. Like other network industries, in this industry the entire market is more efficient because the participants have profit-oriented incentives to share their efficiencies with their competitors.

### **E. Customers of the Package Delivery Industry**

As discussed above, the increase in package volume has been driven in large measure by the increase in e-commerce, as consumers obtain more of their household items, personal items, clothing, and work materials from online vendors. Those vendors are typically the direct customer of the shipper. That is, vendors such as Walmart, Target, The Home Depot, Bed Bath & Beyond, Amazon, and The Gap, as well as small businesses that sell online via platforms such as eBay or Etsy or via their own websites, arrange for shipping, and transact with the providers for the service on behalf of the ultimate recipient.

Some of these customers ship large enough volumes of packages that they are able to negotiate customer-specific contracts that contain negotiated prices and terms. According to the Postal Service, as of 2018 it had over 1,000 Negotiated Service Agreements (NSAs) for domestic package products, most of which were in Priority Mail (an end-to-end package service).<sup>88</sup> It also had 24

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<sup>86</sup> *2019 Apex Report*, p. 134.

<sup>87</sup> Remarkable technological innovations in the last few decades have also created flexibility and control for FedEx and UPS to leverage at an exquisite level of granularity—i.e., package-by-package—when and where to divert the packages it originated to the Postal Service for last-mile delivery. For example, UPS can decide whether to divert a package in its network to the Postal Service for last-mile delivery or to deliver using its own delivery system depending on whether it has other packages going to that same house that same day; whether it has other packages going to a nearby location the same day; and how near to capacity its own delivery drivers and trucks are, among other variables. These capabilities allow competitors to optimize their costs with much greater effectiveness than would have been possible with earlier technology.

<sup>88</sup> “RARC Report: Assessing the Effectiveness of Domestic Competitive Negotiated Service Agreements,” United States Postal Service Office of Inspector General, Report Number RARC-WP-19-004, May 3, 2019 (hereafter,

Parcel Select NSAs; as noted earlier, Parcel Select is the product that includes last-mile-only services.<sup>89</sup> According to the U.S. Inspector General’s 2019 analysis, the vast majority of all NSAs were profitable, and those very few that did not cover their attributable costs are generally low-volume NSAs.<sup>90</sup> One reason these relationships with large shippers are profitable is the Postal Service’s economies of scope deriving from the fact that, as discussed, the Postal Service already travels to nearly every address six days a week; thus, last-mile operations like Parcel Select are cost-effective.<sup>91</sup> The Postal Regulatory Commission reviews the confidential details of each NSA as part of the advance approvals and continuous monitoring required by law; by definition, confidential pricing information is not disclosed publicly.<sup>92</sup>

NSAs or similar arrangements in which customers with large volumes of transactions negotiate volume discounts are common economy-wide. For example, businesses whose employees frequently travel often negotiate steeper discounts with hotels and airlines compared to the normal corporate rates.<sup>93</sup> Large corporations like Procter & Gamble and DuPont can negotiate more favorable terms with their suppliers than can their smaller competitors because of the scale of their operations.<sup>94</sup> After a successful merger, companies often tout an increased ability to negotiate lower prices from suppliers due to their increased scale.<sup>95</sup>

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05/03/2019 Inspector General Report), <https://www.uspsoig.gov/sites/default/files/document-library-files/2019/RARC-WP-19-004.pdf>. These NSAs are entirely for Competitive products. There are no NSAs for the Postal Service’s Market Dominant products as “the regulatory bar for approval is much higher.” 05/03/2019 Inspector General Report, p. 1.

<sup>89</sup> 05/03/2019 Inspector General Report, p. 8.

<sup>90</sup> 05/03/2019 Inspector General Report, p. 9.

<sup>91</sup> 05/03/2019 Inspector General Report, p. 7.

<sup>92</sup> Opposition of Amazon Fulfillment Services, Inc., to Motion of Mark Jamison Requesting Access to Non-Public Materials, *Competitive Product Prices Parcel Select & Parcel Return Service Parcel Select & Parcel Return Service Contract 5 et al.*, Before The Postal Regulatory Commission, Docket No. MC2014-1 et al., November 27, 2013, <https://www.prc.gov/Docs/88/88446/13-11-27%20Amazon%20opposition.pdf>. The 05/03/2019 Inspector General Report is heavily redacted with only broader information about the NSAs left unredacted.

<sup>93</sup> See Drew Limsky, “Business Travel; The Big Get the Best of the Corporate Discounts at Hotels,” *The New York Times*, November 26, 2002, <https://www.nytimes.com/2002/11/26/business/business-travel-the-big-get-the-best-of-the-corporate-discounts-at-hotels.html>; and Leslie Kwoh and Melissa Korn, “CEOs Fly Coach? Business Travel Turns Frugal,” *The Wall Street Journal*, February 12, 2013, <https://www.wsj.com/articles/SB10001424127887323511804578300181289786570>.

<sup>94</sup> Serena Ng, “P&G, Big Companies Pinch Suppliers on Payments,” *The Wall Street Journal*, April 16, 2013, <https://www.wsj.com/articles/SB10001424127887324010704578418361635041842>.

<sup>95</sup> See Tripp Mickle, “Molson Expects More Leverage From MillerCoors Deal,” *The Wall Street Journal*, November 12, 2015, <https://www.wsj.com/articles/molson-expects-greater-buying-negotiating-power-from-millercoors-deal-1447324201>; and Sintia Radu, “QVC to merge with rival Home Shopping Network,” *The Washington Post*, July 6, 2017, <https://www.washingtonpost.com/news/business/wp/2017/07/06/qvc-to-merge-with-rival-home-shopping-network/>.

Arrangements like these are common in business because they benefit both the direct customer and the ultimate customer of the product. When a company's costs are lower, not only can it charge a lower price for its output and still retain a profit, but it has a profit maximization incentive to charge lower prices. The lower are a company's incremental costs, the lower is its profit maximizing price, all else equal, because lower prices stimulate demand. Lower prices increase profits and also increase the benefits to consumers.

It is also socially efficient for suppliers such as the Postal Service to offer lower prices to large-volume customers, and they have an incentive to do so in at least two circumstances. One is when the supplier's costs of serving large-volume customers are lower on a per unit basis than serving individual-purchase or low-volume customers due to efficiencies of scale or the willingness of the customer to assume some of the functions otherwise performed by the vendor.

In the case of package delivery, there are a number of ways that large volume customers do in fact assume some of the functions otherwise performed by the Postal Service that save the Postal Service money. Customers who transport their packages all the way from the point of origination to a delivery node within the Postal Service's network, such as the DDU or the DSCF, provide the service of origination and transport, as well as at least some of the sorting functions, thereby saving the Postal Service costs of functions that the Postal Service would otherwise have to perform and pay for. Hence, the Postal Service incurs lower costs when the customer inserts the packages at a delivery node. Consequently, prices for last-mile only services (e.g., Parcel Select—Destination Entry—DDU and Parcel Select—Destination Entry—DSCF) are substantially lower than end-to-end service and it is rational for the Postal Service to price them that way.

Even if the customer does not insert packages at a terminating node, it may be cheaper on a per-package basis for the shipper to serve a large-volume customer than to serve several smaller-volume customers totaling the same volume. This can be the case if, for example, the large customer can predict and promise a certain volume of packages, reducing the variability of the shipper's demand and thereby allowing the shipper to employ and deploy resources more efficiently and with less risk.

A second circumstance in which a supplier may be willing to offer discounts to their large-volume customers is when the large-volume customer is readily able to divert its business away from the supplier to competitors or to its own in-house supply. The ability of any customer to divert demand

from a supplier gives that customer bargaining power. The larger the customer, the greater the loss to the supplier from the diversion and, therefore, the greater the customer's bargaining power and the greater the incentive of the supplier to offer the customer discounted prices.

Again, in the case of package delivery, this circumstance applies, particularly with respect to last-mile delivery. Large competing carriers that are also customers, specifically UPS and FedEx, can certainly choose to deliver their own packages if they do not obtain favorable prices from the Postal Service. The higher the price of last-mile delivery, the larger the percent of packages these customers will choose to deliver using their own system, rather than using the Postal Service.

Large retailers such as Amazon, Walmart, and Target pose a similar challenge for the Postal Service. As has been well covered in the press, Amazon, for example, has developed its own package delivery operation, including its own air fleet and its own last-mile delivery network.<sup>96</sup>

Hence, the Postal Service competes not only with UPS and FedEx for Amazon's business, but it competes with Amazon itself. In order to retain business from Amazon and all other customers who have the ability and volume to viably develop an internal delivery capability, the Postal Service must charge these customers prices at which it is less costly for them to use the Postal Service than to deliver the package themselves. As long as the Postal Service price exceeds the incremental cost to the Postal Service of handling the additional traffic, it adds to the Postal Service's viability to offer such prices.

As the discussion in the last two subsections has explained, the current state of the package delivery market—and the Postal Service's position within that market—reflect the differences in capabilities and efficiencies among the Postal Service, large private carriers, and large retailers. Because the Postal Service can deliver over the last mile more cheaply in any areas than can other delivery providers, it is both socially efficient—i.e., it benefits the economy as a whole—and beneficial for the Postal Service for other delivery providers to utilize the Postal Service for last-mile delivery. It is socially efficient because total welfare is enhanced when production is allocated to the most efficient (i.e., lowest-cost) producers. It is beneficial to the Postal Service because

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<sup>96</sup> Morgan Stanley estimates that Amazon is currently delivering 46 percent of its own packages, including 61 percent of its own packages that are going to suburban areas. Amazon owns a fleet of trucks, trailers, and airplanes for its long-haul network, and over 25,000 delivery vans. See *12/12/2019 Morgan Stanley Report*, pp. 15, 18.

other delivery providers are willing to pay—and are required to pay—prices for last-mile delivery that exceed the Postal Service’s incremental costs of providing these services.

## **F. Market Entry**

Technological advancements in logistics have also created opportunities for new entities to enter the package delivery market, not only to deliver their own packages but also to compete as third-party delivery suppliers. Based on its analysis of Amazon’s current fleet and public fleet announcements, Morgan Stanley expects Amazon to offer package delivery to third parties in the near future.

Amazon’s foray into package delivery for its own e-commerce sales, and perhaps ultimately as a competitor to UPS, FedEx, and the Postal Service as an end-to-end originator, demonstrates that it is possible for e-commerce companies with sufficient scale to enter the market. Other large retailers, namely Walmart and Target, are reportedly entering into residential package delivery, using their existing base of brick-and-mortar retail stores and distribution centers as distribution points.<sup>97</sup> Target already owns a shipping company, Shipt, which it acquired in 2017 and which focuses on same-day delivery.<sup>98</sup> Entry by other carriers may reduce the reliance of retailers on third-party carriers such as the Postal Service.<sup>99</sup>

The higher the prices of the Postal Service for last-mile services such as Parcel Select, the more quickly the Postal Service will lose customers such as UPS, FedEx, Amazon, Target, and others, because at higher Parcel Select prices, it becomes increasingly economical for these companies to provide last-mile delivery themselves in increasingly high-cost areas. At sufficiently high Parcel Select prices it will become economical for the large companies that use Parcel Select to instead simply deliver all packages themselves.

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<sup>97</sup> Ravi Shanker, “Freight Transportation: Parcels: WMT Pushes Deeper Into Omni-channel,” Morgan Stanley Report, June 3, 2016, p. 1.

