The U.S. Postal Service's Increased Focus on Parcel Deliveries and The Impact on Universal Mail Delivery and the Economy

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Executive Summary

The shipping, transport, storage, and delivery industry is an essential part of the economy's infrastructure. The industry contributes more to GDP than the manufacturing of computers, electronic parts, electrical equipment, and appliances. Truck transport alone contributes more to GDP than manufacturing of motor vehicles, bodies, trailers, and parts. Transport and shipping companies are responsible for delivering more than half of wholesale goods and more than one-third of retail goods. It also is the only industry in which private companies compete with a federal enterprise endowed with special rights and subsidies, the U.S. Postal Service (USPS).

This study examines USPS's increasing focus on its parcel delivery business, especially with the growth of e-commerce, its use of cross-subsidies from its mail monopoly to support that business, and the impact on universal mail service during and since the pandemic lockdowns.

With the rise of internet communications and e-commerce, USPS's hybrid operations and revenues have focused less on mail service and increasingly on parcels. From FYs 2010 to 2020,

- USPS mail volume declined from 169.2 billion to 121.8 billion pieces or 30.0%, as the volume of parcels it delivered rose from 1.4 billion to 7.3 billion units or 415.7%.

- USPS mail revenues declined from $57.7 billion to $44.6 billion or 22.7%, as its parcel-delivery revenues rose from $8.7 billion to $28.5 billion or 228.9%.

- USPS mail deliveries by weight declined from 17.8 billion pounds to 10.2 billion pounds or 42.6%, as the weight of its parcel deliveries rose from 3.1 billion pounds to 15.9 billion pounds or 413.6%.

USPS's growing share of the parcel delivery market does not reflect its competitive capacities.

- From 1987 to 2018, USPS unit labor costs grew 2.9% per-year with productivity gains averaging 0.4% per-year. Over the same years, the unit labor costs of the subindustries comprising the transport, shipping, delivery, and warehouse industry grew an average of 0.4% per-year with productivity gains averaging 2.4% per-year.

Given those conditions, USPS has been able to compete in the parcel market by leveraging its privileges and subsidies from universal mail service – tax exemptions, Treasury loans, its mailbox monopoly – and by using its nationwide network of facilities, equipment, personnel, and vehicles for mail delivery, financed by postal rates, to support its parcel business.

- These public subsidies and supports enable USPS to charge less than more productive private shipping companies with lower unit labor costs for all types of shipping services.

- Those private companies also provide half of USPS's parcel business by volume: Along with publicly subsidized fees, USPS's nationwide network reaching every residence and business, created for mail service, provides such a competitive advantage that those companies use USPS Parcel Select service for last-mile, local deliveries.

- USPS is directed to account for its parcel business's use of its institutional resources for mail delivery, but USPS and the Postal Regulatory Commission (PRC) claim that parcel operations generating 30.8% of USPS revenues over the last five years – 39.0% in 2020 – are required to bear only 8.8% of those institutional costs.

- The parcel division's actual contribution to institutional costs has at times exceeded 8.8% but has never approached its actual use of USPS institutional resources based on its share of USPS revenues, volume, or weight.

In FY 2020, the fast-rising volume of parcels deliveries during the pandemic and USPS's continuing drive for market share overwhelmed its mission of universal mail service by mid-2020.

- USPS reports that from FYs 2016 to 2019, 92.5% of First-Class mail was delivered on-time; in 2020, despite a 14.5 billion or 10.7% decline in USPS mail volume from FY 2019, on-time deliveries of First-Class mail fell to 89.7%.

- Using weekly data, on-time First-Class mail deliveries fell to 84.8% from July 17, 2020 to Dec. 3, 2020 and to 73.7% from Dec. 4, 2020 to March 10, 2021. From October through December 2020, on-time First-Class mail delivery mail fell to 85.0% for local mail, 78.3% for non-local mail, 82.0% for presorted local mail, and 54.8% for presorted non-local mail.

- Average First-Class mail delivery times rose from 2.0 days in 2014 to 2.5 days in 2020, and USPS has proposed new standards that will raise average delivery times to 3 days in 2022.