<sup>98</sup> “Target to Acquire Same-Day Delivery Platform Shipt, Inc. to Bolster Fulfillment Capabilities,” Target Press Release, December 13, 2017, <https://corporate.target.com/press/releases/2017/12/target-to-acquire-same-day-delivery-platform-shipt>.

<sup>99</sup> Adam Jonas *et al.*, “Urban Air Mobility Flying Cars: Investment Implications of Autonomous Urban Air Mobility,” Morgan Stanley Research Report, December 2, 2018 (hereafter, *12/2/2018 Morgan Stanley Report*), p. 13.

Some companies are deploying new technologies to enter the package delivery market, including Uber, Dropoff, Flytrex, and Workhorse. Uber—a company whose existence was enabled by smartphone technology—has expanded its business from ride-sharing to food delivery via Uber Eats by leveraging its existing driver network, and subsequently to the package delivery services Uber Direct and Uber Connect. Uber Direct provides B2C package delivery service from select retailers,<sup>100</sup> and Uber Connect is a same-day end-to-end package delivery service that appears to be tailored for C2C shipments.<sup>101</sup>

Emerging drone technology also has the potential to alter the competitive structure of the package delivery industry. Drones have been used since 2018 by companies such as Flytrex and Workhorse for delivery in rural areas. Using drones, especially in rural areas, could reduce last-mile delivery costs by decreasing labor needs. Morgan Stanley predicts that drones will also be used in urban areas if regulations and technologies develop to meet the challenges of using drones in more dense areas.<sup>102</sup>

The consequence of the existence of these looming potential entrants is that incumbent carriers like the Postal Service face more constraints on their pricing power than current market conditions suggest. Even at current prices, incumbent carriers like the Postal Service may lose market share if these entrants gain footholds in the market. If the Postal Service raises its prices, these potential entrants will have greater incentives and greater ability to enter and take share from the Postal Service’s package services.

#### **IV. ECONOMICS OF THE LIKELY EFFECT OF SIGNIFICANT INCREASES ON POSTAL SERVICE PRICES FOR PACKAGE DELIVERY SERVICES ON THE MARKET**

Prices today for package delivery reflect the outcome of competitive dynamics between large, sophisticated companies.

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<sup>100</sup> “Moving more of what matters with delivery,” Uber News Release, April 20, 2020, <https://www.uber.com/newsroom/moving-more-of-what-matters-with-delivery/>. Also, see “Introducing Uber Direct, Uber, May 6, 2020, <https://www.uber.com/en-ZA/blog/introducing-uber-direct/>.

<sup>101</sup> “Uber Connect – easier than ever to send packages to others,” Uber, June 10, 2020, <https://www.uber.com/blog/uber-connect-ondemand-package-delivery/>.

<sup>102</sup> *12/2/2018 Morgan Stanley Report*, p. 13.



If the Postal Service were forced to impose substantial price increases on package deliveries, as proposed by the President, customers and the economy would experience material harm. Because package delivery services are used by numerous industries throughout the economy, price increases would have not only direct detrimental effects on the customers of the Postal Service, they would also have detrimental ripple effects on the broader economy.

**A. Quantifying the Effects of the Proposed Postal Service Price Increases on Consumers, Businesses, and the Postal Service Requires Analyzing the Chain of Effects**

When a company increases the price of a service, it sets in motion a chain of effects.

1. Its direct customers must decide whether to continue to purchase the service from the company or shift some or all of its purchases to competitors; whether to consume less of the service in total; whether to self-supply some or all of the service; or a combination of all of these potential actions.
2. The pricing discipline imposed on competitors by a company is eased when the company increases its price. Hence, competitors have greater flexibility to increase their own prices while limiting customer losses. Even though they compete with each other, economic models generally predict that competitors producing differentiated products will increase their prices to at least some extent when the competitive discipline provided by one company's prices is eased.
3. When competitors are themselves also customers of the company whose price increased, their costs increase as well, and they have additional pressure to increase their prices. They also have a greater incentive to find alternatives to the company's product, including using their own internal operations where possible.
4. When companies increase prices, their customers incur higher costs. When the customers are themselves businesses, their higher costs impose pressure to pass along some, all, or more than all of the price increase in the form of higher prices. The extent to which the customers will increase their prices in order to pass along their higher costs to end-use customers will depend on the nature of competition in the markets in which they operate. If, for example, their markets are highly competitive, economic theory teaches that in the long run all or almost all of the

cost increase will be passed on in the form of higher prices. If the customer operates in a market with little competition, the degree to which it passes along the price increase will depend on the sensitivity of its customers to price increases and the proportion of the price of the final good accounted for by the upstream product whose price was increased.

5. The resulting price increases to consumers will make them worse off and also cause them to contract their use of the service. The contraction will generally have ripple effects through the economy and ultimately reduce employment and national wealth.

Price increases by the Postal Service will have all of these effects and price increases at magnitudes even a fraction of those proposed by some policymakers and competitors would significantly harm consumers.

First, substantial price increases by the Postal Service would create a price umbrella under which FedEx, UPS, and other competitive providers of package delivery could and, rationally, would increase their prices to their customers, particularly if the Postal Service were precluded by a price floor from selling below these new prices. Compounding that incentive, FedEx and UPS, who, as already discussed, purchase delivery services from the Postal Service, would incur increased costs as a result of the Postal Service's price increases to them—whether they paid these higher prices to the Postal Service or diverted shipping from the Postal Service to their own (higher-cost) last-mile delivery—further encouraging the competitive carriers to increase their prices.

Customers such as small businesses who ship their products to consumers, as well as businesses large enough to have customer-specific contracts with the Postal Service and other carriers, having to pay vastly higher prices for shipping, will be expected to act in a responsible and economically rational way and increase prices in response to their higher costs. This might take the form of charging for shipping in circumstances when they had previously not charged separately for shipping at all.

The impact for many businesses of a four-fold increase in the price of shipping could indeed be fatal. Consider a boutique craft retailer selling through an online platform such as eBay or Etsy. Suppose the retailer's average product sells for \$20 per unit, that the retailer incurs input and labor costs of \$10 to produce the product, and that (at current carrier prices) shipping its products through

Postal Service costs the retailer \$5. Under these assumptions, the retailer's total costs are \$15 on \$20 of revenue, leaving \$5 in profit margin.

If the Postal Service increased prices by four times and private carriers match the Postal Service prices, this retailer would have to pay \$20 for shipping alone. The retailer could not fully absorb the shipping cost increase because production and shipping costs would total to more than the sale price. The retailer would have to pass on at least some of the shipping cost in the form of a higher retail price. However, suppose that demand for the retailer's products could not support prices more than \$30 (which, at a 50 percent increase from the retailer's current price, is entirely plausible). Then there is no way that the retailer could earn a profit (or even break-even) under the higher shipping costs, and the retailer would rationally shut down the business.

This is a well-known phenomenon in economics,<sup>103</sup> which is that the higher the shipping cost, the less viable it will be to sell low-cost items. The increase in the shipping costs is a higher percentage of the total cost of low-cost items, causing a higher percentage increase in their total price to the customer. In the example, an increase in shipping costs from \$5 to \$20 amounts to a 100 percent increase in the total cost to the retailer of producing and distributing the good. If the cost were fully passed through to customers (if demand for the good were to support such prices), then the retail price to consumers would increase by 75 percent (from \$20 including shipping to \$35 including shipping). However, if the retail good were originally priced at \$200 and subject to the same original shipping cost increase, the shipping cost increase would amount to only a 7.5 percent increase (from \$200 to \$215). The effect is a larger expected response, all else equal, by customers reducing purchases for low-cost items in response to the shipping cost change than for high-cost items. In turn, the result is that businesses selling low-cost items are more likely to fail in response to a substantial increase in shipping costs.

E-commerce retailers who have a large enough volume of shipping will be encouraged (or forced) by significant increases in shipping prices to divert shipping to their own shipping operations. In the face of shipping cost increases of the magnitude proposed by the President, it would likely

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<sup>103</sup> The phenomenon is known as the Alchian-Allen Effect or "shipping the good apples out." See, for example, John P. Gould; Joel Segall, "The Substitution Effects of Transportation Costs," *The Journal of Political Economy* 77, no. 1 (Jan. - Feb., 1969), 130-137; Thomas E Borcharding and Eugene Silberberg, "Shipping The Good Apples Out: The Alchian And Allen Theorem Reconsidered," *The Journal of Political Economy* 86, iss. 1 (1978), pp. 131-138; and John Umbeck, "Shipping the Good Apples Out: Some Ambiguities In The Interpretation of 'Fixed Charge'" *The Journal of Political Economy* 88, iss. 1 (1980), pp. 199-208.

become untenable for companies to continue to ship via the Postal Service in any circumstance where they could instead ship via UPS or FedEx. But in addition, it would become economically rational to increase their investments, or initiate investments, in their own shipping networks.

Customers with smaller volumes of shipping and no realistic means of self-supply would either incur higher shipping costs and pass some or all of those higher costs along to consumers or go out of business. In all these circumstances, consumers are worse off.

In the next subsection, we describe our methodology for analyzing the effect of the proposed price increases on the Postal Service’s end-to-end services. The following subsection analyzes the effect of the proposed price increases on the Postal Service’s last-mile services.

### **B. The Postal Service’s End-to-End Package Products are Positioned in the Market as Lower-Priced, More Basic Services**

Appendix B summarizes the characteristics and features of the end-to-end products available to retailers shipping general merchandise for all three carriers. A general picture emerges from the table that within weight class and similar delivery time expectations, UPS and FedEx include features beyond what the most comparable Postal Service products provide.

The most pronounced difference between the product offerings is that UPS and FedEx guarantee that, for all of their products for which they handle delivery end-to-end, their deliveries will be made within the number of days indicated, and they provide full or partial refunds if delivery is late.<sup>104</sup> With the exception of Priority Mail Express products, the Postal Service does not guarantee delivery within the stated number of delivery days.<sup>105</sup> A guaranteed delivery date is a convenience

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<sup>104</sup> For FedEx, see “Money-Back Guarantee,” FedEx, <https://www.fedex.com/en-us/service-guide/money-back-guarantee.html>. UPS provides regular guaranteed delivery services, see *2020 UPS Rates and Service Guide*, pp. 44, 48, 52, 56, 60, 64, 68. FedEx service guarantee has been suspended since March 24, 2020, and UPS service guarantee has also been temporarily suspended since March 26, 2020, because of the COVID-19 pandemic. See, “UPS Service Guarantee,” UPS, <https://www.ups.com/us/en/help-center/shipping-support/service-guarantee.page>. Also, see Emma Cosgrove, “UPS, FedEx suspend service guarantees citing coronavirus impact,” Supply Chain Dive, April 1, 2020, <https://www.supplychaindive.com/news/coronavirus-ups-fedex-suspend-service-guarantees/575280/#:~:text=FedEx%20suspended%20its%20global%20Money,t%20on%20the%20company's%20website>.

<sup>105</sup> “Mail & Shipping Services,” United States Postal Service, <https://www.usps.com/ship/mail-shipping-services.htm>.

for consumers because they can plan when to be home or to have someone available to receive a package and they can plan their use of the packaged items according to its delivery date.

There might be some retailers who do not attach significant value to a guaranteed delivery intervals and others that value the guarantee highly; however, no retailer (or other customer) would rationally prefer not to have a guaranteed delivery date if it came at no additional charge. Of course, guaranteeing delivery by a certain date raises the cost of the delivery service,<sup>106</sup> and one would expect delivery products with guaranteed delivery dates to bear higher prices than products without such guarantees (all else equal) to reflect the higher costs.<sup>107</sup>

The amount of insurance coverage included in the product price is another value-adding feature of delivery products. The Postal Service includes insurance up to a value of \$50 in its Priority Mail products and up to \$100 in its Priority Mail Express products; however, it does not include any insurance in its First-Class Package or Retail Ground products.<sup>108</sup> FedEx and UPS, in contrast, include insurance up to a value of \$100 in all their package delivery products.<sup>109</sup>

Because the Postal Service sells supplemental insurance beyond the level included in the delivery product, one can adjust the prices of First-Class and Retail Ground to increase the comparability of the Postal Service products to the private carriers' products. This is accomplished by including the minimum tier (\$50 in coverage, at a price of \$2.25) in the price of First-Class Retail Ground products. The price analysis in the next subsection includes this adjustment to the First-Class and Retail Ground prices.

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<sup>106</sup> In addition to the investments necessary to achieve the reliability associated with a guaranteed service, committing to the guarantee requires that the carrier take on risk that they will have to refund part or all of the delivery charge if circumstances prevent it from delivering a package in time. The refund amount times the risk of failing to deliver the product in time (and the risk of a consumer making a claim for the refund) is a source of added cost to the carrier of providing the product.

<sup>107</sup> The delivery guarantees in UPS's and FedEx's products, but generally not in the Postal Service's products, reflect what economists call *vertical differentiation*. One product is vertically differentiated from another product if generally all consumers would at least weakly prefer the first product at equal prices. If there were two delivery products available in the market at the same price and with all the same features and same expected delivery time except that one guaranteed the delivery date and the other did not, then one would expect all consumers to choose the product with the guarantee.

<sup>108</sup> See Appendix B.

<sup>109</sup> See Appendix B. FedEx has language in their terms of service that they do not provide "insurance coverage;" however, they allow for a maximum liability of up to \$100 in declared value for packages that are damaged or lost. This appears to be the same type of insurance that UPS and the Postal Service provide. See *2020 FedEx Service Guide*, p. 139.

Other features that differentiate the private competitors' products from the Postal Service's products include UPS's and FedEx's offering of an "A.M." version of their two-day delivery product, which allows retailers and their customers to target deliveries to the morning.<sup>110</sup> UPS also allows customers to use their own packaging when using flat-rate service, a feature that retailers may value highly because they can ship in boxes displaying their brands.<sup>111</sup>

More feature-rich products in a market are priced higher than value brands to reflect the additional benefits they bring to some customers, while less feature-rich products must bear a lower price in the market in order to provide the value to consumers that will make them attractive as well. Indeed, the less feature-rich product is vulnerable to losing all of its sales if its price rises (or prices of more feature-rich products descend) to levels where the price is "too close" to the prices of the premium alternatives.

It is valuable to society for markets to offer a variety of products with different price/feature characteristics. Some consumers value the additional features at less than the additional cost, and would prefer and are better off having the option of the more basic product and the lower price. Other consumers are better off being able to obtain the additional features, even at the premium price. Consumers as a whole are worse off if the value product is priced out of the market, forcing everyone to purchase premium products at premium prices, and the economy is poorer for it.

### **C. Pricing of the Postal Service's End-to-End Products**

Since prices of delivery products generally vary by size, weight, and distance, among other attributes—and since prices under negotiated contracts are often confidential—it is not tractable to build an analysis of the effects of the proposed price increases around price comparisons for individual shipment configurations. Instead, we use average prices across a broad set of the carriers' end-to-end delivery products as reference prices when considering the effect of the proposed price increases. The use of average prices also has the advantage that it reflects the mix of retail, commercial, and discounted NSA rates, at the distances, weights, package dimensions, and other package characteristics that are actually used in the market.

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<sup>110</sup> "UPS 2<sup>nd</sup> Day Air A.M.," UPS, <https://www.ups.com/us/en/shipping/services/domestic/2nd-day-air-am.page>;  
"FedEx 2Day or FedEx Express Saver Shipping," FedEx, <https://www.fedex.com/en-us/shipping/2-3-day.html#2dayAM>.

<sup>111</sup> "Flat Rate Shipping from UPS®," UPS, <https://www.ups.com/us/en/services/shipping/simple-rate.page>.

The analysis described in this section is focused on end-to-end shipments. Our analysis in this section therefore does not include the Parcel Select (i.e., the last-mile delivery only) products in the averages, which is incorporated into the model in the next section where we analyze the impact of price increases on the decisions of competitors and other customers to use the Postal Service's last-mile services. For purposes of the analysis in this section we also exclude next-day products from UPS's and FedEx's averages. Retailers do not tend to utilize same-day or next-day delivery services from the Postal Service to a large extent. For the Postal Service, Priority Mail Express volumes constitute only about 1 percent of the Postal Service's end-to-end products,<sup>112</sup> and, as noted earlier (and Table 1 shows), FedEx and UPS collectively deliver over 30 times as many overnight packages annually as does the Postal Service. Hence, it is clear that overnight delivery services are already dominated by the Postal Service's competitors and, even at current prices, the Postal Service is not a meaningful competitor. It is not plausible that the Postal Service would retain any market share in overnight services if it were to increase the prices of those services materially.

The analysis also excludes other specialized categories of competitive products that are not relevant to retailers shipping domestically. Table 1 reports the 2019 volumes for various classes of Postal Service Competitive products and private carrier package products and includes an indicator of whether the product class is included in the average prices presented below.

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<sup>112</sup> Postal Service Retail Ground also has small volumes relative to Priority Mail and First-Class; however, since UPS and FedEx Ground products constitute a major share of their volume, it is important to include them in the average prices, so we included Postal Service Retail Ground as well as a comparable product.

Table 1: 2019 U.S. Package Volume by Carriers and Products

Carrier	Product Class	Volume (in millions)	Included in Price Average?
USPS	Priority Mail	1,085	Y
	Priority Mail Express	26	N
	USPS Retail Ground	12	Y
	Parcel Select	2,910	N
	Parcel Return	75	N
	Marketing Mail Parcels	37	N
	First-Class Package Services	1,398	Y
	International Outbound	151	N
UPS <sup>1</sup>	Next Day Air	478	N
	Deferred	410	Y
	Ground	3,840	Y
	International Export	372	N
FedEx <sup>2</sup>	U.S. overnight box	328	N
	U.S. overnight envelope	137	N
	U.S. deferred	275	Y
	FedEx Ground	2,283	Y
	International Export	212	N

**Notes:**

[1] UPS does not report volumes by product segments in its annual reports. It only reports the average daily volume by product segments. It states in the 2019 annual report that the number of operating days is 253 for UPS's fiscal year of 2019. Therefore, we obtained the volumes by product segments by multiplying the average daily volumes by 253.

[2] FedEx does not report volumes by product segments in its annual reports. It only reports the average daily volume by product segments. It does not report the number of operating days in each year neither. Therefore, we obtained the volumes by product segments by assuming a total of 255 operating days in the fiscal year of 2019 for FedEx and multiplying 255 by the average daily volumes.

Sources: 2019 RPW Report; 2019 UPS 10-K; 2019 FedEx 10-K.

Table 2 presents the 2019 average revenue per piece (ARPP) calculated for the three carriers. As shown in the table, the Postal Service products have the lowest ARPP at \$6.96. The UPS ARPP at \$8.94 is at a 28.5 percent premium relative to the Postal Service products. The FedEx ARPP at \$9.66 is at a 38.8 percent premium relative to the Postal Service products.



Table 2: Average Revenue and Total Volume of USPS, UPS and FedEx in 2019

Carrier	Product or Tier	Average Revenue Per Piece	Volume <sup>1</sup>
USPS	First-Class Mail <sup>2</sup>	\$ 5.44	1,398,204
	Priority Mail	\$ 8.72	1,085,277
	Retail Ground <sup>2</sup>	\$ 24.69	11,872
	<b>Total</b>	<b>\$ 6.96</b>	<b>2,495,353</b>
UPS	2-3 Day <sup>3</sup>	\$ 12.62	410,366
	5-8 Day <sup>4</sup>	\$ 8.55	3,839,528
	<b>Total</b>	<b>\$ 8.94</b>	<b>4,249,894</b>
FedEx	2-3 Day <sup>5</sup>	\$ 15.39	272,481
	5-8 Day <sup>4</sup>	\$ 8.97	2,264,856
	<b>Total</b>	<b>\$ 9.66</b>	<b>2,537,337</b>

**Notes:**

- [1] Total volume is in unit of thousands.
- [2] Since USPS First-Class Mail and Ground do not provide damage coverage while the other services do, an additional \$2.25 fee is added to revenue per piece for First-Class Mail and Ground.
- [3] ] UPS 2-to-3-day Service includes UPS 2nd Day Air and UPS 3 Day Select.
- [4] UPS and FedEx 5-to-8-day Service includes Ground shipping.
- [5] FedEx 2-to-3-day Service includes FedEx 2Day and FedEx Express Saver.

**Sources:**

- [1] 2019 RPW Report, p. 3.
- [2] 2019 UPS 10-K, p. 39.
- [3] 2019 FedEx 10-K, pp. 67, 70.

These averages show substantial price premia for the private carrier products relative to Postal Service prices. That the private carriers can maintain volume shares of 73 percent despite being priced at such premia is further evidence that the market is a vertically differentiated one and that, market-wide, shippers value the higher-quality features of the private carriers’ services even despite their materially higher prices.

**D. Pricing of the Postal Service’s Last-Mile Products**

In addition to prices for originating end-to-end service, the Postal Service appears unique (other than new-entrant same-day services such as Uber and the drone-based services discussed earlier) in publicly offering a last-mile-only service. The relevant products are the Parcel Select family. The Postal Service offers Traditional Parcel Select (Parcel Select – Destination Entry – DDU, Parcel Select – Destination Entry – DSCF, and Parcel Select – Destination Entry – DNDC) for packages above one pound and Parcel Select Lightweight for packages less than one pound. These

products differ by where in the Postal Service distribution network the packages are handed off by the shipper, as denoted in Figure 3 discussed in Section III.D.

The prices of Parcel Select are not comparable to those of end-to-end products. To use Parcel Select, the shipper must be able to manage the logistics of delivering the products to the Postal Service DDU, DSCF, or DNDC (or hire another firm to do this for them). Therefore, the shipper incurs additional operating costs beyond what it would incur if it used an end-to-end product. From the perspective of the Postal Service, it avoids the costs of origination, some sorting, and long-haul transport when providing Parcel Select service. Given that costs of origination, sorting, and long-haul transport are shifted from the Postal Service to the Postal Service's customer, and that the last-mile leg that the Postal Service provides in Parcel Select is the shipping leg for which the Postal Service enjoys significant economies of scope as discussed earlier, it is not surprising that the Postal Service offers Parcel Select at much lower rates than its end-to-end delivery products.

The average Parcel Select (including Parcel Select Lightweight) price (measured as revenue per piece) in 2019 was \$2.33.<sup>113</sup> This average is well below the rack rates for Parcel Select for packages greater than one pound;<sup>114</sup> the inclusion of the Lightweight products clearly affects the average, though the Postal Service does not report Lightweight volumes separately, so the magnitude of the effect cannot be quantified. In addition, the average is brought down by the fact that it includes discounts provided to some large customers through NSAs. The prices for and parties to NSAs are not made public, but the revenues associated with them are included in the Postal Service average prices reported in the average.