This declining on-time performance cannot be explained by the pandemic since the patterns do not correspond to waves of Covid-19 infections, nor by mail-in voting for the 2020 election since on-time deliveries fell most sharply after the election. They also cannot be explained by a lack of resources: While USPS mail revenues declined $3.8 billion in FY 2020, its parcel revenues increased $5.8 billion, and Congress provided a $10 billion emergency loan that it later forgave.

- The decline in on-time mail deliveries reflects USPS's current business model: Use the resources needed to compete against private parcel delivery firms, and grow market share, notwithstanding the impact on universal mail service.

- Econometric analysis confirms this conclusion: Using data from the 73 postal districts, we find that increases in USPS operating costs and parcel volumes were associated strongly with falling on-time deliveries for First-Class mail, before the pandemic and during it.

A public enterprise competing against private companies with extensive government supports also damages the market by reducing private companies' incentives to invest and innovate.

Congress can restore well-functioning universal mail service and revitalize the critical parcel shipping and delivery industry by ending USPS's use of cross-subsidies.

- Congress should direct the PRC and USPS to set postal rates to cover postal costs or appropriate the funds necessary to restore universal, on-time mail service – and bar any use of appropriations to support USPS's parcel delivery operations in any way.

- To roll back and unravel the cross-subsidies, Congress should pursue the established strategies for preventing monopolies from leveraging their exclusive resources: Authorize the Federal Trade Commission (FTC) to scrutinize USPS's books to ensure that its parcel delivery charges reflect the full costs to deliver those parcels, and direct the FTC to ensure that private delivery companies have fair access to USPS last-mile services at the same cost and on the same terms as USPS for its own local deliveries.

The U.S. Postal Service's Increased Focus on Parcel Deliveries and The Impact on Universal Mail Delivery and the Economy[1]

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I. Introduction

The companies and networks that transport and deliver goods from one business to another and from businesses to consumers form part of the nation's basic economic infrastructure. Transport companies deliver countless inputs for producers of all goods and deliver the finished products to businesses and consumers. Service companies also depend on these transport and delivery networks for the technologies and other inputs needed to produce and sell their services. As an integral part of our economy's infrastructure, the operations of the transport and delivery industry directly affect the growth and productivity of every industry.

Yet, these transport and delivery companies comprise the only industry in which private firms compete directly with a federal enterprise endowed with special rights and subsidies, the United States Postal Service (USPS). Under its mission to provide universal mail service, USPS has a virtual monopoly of the transport and delivery of First-Class Mail, marketing mail, and periodicals. To carry out this mission, Congress grants USPS special exemptions from most local, state, and federal taxes, special access to lending from the U.S. Treasury, an exclusive right to use residential and office mailboxes, and other privileges and subsidies. In addition to providing this public service, USPS competes directly with private companies such as FedEx, UPS, and DHL for the business of transporting and delivering parcels, including first-class package services, retail ground package service, Parcel Select service, priority mail, and priority mail express.

This expansion into competitive parcel deliveries followed the 2003 recommendation by the President's Commission on the U.S. Postal Service in 2003, based on the stated condition that "a greater reliance on a thriving private postal marketplace can occur without sacrificing universal, affordable access to essential postal services."[2] In practice, USPS draws on its special privileges and subsidies and its nationwide network of facilities, equipment, personnel, and vehicles financed by postage rates to compete for parcel deliveries. As a result, it has skewed the competitive market for transporting packages in favor of the USPS. Moreover, as its focus on parcels increased sharply recently, "essential postal services" have deteriorated.

For decades, USPS's "market dominant" mail operations have been relatively inefficient, a weakness typical of monopoly enterprises. The Bureau of Labor Statistics (BLS) reports that from 1987 to 2018, USPS productivity gains averaged 0.4 percent per year compared to 2.4 percent per year for the subindustries that comprise the private parcel transport and delivery industry (air transport, line haul railroad transport, general freight trucking, and general warehousing and storage).[3] Further, the most recent data show that the productivity of the USPS

[1] We gratefully acknowledge the support for the research for this study provided by United Parcel Service of America, Inc. The analysis and conclusions are solely those of the authors.
[2] President's Commission on the United States Postal service (2003).
[3] Bureau of Labor Statistics (2020).