## **V. ANALYSIS AND QUANTIFICATION OF THE LIKELY EFFECT OF SIGNIFICANT INCREASES ON POSTAL SERVICE PRICES FOR PACKAGE DELIVERY SERVICES ON THE ONLINE RETAILERS, ONLINE RETAIL CONSUMERS, AND THE POSTAL SERVICE**

The price increases proposed by the President are so large as to be expected to cause not just adjustments in consumption, as is expected in response to any price increase, but also to cause upheaval to the structure of the industry. This section analyzes and quantifies the likely effects of the proposed price increases on the various types of businesses affected, on consumers, and on the

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<sup>113</sup> 2019 RPW Report, p. 3.

<sup>114</sup> 2020 Postal Service Price List, pp. 24, 25.

Postal Service. Because some of the price increases proposed are so precipitous, the analysis also considers the effects of several smaller, but still substantial, price increases.

The proposals that have been made public do not appear to call for price increases restricted to specific classes within Postal Service Competitive products,<sup>115</sup> other than a high-level distinction made by the President quoted at the outset of this whitepaper between raising package prices “to the companies” rather than “to the people”—a distinction that is economically untenable and reflects a misunderstanding of the market.<sup>116</sup> The analysis therefore uses average price levels for each carrier across a broad range of the carrier’s package delivery products.

The analysis considers scenarios in which the Postal Service increases its prices for Competitive package shipping products by 50 percent, 100 percent, 200 percent, and 300 percent above current Postal Service price levels. The 300 percent increase is a quadrupling of shipping prices—the magnitude proposed in the President’s public remarks.

The nature and magnitude of the effects of these price increases depend on a number of interacting factors and conditions, including at least:

- To what extent private carriers, in particular UPS and FedEx, will respond to the Postal Service’s increases in end-to-end pricing by increasing their own prices to benefit from greater profit opportunities while also responding to competition with each other;
- To what extent private carriers, in particular UPS and FedEx, will respond to the Postal Service’s price increases for last-mile delivery services (i.e., Parcel Select) by diverting last-mile delivery that they currently consign to the Postal Service to their own last-mile delivery networks;

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<sup>115</sup> See, for example, Comments of United Parcel Service, Inc. on Revised Notice of Proposed Rulemaking to Evaluate the Institutional Cost Contribution Requirement for Competitive Products, *Institutional Cost Contribution Requirement for Competitive Products*, Before the Postal Regulatory Commission, Docket No. RM2017-1 September 12, 2018, p. 52, <https://www.prc.gov/docs/106/106513/UPS%20RM2017-1%20Comments.pdf>.

<sup>116</sup> As discussed in Section III.E, almost all package delivery is provided to companies, not end-customers. Moreover, large companies most able to avoid the price increases by pivoting to self-supply will do so. Smaller businesses who do not have that alternative will either pass it on or, in some cases, will not survive, as discussed. As is well established in economics, prices charged to “companies” are generally passed on, at least in part, to the “people” that purchase products from those companies.

- To what extent large online retailers will respond to Postal Service price increases by diverting delivery to their own internal last-mile delivery networks;
- To what extent online retailers will pass on the increased delivery costs to consumers, either by raising the list prices of the goods they sell or by instituting or raising separate delivery charges; and
- To what extent end consumers will respond to higher online retail prices and/or delivery charges by reducing their online purchases, perhaps diverting consumption to brick-and-mortar retailers.

Since many of the factors depend on private or unknown information, the effects of Postal Service price increases cannot be estimated with precision. However, by examining plausible ranges of assumptions and using reasonable approximations, it is possible to estimate a reasonable range of quantitative effects on consumers, businesses, and the Postal Service of substantial price increases, including quadrupling prices as proposed by the President. As shown in the discussion that follows, the Postal Service price increases will likely cost consumers billions of dollars in the form of higher online retail prices, cause retailers severe losses in profits, and cause demand for the Postal Services Competitive package services to collapse.

#### **A. Estimated Effects of Postal Service Price Increases on Online Retailers**

For retailers selling through online channels, shipping charges are a variable cost of providing the goods they supply to their customers. Generally, when the variable costs of a firm increase, some portion of the cost increase is passed on to the firm's consumers in the form of higher prices charged by the firm. If the retailer were to fully absorb the cost increase, passing through little or none of it in the form of higher prices, the retailer would lose profits because its margins would decrease. In markets with narrow margins already, a significant cost increase that is unaccompanied by a price increase would leave some businesses insolvent and they would be forced to exit, tending to cause the prices of remaining suppliers to increase. By this dynamic, cost increases tend to be passed on to consumers in competitive markets.<sup>117</sup>

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<sup>117</sup> The amount of the cost increase that is passed on to consumers may be less than, equal to, or greater than 100 percent in a perfectly competitive market depending on whether the market is subject to long-run decreasing, constant, or increasing returns to scale, respectively. In imperfectly competitive markets, the rate of

Retailers may respond to Postal Service price increases by defecting to private carriers like UPS or FedEx. However, retailers diverting to private carriers will not avoid higher shipping costs. As discussed above, private carriers tend to charge rates higher than current Postal Service rates for similar shipping services. In addition, the private carriers will rationally decide to raise their own prices in response to the Postal Service price increases.

#### *i. Private Carriers' Pricing Responses*

The pricing responses of the private carriers depend on a number of factors, including at least: (1) each carrier's incremental costs of serving customers that defect from Postal Service; (2) the strength of price competition that would exist between UPS and FedEx if the Postal Service did not charge low enough prices to compete with them or were prevented by price floors from competing in price with them; and (3) the threat of entry by other potential carriers. There are at least two reasons that we would expect UPS and FedEx to increase their prices if the Postal Service were to increase its prices.

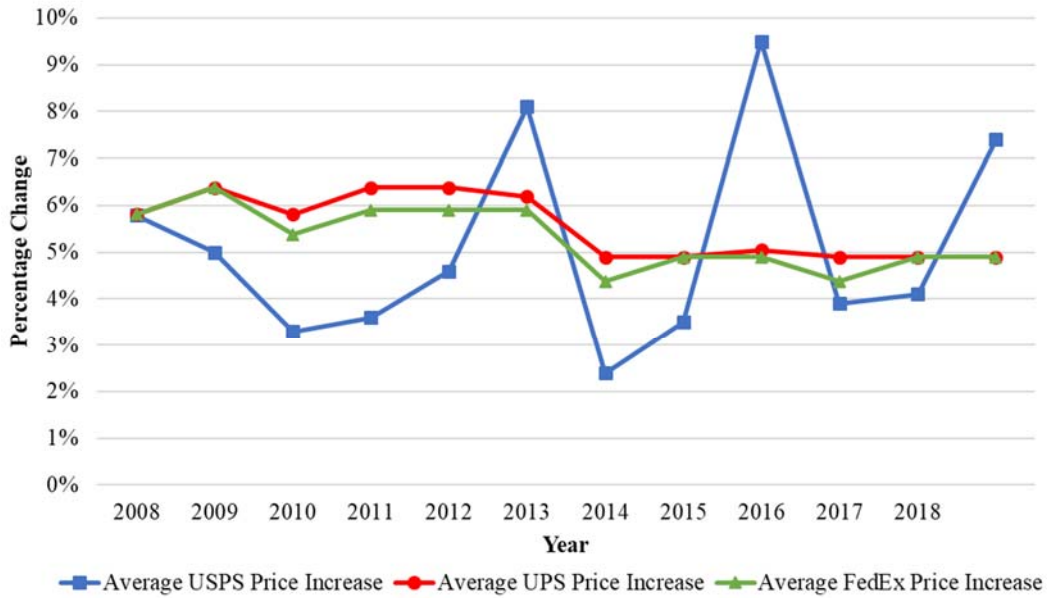
First, their own costs would increase for at least some products, as discussed, imposing upward pressure on their prices.

Second, and likely more important, if the Postal Service increases its prices, the competitive pressure imposed on UPS and FedEx from the Postal Service would be weakened. In fact, as already discussed, the Postal Service currently charges lower prices (and offers services with fewer amenities) than do UPS and FedEx. By leapfrogging UPS's and FedEx's prices, the competitive pressure exerted by Postal Service prices pulling down UPS's and FedEx's price from below would disappear and UPS and FedEx would be competing with a provider of less robust products at higher prices than their own. Furthermore, any fear of a price war with the Postal Service would vanish if the price increases were imposed as an increase in the price floor. FedEx and UPS would continue to compete with each other; however, UPS and FedEx have a history of increasing prices in lockstep with each other. As shown in Figure 5, UPS and FedEx have historically tended to change prices in similar directions and magnitudes.

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passthrough can also be less than, equal to, or greater than one, though the conditions for each are more variable and less well understood.

Figure 5: Average Annual Price Increases by Carrier 2008-2019



Source: 01/03/2019 PRC Order.

Given their history of correlated pricing, it is reasonable to expect that, absent the lower Postal Service package prices, UPS and FedEx would be able to sustain prices above their current levels.

As discussed in Sections IV.B and IV.C, a comparison of the prices and product characteristics across shipping services with similar delivery expectations suggests that UPS and FedEx are vertically differentiated from the Postal Service and, specifically, that their services are strategically positioned as more feature-rich products.<sup>118</sup> In a market characterized by vertical differentiation, a less feature-rich alternative like the Postal Service must maintain lower prices than the more feature-rich alternatives and must maintain prices disproportionately lower relative to the difference in features in order to retain any customers.<sup>119</sup> Otherwise, consumers all choose the more feature-rich alternatives (or decline to purchase at all).

With the large increases in the Postal Service price floor under consideration, as the less feature-rich alternative, the Postal Service would be extremely vulnerable to pricing itself out of the

<sup>118</sup> A vertically differentiated market is one in which consumers generally agree on which alternatives are of higher quality, but vary in terms of how much they are willing to pay for higher quality alternatives.

<sup>119</sup> Stephen Martin, *ADVANCED INDUSTRIAL ECONOMICS*, 2<sup>nd</sup> ed. (Malden, MA: Blackwell Publishing, 2002), pp. 107-110.

package delivery market. Because each price increase considered, even the most “modest” at 50 percent, would drive the Postal Service’s end-to-end prices above the prices of FedEx and UPS for the most comparable products, the proposed price increases would drive all demand to those competitors. In addition, it would allow UPS and FedEx to increase their prices and still retain all of the demand, because the increased Postal Service prices would materially exceed current UPS and FedEx prices. The competitors could, at a minimum, retain all demand even if they increased prices to match the new Postal Service prices. In addition, economic theory tells us that they could retain all demand even at somewhat higher prices; although the precise degree to which they could increase prices above the new Postal Service prices and still retain all of the demand is unknown.

The analysis assumes that UPS and FedEx would exploit their competitive advantage in features to retain all the Postal Service’s market share in packages (that is, we assume that they would not find it profit maximizing, even if the competition between them permitted it, to increase prices to the point that they relegated share to the Postal Service at its higher prices). Price competition *between* the private carriers (and the threat of entry by new carriers) may limit their ability to raise prices even to the level at which they are equal to those of the Postal Service but, as documented earlier, FedEx and UPS have a history of increasing prices in a correlated manner which may (but does not necessarily) signal that they do not compete aggressively on price. There is no evidence of any historical price-war behavior between them in the package delivery market.

In light of the uncertainty over the degree to which private carriers could raise their prices and still win over all package demand from the Postal Service, and the uncertainty with which rivalry between the private carriers would limit the extent to which they could fully exploit their profit opportunities created by the Postal Service price umbrella, the analysis considers a range of private carrier reactions.

First, in the “lower” price increase scenario for each Postal Service price increase, the analysis assumes that the private carriers will increase their prices to a level that is halfway between their current prices and the new Postal Service prices.

Second, the analysis considers a “higher” competitive price increase scenario that recognizes that there are prices above those that just match the Postal Service prices at which package demand would still divert entirely to the higher-feature private carrier services. The higher price response scenario is modeled as halfway between the new Postal Service prices and the prices at which the

competitors maintain the same percentage premia over new Postal Service prices as reflected in the current relative prices. This scenario is intended as an estimation of the highest competitor prices at which they could still win over all package demand from the Postal Service, the exact level of which is unknown.

The details of how we calculate the “lower” competitive price response and “higher” competitive price response scenarios are provided in Appendix A. The private carrier price increases used in the “lower” and “higher” scenario for each Postal Service price increase are summarized in the following table:

Table 3: Private Carrier Price Increase Scenarios

USPS Price Increase	Lower	Higher
50%	8.4%	33.4%
100%	27.8%	77.8%
200%	66.7%	166.7%
300%	105.7%	255.7%

*ii. Select Retailer Insourcing of Last-Mile Delivery*

For most (indeed almost all) retailers, their options for avoiding higher Postal Service package prices are limited to diverting their shipments to private carriers. However, a small number of very large retailers may also respond strategically by developing or expanding internal last-mile delivery networks. While there are likely no more than two or three retailers in the U.S. for which self-delivery is currently feasible on a significant scale, this small set of retailers account for a substantial portion of online retail sales, as discussed below. The analysis accounts for potentially different responses of these retailers by defining two classes of online retailers: (1) Small-to-Midsize Retailers and (2) Large Retailers. The key difference between these two types of retailers is that Large Retailers operate at a large enough scale that it would be feasible for them to divert to internal delivery networks.

For Small-to-Midsize Retailers, internal delivery networks are not a plausible option in the near term even in response to large increases in shipping prices. These retailers include individual merchants selling through Etsy or eBay and smaller boutique retailers that may have a brick-and-mortar store in addition to selling online. They also include retailers that operate at a larger scale,



but not a large enough scale for internal delivery networks to be a plausible option. Relative to the Large Retailers, Small-to-Midsize Retailers have less flexibility in how they respond to the increases in their costs that result from increases in shipping charges, and are therefore more captive and more vulnerable to the harmful effects of price increases by the Postal Service and the private carriers than are the Large Retailers.

Overall, online retail generated and estimated 14.2 billion e-commerce packages and \$598 billion in Gross Merchandise Value (GMV) in 2019.<sup>120</sup> These figures imply an average GMV per package of \$42.01. Large Retailers accounted for approximately 33 percent of this GMV and approximately 36 percent of package volume.<sup>121</sup>

Based on the average prices presented in Table 2, retailers pay an overall average cost of around \$8.61 to ship a package.<sup>122</sup> Because volume discounts are common in the package delivery industry, we assume that Large Retailers enjoy a 25 percent discount on shipping through external carriers relative to Small-to-Midsize Retailers. Under these assumptions, Small-to-Midsize Retailers pay an average shipping cost of \$9.45 and Large Retailers pay \$7.09.<sup>123</sup> Shipping costs then constitute, on average, 20.5 percent of the average GMV across all online retailers.<sup>124</sup>

Much of the package volume from Large Retailers, however, is not shipped end-to-end through external carriers. As discussed in Section III.E Large Retailers manage the long-haul portion of package shipment themselves for a large share of their packages, and either also handle last-mile delivery themselves or pass the package to the Postal Service for last-mile delivery via the Postal

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<sup>120</sup> E-commerce GMV from e-commerce retail sales as estimated by the United States Census Bureau, “Estimated Quarterly U.S. Retail Sales (Not Adjusted): Total and E-commerce,” United States Census Bureau, <https://www.census.gov/retail/mrts/www/data/excel/tsnotadjustedsales.xls>. E-commerce retail sales grew 15.1 percent from 2018 to 2019 and 13.2 percent from 2017 to 2018. Package volume is not yet available for 2019 and therefore is extrapolated from previous years. Package volume was 13 billion in 2018 and 12 billion in 2017, a growth of 8.3 percent. See “Pitney Bowes Parcel Shipping Index Reports Continued Growth Bolstered by China and Emerging Markets,” Pitney Bowes Inc. Press Release, October 10, 2019 (hereafter, *10/10/2019 Pitney Bowes Press Release*), [http://news.pb.com/article\\_display.cfm?article\\_id=5910](http://news.pb.com/article_display.cfm?article_id=5910). See also, “Pitney Bowes Parcel Shipping Index,” Pitney Bowes, <https://www.pitneybowes.com/content/dam/pitneybowes/us/en/shipping-index/pitney-bowes-parcel-shipping-index-infographic-2018.pdf>. Given that package volume grew 8.3 percent from 2017 to 2018 with 13.2 percent growth in e-commerce retail sales, package volume is estimated to grow 9.5 percent from 2018 to 2019 with 15.1 percent growth in e-commerce retail sales.  $14.2b = 1.095 * 13b$ .

<sup>121</sup> Morgan Stanley Research estimates Amazon 2019 GMV at \$199.7 billion and package volume at 5.1 billion. See *12/12/2019 Morgan Stanley Report*, p. 21.  $\$199.7b / \$598.0b = 33.4$  percent.  $5.1b / 14.2b = 35.5$  percent.

<sup>122</sup> \$8.61 is the overall volume-weighted average price of the products reported in Table 2.

<sup>123</sup> \$9.45 and \$7.09 are, respectively, the Small-to-Midsize Retailer and Large Retailer costs that result in a volume-weighted average cost of \$8.61. That is,  $\$8.61 = \$9.45 \cdot (1 - 0.355) + \$7.09 \cdot 0.355$ .

<sup>124</sup>  $(\$9.45 * 9.18b + 7.09 * 5.06b) / \$598.0b = 20.5$  percent.

Service's Parcel Select products. Under the proposed elevated Postal Service prices, Large Retailers would be incentivized to insource more last-mile delivery to avoid higher Parcel Select prices. However, if it would cost a Large Retailer substantially more to deliver its shipments over the last mile itself than even the elevated Parcel Select prices in certain areas, the retailer may choose to continue using Parcel Select to deliver packages in those areas.

As discussed in Section III.D, a primary driver of last-mile delivery costs on a per-package basis is the population density of the area to which the package is being delivered. The analysis models Large Retailers as choosing to insource last-mile delivery to customers based on the population density of the destination ZIP code and on Parcel Select prices. The analysis considers that there is a threshold population density above which Large Retailers prefer to self-deliver and below which they prefer to use Parcel Select. The threshold, of course, depends on Parcel Select prices.

To gauge how the threshold population density for self-delivery changes with Parcel Select prices, the analysis first draws on research in the logistics economics literature that quantifies the effect of population density on last-mile delivery costs.<sup>125</sup> From results of this literature,<sup>126</sup> the analysis calculates factors by which per-package last-mile delivery costs increase as population density decreases.<sup>127</sup> Table 4 below presents the factors for each range of population density calculated from the existing literature along with the estimated percentage of the U.S. population that resides in areas in each range.

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<sup>125</sup> 2014 *Gevaers et al.* The Gevaers et al. study builds and calibrates a delivery cost model drawing on previous research by Boyer et al. to assess the effect of population density. While the Gevaers et al. cost model is presented for delivery to areas of Belgium, the effect of density in that model is based on Boyer et al.'s study in a U.S. context. See 2009 *Boyer et al.*

<sup>126</sup> 2014 *Gevaers et al.*, p. 408 (Table 10). Because we are converting the last-mile unit costs to relative factors, the fact that the monetary estimates are presented in euros rather than dollars does not affect the analysis. We do, however, convert the Gevaers et al. population density ranges to ranges denominated in square miles rather than kilometers.

<sup>127</sup> For example, suppose that the per-package cost of delivering to an area with population density greater than approximately 3,900 people per square mile is  $\$x$ , and consider last-mile delivery to an area with a population density of approximately 900 people per square mile. We calculate a multiplier  $m$  for areas with density of approximately 900 people per square mile such that last-mile delivery cost is  $\$(m \cdot x)$  per package. In this case,  $m = 1.291$ .

Table 4: Last-Mile Cost Per Package by Population Density

Density Tier	Density (Population/Square Mile)	2019 % US Population in Density Range	Multiplier	Large Retailer Estimated Last-Mile Cost Per Package
1	0-130	16.70%	2.818	\$ 4.90
2	131-520	17.40%	1.516	\$ 2.64
3	521-864	7.62%	1.407	\$ 2.45
4	865-1038	3.19%	1.291	\$ 2.24
5	1039-1554	7.00%	1.135	\$ 1.97
6	1555-2074	6.18%	1.076	\$ 1.87
7	2075-2590	4.97%	1.044	\$ 1.81
8	2591-3110	5.14%	1.022	\$ 1.78
9	3111-3885	5.74%	1.015	\$ 1.76
10	>3885	26.10%	1.000	\$ 1.74

**Sources:**

- [1] [https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2019\\_Gazetteer/2019\\_Gaz\\_zcta\\_national.zip](https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2019_Gazetteer/2019_Gaz_zcta_national.zip).
- [2] "ACS Demographic and Housing Estimates," United States Census Bureau, [https://data.census.gov/cedsci/table?id=ACS%205-Year%20Estimates%20Data%20Profiles&tid=A\\_CSDP5Y2018.DP05](https://data.census.gov/cedsci/table?id=ACS%205-Year%20Estimates%20Data%20Profiles&tid=A_CSDP5Y2018.DP05).
- [3] 2014 Gevaers et al., pp. 398-411.

With the multipliers in Table 4, the analysis estimates the last-mile delivery cost by Large Retailers to the most population-dense tier of areas calibrated to industry analysts' estimate of Amazon's last-mile delivery costs and penetration. Morgan Stanley Research reports that Amazon, as of December 2019, is building out its internal last-mile delivery network in areas with population density of at least 600 people per square mile.<sup>128</sup> Morgan Stanley Research also estimates Amazon's average cost of last-mile delivery at that time at \$1.81 to \$1.83 per package.<sup>129</sup> The analysis uses these data points with the data in Table 4 to estimate last-mile delivery costs in areas with density greater than 3,885 people per square mile at around \$1.74 per package.<sup>130</sup> From this base value, it is possible to compute the average last-mile delivery costs for areas at the other density tiers using the multipliers in Table 4 and use these costs for all Large Retailers. The

<sup>128</sup> 12/12/2019 Morgan Stanley Report, p. 16.

<sup>129</sup> 12/12/2019 Morgan Stanley Report, p. 21. We use the midpoint value \$1.82.

<sup>130</sup> Based on where Morgan Stanley Research reports Amazon to be building out its last-mile delivery network, the analysis assumes that nearly all of Amazon's insourced deliveries go to areas in all but the first three density ranges given in Table 4. It further assumes that the likelihood a package is delivered to an area is proportional to the area's population. The implied cost to the most dense area range is given by  $\$x = \$1.82 \cdot \frac{\sum_{i=4}^{10} w_i}{[\sum_{i=4}^{10} m_i \cdot w_i]}$ , where summation runs over density tiers 4 through 10 in Table 4 and where  $w_i$  and  $m_i$  are respectively the population weight and multiplier for each density tier given in the table. We have also run the analysis including the third density tier (521 to 864 people per square mile) as a robustness check and find that the results are not substantially changed.

estimated average internal last-mile delivery costs to Large Retailers for each density tier are presented in the rightmost column of Table 4.