actually fell 2.7 percent in 2019, while the constituent private industries increased their productivity an average of 1.7 percent.[4]

Despite USPS's inefficient performance, its parcel and expedited mail delivery business has expanded dramatically while its mail deliveries have contracted. Its success in a highly competitive market has rested on its managed pricing flexibility: Drawing on the special privileges, subsidies and resources for public mail delivery, USPS is able to underprice its competitors in parcel deliveries despite its relative inefficiency. Economists call this phenomenon monopoly cross-subsidization. Moreover, by being able to undercut its competitors, USPS's hybrid operations impair the efficiency and investment rates of the parcel transport and delivery industry and, as such, create a drag on the economy's private infrastructure.

Several recent developments have enhanced the significance of these developments. First, the increased use of internet communication and payment systems has eroded the USPS's monopoly market in mail deliveries. At the same time, burgeoning e-commerce has expanded the competitive market for parcel deliveries. In response, USPS has steadily expanded and shifted its focus from mail to parcels over the past decade. From 2010 to 2015, the volume of USPS mail declined by 19.4 billion pieces or 11.5 percent, and its revenues from mail deliveries fell $3.9 billion or 6.8 percent. These trends continued from 2015 to 2019 as the volume of USPS mail fell from 149.8 billion to 136.4 billion units, down by 13.4 billion pieces or 8.9 percent, and the volume of parcels delivered by USPS jumped from 4.5 billion to 6.2 billion units, an increase of more than 1.6 billion parcels or 35.8 percent. (Table 1 below)

The 2020 pandemic lockdowns intensified the underlying developments, and USPS operations doubled down on deemphasizing mail in favor of parcels. USPS operations shifted by nearly as much in 2020 as over as the preceding five years: The volume of USPS mail declined by more than 15.5 billion pieces or 10.7 percent, and the volume of USPS parcels delivered jumped an additional 1.2 billion units or 18.8 percent.

Table 1: USPS Volume, Revenues, and Annual Change, Market Dominant Mail Services and Competitive Parcel Services, FY 2010 and FY 2015–FY 2020 (millions)[5]

	Volume (Units)				Revenues			
	Mail	Change	Parcels	Change	Mail	Change	Parcels	Change
2010	169,154	- 3.7%	1,420	+ 2.8%	$57,660	-3.6%	$8,677	+6.7%
2015	149,782	- 1.0%	4,539	+13.1%	$53,729	- 0.5%	$15,061	+ 9.6%
2016	149,183	- 0.4%	5,159	+ 13.7%	$54,002	+ 0.5%	$17,427	+15.7%
2017	143,743	- 3.6%	5,748	+11.4%	$50,112	- 7.1%	$19,481	+11.8%
2018	140,253	- 2.4%	6,149	+ 7.0%	$49,155	- 1.9%	$21,467	+ 10.2%
2019	136,397	- 2.7%	6,165	+0.3%	$48,353	- 1.6%	$22,783	+ 6.1%
2020	121,848	- 10.7%	7,323	+18.8%	$44,586	- 7.8%	$28,537	+ 25.3%
2010 to 2020	- 30.0%		+ 415.7%		- 22.7%		+ 228.9%	
2015 to 2020	- 18.6%		+ 61.3%		- 17.0%		+ 89.5%	

[4] Bureau of Labor Statistics (2021).

[5] U.S. Postal Service (2020); U.S. Postal Service (2017); U.S. Postal Service (2014).

These shifts in the volume of USPS mail and parcel deliveries altered USPS's revenues streams and thereby its basic business model. From 2015 to 2019, USPS revenues from mail deliveries fell $5.4 billion or 10.0 percent while revenues from parcel deliveries jumped $7.7 billion or 51.3 percent. As the pandemic spread in 2020, USPS revenues from mail deliveries declined an additional $3.8 billion or 7.8 percent while revenues from parcel deliveries increased an additional $5.8 billion or 25.3 percent.