Prices of Parcel Select in the Postal Service’s 2019 fiscal year averaged \$2.34.<sup>131</sup> That this price level lies between the estimated averaged cost rates for the third and fourth density tiers in Table 4 is consistent with evidence just discussed that these tiers are “on the margin” between Large Retailers insourcing and outsourcing last-mile delivery. The analysis models the effect of the Postal Service price increases on the insourcing decision by assuming that the Postal Service currently provides last-mile delivery for the Large Retailers primarily in the first three density tiers.<sup>132</sup>

For 50 percent Postal Service price increases, the Parcel Select price level would increase from \$2.34 to \$3.51. The higher rate is well above the estimated internal last-delivery cost for density tiers 2 and 3, but still well below the cost for the least dense tier. Therefore, we infer that in response to 50 percent Postal Service price increases, Large Retailers would expand insourced last-mile delivery into tiers 3 and 2, but not into tier 1, under the 50 percent Postal Service price increase scenarios.

The insourcing of deliveries in tier 2 and 3 areas would reduce the volume delivered by Postal Service by 60 percent.<sup>133</sup> Based on the estimates in Table 4, average costs of last-mile delivery for Large Retailers would increase from \$1.82 to \$2.05, an increase of 12.5 percent.<sup>134</sup>

Were the Postal Service to raise Parcel Select prices by 100 percent, the Parcel Select price level would increase to \$4.67, a price just under the \$4.90 estimated cost of internal last-mile delivery. However, the \$2.34 current price level (and hence the \$4.67 elevated price level) reflects discounts

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<sup>131</sup> *2019 RPW Report*. The Postal Service reports Parcel Select FY 2019 revenue of \$6,800,932 on 2,909,870 pieces, giving an average of \$2.34. Most of the Parcel Select volume is generated by large retailers like Amazon.

While the terms of the individual NSAs with these retailers are not public, the average Parcel Select revenue per piece, which is public, is likely to be close to the average rates paid by the Large Retailers.

<sup>132</sup> These tiers cumulatively contain about 42 percent of the U.S. population, whereas Morgan Stanley Research estimates that the Postal Service delivered about 32 percent of Amazon’s shipments in August 2019. Density tiers 4 through 10 account for the remaining 58 percent of the U.S. population, whereas Morgan Stanley Research estimates that Amazon delivered 46 percent of its packages in August 2019. The remaining 22 percent of Amazon’s shipments in August 2019 were delivered by private carriers (primarily UPS). See *12/12/2019 Morgan Stanley Report*, p. 7 (Exhibit 2). The analysis assumes that private carrier share of Large Retailer deliveries is distributed evenly between density tiers 1-3 and tiers 4-10.

<sup>133</sup> Density tiers 2 and 3 account for 25.0 percent of the U.S. population, or 60.0 percent of the 41.7 percent accounted for by tiers 1 to 3.

<sup>134</sup>  $\$2.05 = \$1.74 \cdot [\sum_{i=2}^{10} m_i \cdot w_i] / \sum_{i=2}^{10} w_i$  where  $w_i$  and  $m_i$  are respectively the population weight and cost multiplier for each density tier given in the Table 4.

received by Large Retailers that are negotiated based on the Parcel Select volumes they currently ship. It is likely, then, that the cumulative effect of the Postal Service price increases and the loss of volume discounts will push average Parcel Select prices paid by the Large Retailers above the \$4.90 estimated cost of internal delivery. Hence, it is reasonable to assume that Large Retailers fully insource last-mile delivery in this scenario.

For the 200 percent and 300 percent Postal Service price increase scenarios, Parcel Select prices increase to an average of \$7.01 and \$9.35 respectively. At these price levels, the estimated last-mile costs imply that the Large Retailers would clearly be incentivized to expand internal last-mile delivery into even the least dense tier. Hence, insourcing would eliminate the Large Retailer volume delivered by Postal Service in the 100 percent, 200 percent, and 300 percent scenarios. Based on the estimates in Table 4, average costs of last-mile delivery for Large Retailers would increase from \$1.82 to \$2.52, an increase of 38.6 percent.<sup>135</sup>

### *iii. Online Retail Supply and Demand*

To estimate the effects of the proposed pricing responses on businesses and consumers, the analysis assumes that average shipping cost increases are fully passed through to retail consumers. This is the most conservative assumption with respect to estimating the effects on businesses. The increases in shipping prices generate an industry-wide cost increase (like a tax) in the online retail industry, an industry in which profit margins are below average with respect to other industries.<sup>136</sup> Given these conditions, it is reasonable to assume that retailers would fully pass through shipping cost increases.<sup>137</sup> Fully passing through the cost increases results in retailers maintaining their current profit margins on units they continue to sell. However, as discussed below, they would

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<sup>135</sup>  $\$2.52 = \$1.74 \cdot \sum_{i=1}^{10} m_i \cdot w_i$  where  $w_i$  and  $m_i$  are respectively the population weight and cost multiplier for each density tier given in the Table 4.

<sup>136</sup> See Aswath Damodaran, "Margins by Sector (US), NYU Stern School of Business, Updated January 2020 (hereafter, *Margins by Sector (US)*),

[http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/margin.html](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html). The maintainer of the margins table by industry is a Finance professor at the Stern School of Business at New York University.

<sup>137</sup> For a broader discussion of passthrough and the determinants of passthrough rates, see James M. Poterba, "Retail Price Reactions to Changes in State and Local Sales Taxes," *National Tax Journal* 49, no. 2 (June 1996), pp. 165-176; Timothy J. Besley and Harvey S. Rosen, "Sales Taxes and Prices: An Empirical Analysis," *National Tax Journal* 52, no. 2 (June 1999), pp. 157-178; and E. Glen Weyl and Michal Fabinger, "Pass-through as an Economic Tool: Principles of Incidence under Imperfect Competition," *Journal of Political Economy* 121, no. 3 (June 2013), pp. 528-583.

nevertheless lose profits because the higher retail prices would cause consumers to reduce purchases of online retail products, causing retailers' total volumes to fall.

If the assumption of full-passthrough is incorrect and retailers would pass through only a portion of the increased cost, retail profits would suffer from both a reduced profit margin and (a partially attenuated) reduction in quantity demanded.<sup>138</sup>

The demand response to the retail price increase (itself the result of passed through shipping cost increases) is computed based on an assumption of unit elasticity of online retail demand. The demand elasticity likely varies considerably across different products sold online. However, the assumption of unit retail demand elasticity is reasonable because the effects of the price increases are computed in the aggregate for a broad sector of the economy that pools many different product types. Microeconomic theory teaches that if there are few good substitutes for a product, as is more likely when considering very broad sectors, the own-price elasticity of demand must be (close to) one in absolute value.<sup>139</sup>

The assumption of unit elasticity is conservative because it is likely to underestimate the elasticity of online retail demand. One reason that online retail demand may be more than unit-elastic is that, at least for some products, consumers have the ability to purchase these same products from offline (brick-and-mortar) channels. The limited studies in the existing literature that have quantified the tax elasticity of substitution from offline retail channels to online channels have found tax elasticities that are price elastic,<sup>140</sup> providing evidence that substitution from online

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<sup>138</sup> We have conducted sensitivity checks on the analysis that assume only half of the increased shipping costs to retailers is passed through to consumers (the retailers absorbing the other half). Retailer profits decrease substantially more when passthrough is only 50 percent. The effect on Postal Service volumes and revenues differs by less than half a percentage point, however, whether the analysis assumes full passthrough or 50 percent passthrough. The harm to retail consumers is partially mitigated, however, under a lower rate of passthrough.

<sup>139</sup> A property in economic theory known as Cournot aggregation states that a consumer's total budget expenditure will not change in response to price changes. For expenditure not to change, quantity demanded will have to decrease in a unit elastic manner in response to price increases. While the condition may not hold exactly for online retail expenditures (because consumers' total expenditures consist of more than online retail expenditures), the breadth and diversity of online retail goods suggests that online retail expenditures should be insensitive to price changes. See Andreu Mas-Collel, Michael D. Whinston, and Jerry R. Green, *MICROECONOMIC THEORY* (Oxford University Press, 1995), pp. 27-28.

<sup>140</sup> See, for example, Liran Einav *et al.*, "Sales Taxes and Internet Commerce," National Bureau of Economic Research Working Paper 18018, April 2012, pp. 23-24, <https://www.nber.org/papers/w18018.pdf>, which estimates a tax elasticity of around 2 and notes that tax elasticities provide lower bounds on price elasticities. The paper cites an earlier study that found tax elasticities of around twice that magnitude. See Austan

channels to offline channels is also price elastic.<sup>141</sup> To the extent that online retail demand is price elastic, the analysis will underestimate the loss in quantity for e-commerce retail goods, and therefore will underestimate the reduction in e-commerce packages shipped. The analysis would also then underestimate the harm to retailers (and the harm to the Postal Service) that results from the Postal Service price increases.

The results regarding the effects of the proposed price increases on consumers, Small-to-Medium online retailers, and the business segment generally are summarized below in Table 5.

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Goolsbee, “In a World without Borders: The Impact of Taxes on Internet Commerce,” *Quarterly Journal of Economics* 115, no. 2, pp. 561-576.

<sup>141</sup> The authors of the Einav et al. study note in a separate academic blog post that their results imply that online purchases would fall by a degree reflecting elastic demand if sales taxes were applied to online purchases from out-of-state retailers. See Liran Einav *et al.*, “Consumer behavior in online shopping is affected by sales tax,” USAPP, January 14, 2014, <https://blogs.lse.ac.uk/usappblog/2014/01/14/sales-tax-internet/>.

Table 5: Estimated Five-Year Impact of Postal Service Price Increases on Retailers and Consumers

Scenarios								
Proportional Postal Service Price Change	50%		100%		200%		300%	
Private Carrier Pricing Scenario	Lower	Higher	Lower	Higher	Lower	Higher	Lower	Higher
Proportional Private Carrier Price Change	8.4%	33.4%	27.8%	77.8%	66.7%	166.7%	105.7%	255.7%
Impact on Retailers								
Total Change in Retailer Profits (in Billions)	\$ (5.6)	\$ (12.8)	\$ (11.7)	\$ (24.5)	\$ (21.9)	\$ (42.5)	\$ (30.7)	\$ (56.2)
Percentage Change in Retailer Profits	-2.9%	-6.6%	-6.0%	-12.6%	-11.3%	-21.9%	-15.8%	-28.9%
Total Change in Small-to-Midsize Retailer Profits (in Billions)	\$ (4.3)	\$ (11.0)	\$ (9.6)	\$ (21.3)	\$ (18.9)	\$ (37.2)	\$ (26.8)	\$ (49.1)
Percentage Change in Small-to-Midsize Retailer Profits	-3.4%	-8.5%	-7.4%	-16.4%	-14.6%	-28.8%	-20.7%	-37.9%
Change in Small-to-Midsize Retailer Cost Per Package	\$ 1.51	\$ 4.04	\$ 3.48	\$ 8.53	\$ 7.41	\$ 17.52	\$ 11.35	\$ 26.51
Impact on Consumers								
Percentage Change in Retail Package Volume for Consumers	-2.8%	-6.5%	-5.9%	-12.4%	-11.0%	-21.4%	-15.5%	-28.3%
Total Change in Retail Expenditure for Consumers on Quantity Still Purchased (in Billions)	\$ 85.6	\$ 197.6	\$ 179.7	\$ 377.4	\$ 336.7	\$ 653.6	\$ 472.7	\$ 864.7
Change in Average Price for Consumers	\$ 1.24	\$ 2.97	\$ 2.68	\$ 6.05	\$ 5.32	\$ 11.69	\$ 7.86	\$ 16.95

In response to the 300 percent price increases proposed by the President, we estimate that online retail package volume declines of between 16 percent (under the “lower” competitive price response scenario) and 28 percent (under the “higher” competitive price response scenario) compared to what volumes would be without the price increase. As shown in Table 5, the retail volume loss would be less in magnitude under lower price increases, but is material in all scenarios.



Online retail consumers would suffer as a result of these price increases because they would not benefit from consumption of the goods reflected in the reduction of quantity demanded.<sup>142</sup> Consumers would also suffer because they would pay higher prices to consume those online retail goods that they did consume under the elevated package delivery prices. We estimate that for the quantity of online retail goods that consumers would purchase under the prices elevated by 300 percent, consumers would spend between \$95 billion and \$173 billion more per year on these goods than they spent for that volume at current prices.<sup>143</sup> Over a five-year horizon, this additional expenditure by consumers would amount to between about \$473 billion and \$865 billion.

The estimated reduction in quantity demanded decreases profits of online retailers. We estimate that overall online retail profits—for both Small-to-Midsize Retailers and Large Retailers—would decline by between \$6.1 billion and \$11.2 billion per year (or between \$30.7 billion and \$56.2 billion over five years) for a 300 percent price increase.<sup>144</sup> The reduction in profits is incurred more heavily by Small-to-Midsize Retailers than by Large Retailers because, as discussed above, Small-to-Midsize Retailers have fewer means by which to avoid carrier price increases than do Large Retailers. The cost increases to Large Retailers is capped by the increases they would incur by bringing all delivery in-house, at which point they are insulated from further price increase by the USPS or its competitors (and which could actually benefit Large Retailers if they offer delivery to unrelated third parties in competition with the incumbent carriers). Small-to-Midsize Retailer profits are estimated to fall by between \$5.4 billion and \$9.8 billion per year (or between \$26.8 billion to \$49.1 billion over five years).

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<sup>142</sup> To the extent that consumers would instead purchase some of the goods through offline (brick-and-mortar) channels, they would receive the utility from consuming these goods; however, these purchases necessitate additional expenditures by these consumers beyond what they would have to pay under current Postal Service prices.

<sup>143</sup> If  $P$  and  $Q$  are the current retail price and quantity levels and  $P'$  and  $Q'$  are the price and quantity levels in the scenario, this difference is simply  $(P' - P)Q'$ .  $Q'$  is the retail quantity still consumed under the price increase (whereas  $Q - Q'$ ) is the part of the online retail quantity demanded under current prices that would be lost under the elevated prices.

<sup>144</sup> The analysis assumes that under current prices both Small-to-Midsize and Large Retailers earn profits at an average margin of 6.5 percent of their revenue. See after-tax operating margin for Retail(online) at *Margins by Sector (US)*. This margin is multiplied by GMV to estimate current online retail profits. The percentage change in profits is equal to the percentage change in quantity because of the assumption of full passthrough. More generally, the percentage change is calculated as  $\frac{\Delta\pi}{\pi} = \frac{\Delta Q}{Q} + (1 - \phi) \cdot \frac{\Delta C}{P} \cdot \lambda^{-1} \cdot \left(1 + \frac{\Delta Q}{Q}\right)$ , where  $\phi$  is the rate of passthrough,  $\frac{\Delta C}{P}$  is the increase in shipping cost as a percentage of the retail price, and  $\lambda = \frac{P-C}{P}$  is the retailer profit margin as a percentage of retail price.

The estimated decline in retailer profits does not capture the harm to the online retail sector and overall U.S. economy that would arise from the closure of small online businesses previously discussed. If the decline in retail quantity causes a retailer's variable profits from sales to fall below its fixed costs, the retailer's business would be rendered unviable and it would likely shut down. Small retail businesses, because of their smaller scales, are especially likely to be pushed below their minimum viable scale by the contraction in retail demand that the shipping price increases would cause, a phenomenon that we have seen during the general contraction in retail demand during the COVID-19 crisis and the corresponding wave of closures of small businesses. Vendors that sell relatively low-priced goods through platforms such as eBay and Etsy or through their own sites would also likely be particularly hard hit by substantial increases in package delivery prices because, as earlier discussed, shipping costs are a greater portion of the overall price of low-priced products. Were shipping costs to increase substantially, consumers may decide that these goods are not worth buying through online channels. Large increases in shipping costs would reasonably be expected to shut down a large portion of the market in low-price goods and put many boutique online retailers out of business.<sup>145</sup>

## **B. Estimated Effects of Postal Service Price Increases on the Postal Service**

The results for the effect of the proposed price increases on the Postal Service are provided in Table 6.

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<sup>145</sup> In exchange between a retailer and a consumer, the shipping cost is a type of what economists call "transaction costs." That is, it is a cost that—whether borne by the buyer or seller or shared between them—creates a wedge between the price that the consumer pays and the profit that the retailer receives from the exchange. Transaction costs are like a tax on exchange and, just like a tax, if too large relative to the price of good, can shut down exchange in the good completely because of the wedge it creates between price paid and profit received.

Table 6: Estimated Five-Year Impact  
of Postal Service Price Increases on the Postal Service

<b>Scenarios</b>								
<b>Proportional Postal Service Price Change</b>	<b>50%</b>		<b>100%</b>		<b>200%</b>		<b>300%</b>	
<b>Private Carrier Pricing Scenario</b>	<b>Lower</b>	<b>Higher</b>	<b>Lower</b>	<b>Higher</b>	<b>Lower</b>	<b>Higher</b>	<b>Lower</b>	<b>Higher</b>
<b>Proportional Private Carrier Price Change</b>	8.4%	33.4%	27.8%	77.8%	66.7%	166.7%	105.7%	255.7%
<b>Impact on the Postal Service</b>								
<b>Percentage Change in Postal Service Package Volume</b>	-83.6%	-83.8%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%
<b>Change in Postal Service Revenues (in Billions)</b>	\$ (82.6)	\$ (82.8)	\$(109.5)	\$(109.5)	\$(109.5)	\$(109.5)	\$(109.5)	\$(109.5)
<b>Percentage Change in Postal Service Competitive Packages Revenues</b>	-75.4%	-75.7%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%	-100.0%
<b>Percentage Change in Overall Postal Service Revenues</b>	-23.2%	-23.2%	-30.7%	-30.7%	-30.7%	-30.7%	-30.7%	-30.7%
<b>Change in Postal Service Profits (in Billions)</b>	\$ (22.5)	\$ (22.7)	\$ (37.7)	\$ (37.7)	\$ (37.7)	\$ (37.7)	\$ (37.7)	\$ (37.7)

As Table 6 shows, the Postal Service would lose at least 84 percent of its Competitive packages volume in response to the 50 percent price increase and would lose virtually all Competitive package volume under the three higher price increases analyzed.<sup>146</sup>

In terms of revenue, the Postal Service would lose between \$16.5 billion and \$21.9 billion as a result of the lost quantity (or between \$82.6 billion and \$109.5 billion over five years). These declines would constitute declines of between 75.4 percent and 100 percent of the Postal Service's domestic Competitive package revenues and between 23.2 percent and 30.7 percent of overall Postal Service revenues.<sup>147</sup>

<sup>146</sup> In the scenarios where the Postal Service prices increase by 50 percent, the Postal Service retains some package volume because Large Retailers may not insource last-mile deliveries in the least-population-dense tier of areas, as discussed in the previous subsection.

<sup>147</sup> 2019 RPW Report. Revenues from all Postal Service products and services, including Market Dominant products and services, was \$71.3 billion in FY 2019.

The Postal Service would lose approximately 28 percent of its overall profits if it lost all its volume of domestic Competitive package products.<sup>148</sup> Even if the Postal Service increased prices by “only” 50 percent, and therefore lost only 84 percent of its Competitive packages volume, it would still lose 17 percent of its overall profits. Rather than improve the Postal Service’s financial health, increasing the price floors to the levels considered appears to severely exacerbate the Postal Service’s financial challenges.

The loss in Postal Service profits translates into lost postal jobs. As the package delivery business dissolves at the Postal Service, the Postal Service would shed costs as well as revenues. Specifically, the Postal Service would lose 30.7 percent of its total revenues, but would also shed 31.0 percent of its total costs, according to the cost models developed by the Postal Service and vetted by the PRC.<sup>149</sup> Assuming that labor is reduced in proportion to the reduction in all costs, a 31 percent reduction in costs translates into 154,050 lost full-time-equivalent Postal Service jobs.<sup>150</sup> These jobs would not all be picked up the UPS and other beneficiaries in the industry because the total industry volumes would contract as a result of higher prices.

If the Postal Service were to lose its Competitive packages volumes as described above, the only way that it could retain its current overall contribution level would be to raise prices on its Market Dominant products. Specifically, the Postal Service would have to raise prices on Market Dominant products by about 16 percent.<sup>151</sup> However, the Postal Service is not likely able to recoup the lost Competitive contribution through MD price increases for at least two reasons. First, as discussed in Section III.B, the Postal Service’s letter mail services are subject to price caps that would prevent the Postal Service from raising prices on these products enough to cover the loss of contribution from packages. Second, even if there were no legal constraints on MD price increases

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<sup>148</sup> To estimate the effect on Postal Service profits from the loss of revenues, the analysis uses the Postal Service’s published cost estimates and contribution margins. The Postal Service produces a Cost & Revenue Analysis each year and reports the results to the PRC for review. The Cost & Revenue Analysis Report includes data sufficient to calculate contribution margins for Competitive package products.

<sup>149</sup> *2019 Postal Service PCRA Report*. The total attributable costs for the Competitive product categories for which demand is lost is \$13.9 billion and total attributable costs for the Postal Service overall are \$44.9 billion.  $\$13.9 / \$44.9 = 31.0$  percent.

<sup>150</sup> The Postal Service reported having 496,934 full-time employees in 2019. See *2019 Postal Service AR to Congress*, p. 16.  $0.31 * 496,934 = 154,050$ .

<sup>151</sup> One can show algebraically that the necessary price increase on MD products is equal to the ratio of the Competitive products contribution to MD revenues. The 2019 contribution of the Competitive products that would be lost is \$7.3 billion and total MD product revenues were \$45.7 billion.  $\$7.3b / \$45.7b = 16.0$  percent. See *2019 Postal Service PCRA Report*, sheets “Cost2” and “Cost3.”

it is not likely that MD products could generate sufficient revenue to make up the lost contribution from Competitive products. As discussed in Section III.C, MD product demand has seen a long-term decline in demand, which would be exacerbated by substantial price increases.<sup>152</sup>

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<sup>152</sup> The internal demand elasticity estimates developed by the Postal Service and the PRC indicate that demand for MD products is generally price inelastic at their current and historical prices. However, one should be cautious about relying on such estimates in the hope that raising letter mail prices will overcome the loss of packages revenue. Even the exigent price increase in effect from 2013 to 2016 did not reach nearly the level of price increases that would be required to cover the loss of packages revenue. Even if letter price elasticities are reliably estimated from historical data, it would not be valid to extrapolate them to these much larger price increases.