A parallel development is evident in the shifts in the annual weights of USPS mail and parcel deliveries. (Table 2, below) From 2015 to 2019, USPS mail deliveries by weight declined steadily, all told by 2.0 billion pounds or 14.7 percent, while parcel deliveries by weight increased steadily, all told by 1.8 billion pounds or 62.4 percent. As the pandemic spread in 2020, USPS mail deliveries by weight fell another 1.7 billion pounds or 14.0 percent while parcel deliveries by weight grew by another 3.3 billion pounds or 26.2 percent.

Table 2: Weight of USPS Deliveries (Million Pounds), Market Dominant Mail Services and Competitive Parcel Services, Annual Levels, Changes and Shares, FY 2010 and FY 2015–FY 2020[6]

	Total	Mail	Change	Share	Parcels	Change	Share
2010	17,730	15,988	- 0.9%	90.2%	1,742	- 7.0%	9.8%
2015	21,639	13,900	- 13.1%	64.2%	7,739	+ 344.3%	35.8%
2016	23,151	13,692	- 1.5%	59.1%	9,454	+ 22.2%	40.9%
2017	23,956	12,998	- 5.1%	54.3%	10,958	+ 15.9%	45.7%
2018	24.766	12,648	- 2.7%	51.1%	12,118	+ 10.6%	48.9%
2019	24,427	11,859	- 6.2%	48,5%	12,568	+ 3.7%	51.5%
2020	26,053	10,194	- 14.0%	39.1%	15,859	+ 26.2%	60.9%
2010 to 2020	--	- 5,794	- 36.2%	- 56.7%	14,117	+ 810.4%	+ 521.4%
2015 to 2020	--	-- 3,706	- 26.7%	- 39.1%	8,120	+ 466.1%	+ 70.1%

Nearly half of USPS's fast-growing parcel delivery business by volume has come from private delivery companies that compete with the USPS. To provide universal mail service, USPS built out an extensive nationwide network of facilities, equipment, personnel, and vehicles. This network reaches every business and residence, and many private delivery companies pay USPS for "last mile" or local delivery of parcels that those companies transported from one city or state to another city or state, through USPS's Parcel Select service or negotiated special contracts. As a result, USPS delivers millions of packages for its competitors on a daily basis

USPS parcel volume and revenues derived from these last mile services first rose sharply in 2012 and 2013 and by 2015 accounted for 47.4 percent of USPS parcel deliveries. Since 2015, nearly half of all USPS shipping volume has continued to come from last mile services for private transport companies. As a result, the role of these services in USPS revenues has increased with the overall volume of its parcel deliveries. In 2015, these local delivery services accounted for $3.3 billion or 21.9 percent of all USPS parcel delivery revenues. Those revenues more than

[6] U.S. P344.3%ostal Service (2020); U.S. Postal Service (2017); U.S. Postal Service (2014); U.S. Postal Service (2011).

doubled to $6.76 billion by 2019; and in 2020, they reached $8.7 billion or 30.4 percent of all USPS parcel-delivery revenues.

USPS has actively promoted these developments by raising mail rates and undercutting its competitors' fees for package deliveries. From 2011 to 2020, the USPS raised first-class mail rates for letters of up to one ounce on five occasions, from 44-cents to 55-cents or by 20 percent. Based on the deterioration in USPS's on-time performance of mail deliveries, even with a declining volume of mail to be delivered, it is apparent that additional resources did not go to new technologies and organizational changes that enhanced USPS productivity or efficiency. However, additional resources were needed to support USPS below-market fees for its parcel deliveries, which in turn drove the large increases in the volume and revenues from USPS parcel deliveries. The USPS has been able to charge less than its major competitors despite higher labor costs and long-term lower productivity growth only through its use of monopoly cross-subsidies.

The prices charged by USPS and its private competitors for parcel shipping and deliveries vary based on size, weight, distance, and service features. Table 3 below presents the fees charged by USPS, FedEx, and UPS in September 2020 for five major services, as calculated by one of several online comparisons.[7] In 2020, USPS charged 27.1 percent less under flat rate shipping to transport and deliver a small box than the average charge by FedEx and UPS, 5.2 percent less to ship and deliver a medium box than the average for its two major competitors, and 8.6 percent less to ship and deliver a large box than the average for those competitors.[8] USPS also charges less than its rivals for overnight shipping: Overnight delivery of a two-pound package from Brooklyn to Miami, for example, costs 24.0 percent less by USPS Priority Mail Express than the lowest charge by its rival. Similarly, USPS charges 7.0 percent less to transport and deliver a one-pound parcel by ground shipping than the average for FedEx and UPS. Moreover, USPS's subsidized parcel delivery rates dilute incentives for private shipping and delivery companies to invest more and develop new technologies and approaches for shipping most goods in the American economy.