## APPENDIX A: PRIVATE CARRIER PRICE INCREASE CALCULATIONS

To calibrate the degree of private carrier price increases for a given Postal Service price increase, we first find the degree of private carrier increase such that the lowest-prices private carrier matches the elevated Postal Service prices. The “lower” and “higher” scenarios are then calculated based on this “matching” scenario.

To compute the “matching” private carrier price increases, the analysis utilizes the current average prices discussed in Section IV.C for package delivery products. These price levels are \$6.96 for the Postal Service, \$8.94 for UPS, and \$9.66 for FedEx.<sup>153</sup> Under these prices, UPS charges a premium of 28.5 percent relative to the Postal Service and FedEx charges a 38.8 percent premium.

To illustrate how the private carrier price increases for each scenario are determined, consider the scenarios in which the Postal Service price floor is increased to quadruple current Postal Service price levels (a 300 percent increase). When the Postal Service prices increase by 300 percent, the less expensive private carrier, UPS, can increase its prices by 176 percent without its prices exceeding the higher Postal Service prices. Hence, the “matching” scenario assumes that private carriers will raise price by this amount when the Postal Service price floor is increased by 300 percent. The private carrier price increase for the “lower” scenario is then given by the midpoint of no price increase and the “matching” price increase (176 percent) scenarios, or 88.2 percent. The price increase for the “higher” scenario is given by the midpoint of the “matching” price increase (176 percent) and the Postal Service price increase (300 percent), or 238 percent.

The following table provides the “lower,” “matching,” and “higher” private carrier price increases for each Postal Service price increase:

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<sup>153</sup> As discussed in Section IV.C, the Postal Service average is calculated over Priority, First-Class, and Retail Ground products, with a \$2.25 insurance charge added to First-Class and Retail Ground prices. The UPS and FedEx averages are calculated across their Deferred and Ground products. UPS deferred products include 2<sup>nd</sup> Day Air A.M., 2<sup>nd</sup> Day Air and 3 Day Select. FedEx deferred products include 2Day A.M., 2Day and Express Saver. See Ravi Shanker *et al.*, “Freight Transportation: Parcel Industry Primer 4.0,” Morgan Stanley Report, December 18, 2017, p. 12.

Table 7: Private Carrier Price Increase Scenarios

<b>USPS Price Increase</b>	<b>Lower</b>	<b>Matching</b>	<b>Higher</b>
<b>50%</b>	8.4%	16.7%	33.4%
<b>100%</b>	27.8%	55.7%	77.8%
<b>200%</b>	66.7%	133.5%	166.7%
<b>300%</b>	105.7%	211.3%	255.7%

## Appendix B: Product Characteristics of Major U.S. Carriers

Carrier	Product	Accepted weight range	Accepted dimension range	Expected delivery range (in number of business days)	Delivery time guaranteed?	Damage Coverage
USPS	Priority Mail Express	≤ 70 lb	Maximum combined length and girth (girth is the distance around the thickest part) is 108".	2-Jan	Y	\$100 insurance included
USPS	Priority Mail / Priority Mail Express flat rate envelopes	≤ 70 lb	12 1/2" × 9 1/2"	1-2 / 1-3	N / Y	\$50 / \$100 insurance included
USPS	Priority Mail / Priority Mail Express legal flat rate envelope	≤ 70 lb	9 1/2" × 15"	1-2 / 1-3	N / Y	\$50 / \$100 insurance included
USPS	Priority Mail and Priority Mail Express padded flat rate envelope	≤ 70 lb	12 1/2" × 9 1/2"	1-2 / 1-3	N / Y	\$50 / \$100 insurance included
FedEx	FedEx SameDay	≤ 150 lb	up to 65" in length and 120" in length plus girth (length plus width plus height)	0	Y	Liability for not-declared value up to \$100
FedEx	FedEx SameDay City	≤ 150 lb	up to 65" in length and 120" in length plus girth (length plus width plus height)	0	Y	Liability for not-declared value up to \$101
FedEx	FedEx First Overnight	≤ 150 lb	up to 119" in length, 165" in length plus girth (L+2W+2H).	1	Y	Liability for not-declared value up to \$102
FedEx	Priority Overnight	≤ 150 lb	up to 119" in length, 165" in length plus girth (L+2W+2H).	1	Y	Liability for not-declared value up to \$103
FedEx	Standard Overnight	≤ 150 lb	up to 119" in length, 165" in length plus girth (L+2W+2H).	1	Y	Liability for not-declared value up to \$104
UPS	Next Day Air Early	≤ 150 lb	up to 165 inches in length and girth combined; up to 108 inches in length.	1	Y	Liability for not-declared value up to \$105
UPS	Next Day Air	≤ 150 lb	up to 165 inches in length and girth combined; up to 108 inches in length.	1	Y	Liability for not-declared value up to \$106
UPS	Next Day Air Saver	≤ 150 lb	up to 165 inches in length and girth combined; up to 108 inches in length.	1	Y	Liability for not-declared value up to \$107
FedEx	2Day A.M.	≤ 150 lb	up to 119" in length, 165" in length plus girth (L+2W+2H).	2	Y	Liability for not-declared value up to \$108
FedEx	FedEx 2Day	≤ 150 lb	up to 119" in length, 165" in length plus girth (L+2W+2H).	2	Y	Liability for not-declared value up to \$109
FedEx	Express Saver	≤ 150 lb	up to 119" in length, 165" in length plus girth (L+2W+2H).	2	Y	Liability for not-declared value up to \$110
UPS	2nd Day Air A.M.	≤ 150 lb	up to 165 inches in length and girth combined; up to 108 inches in length.	2	Y	Liability for not-declared value up to \$100
UPS	2nd Day Air	≤ 150 lb	up to 165 inches in length and girth combined; up to 108 inches in length.	2	Y	Liability for not-declared value up to \$100
UPS	3 Day Select	≤ 150 lb	up to 165 inches in length and girth combined; up to 108 inches in length.	3	Y	Liability for not-declared value up to \$100
USPS	Priority Mail	≤ 70 lb	Maximum combined length and girth (girth is the distance around the thickest part) is 108".	3-Jan	N	\$50 included



## Appendix B: Product Characteristics of Major U.S. Carriers

Carrier	Product	Accepted weight range	Accepted dimension range	Expected delivery range (in number of business days)	Delivery time guaranteed?	Damage Coverage
USPS	First-Class Mail	≤3.5 oz	All postcards and envelopes (or flats) must be rectangular, otherwise an additional charge may apply. Additional size restrictions apply depending on the type of mail piece you're sending.	3-Jan	N	Not included
USPS	First-Class Package Service	≤ 13 oz	All postcards and envelopes (or flats) must be rectangular, otherwise an additional charge may apply. Additional size restrictions apply depending on the type of mail piece you're sending.	3-Jan	N	Not included
USPS	Priority Mail Small flat rate box	≤ 70 lb	8 5/8" × 5 3/8" × 1 5/8"	3-Jan	N	\$50 included
USPS	Priority mail medium flat rate box	≤ 70 lb	11" × 8 1/2" × 5 1/2" or 13 5/8" × 11 7/8" × 3 3/8"	3-Jan	N	\$50 included
USPS	Priority mail large flat rate box	≤ 70 lb	12" × 12" × 5 1/2" or 23 11/16" × 11 3/4" × 3"	3-Jan	N	\$50 included
USPS	Priority mail APO/FPO/DPO Large Flat Rate Box	≤ 70 lb	12" × 12" × 5 1/2" or 23 11/16" × 11 3/4" × 3"	3-Jan	N	\$50 included
UPS	Ground	≤ 150 lb	up to 165 inches in length and girth combined; up to 108 inches in length.	5-Jan	Y	Liability for not-declared value up to \$100
UPS	Ground with Freight Pricing	≤ 150 lb	up to 165 inches in length and girth combined; up to 108 inches in length.	5-Jan	Y	Liability for not-declared value up to \$101
FedEx	Ground	≤ 150 lb	up to 108" in length, 165" in length plus girth (L+2W+2H).	7-Jan	Y	Liability for not-declared value up to \$102
FedEx	Home delivery	≤ 150 lb	up to 108" in length, 165" in length plus girth (L+2W+2H).	7-Jan	Y	Liability for not-declared value up to \$103
FedEx	SmartPost	≤ 70 lb	130" in length plus girth	7-Feb	N	Liability for not-declared value up to \$104
USPS	Retail ground	≤ 70 lb	up to 130 inches in combined length and girth	8-Feb	N	Not included
USPS	Media mail	≤ 70 lb	Contents limited	8-Feb	N	Not included
FedEx	FedEx One Rate Envelope	≤ 10 lb	9 1/2" × 12 1/2" "	Choose among FedEx services	Y	Liability for not-declared value up to \$104
FedEx	FedEx One Rate Pak	≤ 50 lb	10 1/4" × 12 3/4" or 12" × 15 1/2"	Choose among FedEx services	Y	Liability for not-declared value up to \$105
FedEx	FedEx One Rate Small Box	≤ 50 lb	10 7/8" × 1 1/2" × 12 3/8" or 8 3/4" × 2 5/8" × 11 1/4"	Choose among FedEx services	Y	Liability for not-declared value up to \$106
FedEx	FedEx One Rate Medium Box	≤ 50 lb	11 1/2" × 2 3/8" 13 1/4" or 8 3/4" × 4 3/8" × 11 1/4"	Choose among FedEx services	Y	Liability for not-declared value up to \$107
FedEx	FedEx One Rate Large Box	≤ 50 lb	12 3/8" × 3" × 17 1/2" or 8 3/4" × 7 3/4" × 11 1/4"	Choose among FedEx services	Y	Liability for not-declared value up to \$108
FedEx	FedEx One Rate Extra Large Box	≤ 50 lb	11 7/8" × 10 3/4" × 11" or 15 3/4" × 14 1/8" × 6"	Choose among FedEx services	Y	Liability for not-declared value up to \$109

## Appendix B: Product Characteristics of Major U.S. Carriers

Carrier	Product	Accepted weight range	Accepted dimension range	Expected delivery range (in number of business days)	Delivery time guaranteed?	Damage Coverage
FedEx	FedEx One Rate Tube	≤ 50 lb	6" × 6" × 38"	Choose among FedEx services	Y	Liability for not-declared value up to \$110
UPS	Simple Rate: extra small	≤ 50 lb	1-100 cubic inches	Choose among Ground, 3 Day Select and 2nd Day Air	Y	Liability for not-declared value up to \$100
UPS	Simple Rate: small	≤ 50 lb	101 - 250 cubic inches	Choose among Ground, 3 Day Select and 2nd Day Air	Y	Liability for not-declared value up to \$100
UPS	Simple Rate: medium	≤ 50 lb	251 - 650 cubic inches	Choose among Ground, 3 Day Select and 2nd Day Air	Y	Liability for not-declared value up to \$100
UPS	Simple Rate: large	≤ 50 lb	651 - 1050 cubic inches	Choose among Ground, 3 Day Select and 2nd Day Air	Y	Liability for not-declared value up to \$100
UPS	Simple Rate: extra large	≤ 50 lb	1051 - 1728 cubic inches	Choose among Ground, 3 Day Select and 2nd Day Air	Y	Liability for not-declared value up to \$100

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