Table 3: Domestic Parcel Delivery Rates: USPS, FedEx, and UPS, 2020

	USPS	FedEx/UPS Average	FedEx	UPS
Small Box	$7.65	$10.50	$9.50	$11.50
Medium Box	$13.20	$13.93	$12.35	$15.50
Large Box	$18.30	$20.03	$19.05	$21.00
Ground Service (1 lb.)	$7.35	$7.90	$8.23	$7.57
Overnight (2 lb., NY to Miami)	$46.20	$110.84	$106.94	$114.74

In a well-functioning market, an enterprise with lower productivity and higher labor costs cannot underprice its rivals to gain market share without incurring large losses. Yet, that is precisely what has happened in parcel deliveries. As noted, USPS's annual productivity gains averaged one-sixth those of its commercial competitors from 1987 to 2018; and over that period, USPS's unit labor costs increased an average of rate of 2.9 percent per-year compared to 1.6

[7] Easyship.com (2020).
[8] Easyship (2020).

percent per-year for private companies in the industries that comprise the sector. Nevertheless, USPS's revenues from parcel deliveries grew faster than its major competitors in nine of ten years from FY 2008 to FY 2017. USPS's share of the combined parcel-delivery revenues of the three major players – USPS, FedEx, and UPS – jumped from 1.75 percent in 2010 to 12.4 percent in 2015 and 15.6 percent in 2020.

Given USPS's consistently lower productivity growth compared to the private parcel delivery industry, its use of cross subsidies to lower its parcel delivery fees may be its only way to compete at all for those deliveries. In addition, one of the USPS's special monopoly privileges raises its competitors' operating costs and fees, since under its mailbox monopoly, USPS can leave parcels (along with mail) in people's curbside mailboxes and central mailrooms of office buildings and apartment houses while private delivery companies must leave their parcels at each customer's door. The United States is the only country in the world that still maintains such a mailbox monopoly for its postal system.

The USPS also can offer artificially low prices because its public status insulates it from the normal market discipline that its competitors face. As a government enterprise, the USPS not only feels no pressure to maximize profits, it also is wholly insulated from takeover threats, the judgments of financial markets in response to its large annual losses, and antitrust investigations in response to the cross subsidies.[9]

Strictly speaking, USPS is legally required to charge its parcel delivery division for its cross-subsidy use of USPS's network assets. In practice, the requirement has little effect. As we will see, USPS systematically undervalues their contribution to its parcel deliveries.[10] Even if USPS accounted accurately for the value of the network resources used by its parcel delivery segment and transferred the corresponding funds to its mail delivery division, it would not reduce the adverse effects of the cross-subsidies. Funds transferred from the parcel delivery division are deposited in a special U.S. Treasury account that the USPS can draw on for any purpose.

Until recently, the USPS managed to maintain an excellent record for on-time First-Class mail deliveries, despite its monopoly status and congressional requirements and restrictions. In 2019, 92.5 percent of first-class mail was delivered "on time," defined by the PRC as within two days for local mail and three-to-five days for non-local mail. The key to that record was over-resourcing: USPS has maintained sufficient personnel, facilities, equipment, and vehicles to perform its public service mission despite its productivity record. This strategy is evident in USPS's hiring practices for the December holidays when parcel delivery demand spikes. In 2016, for example, UPS hired an additional 95,000 seasonal employees to deal with holiday deliveries of some 700 million packages, and FedEx took on 50,000 short-term employees to help handle an estimated 385 million holiday deliveries. Yet, USPS had to hire just 35,000 seasonal employees to help deliver an estimated 750 million packages for the holiday season.[11] For the rest of the year, USPS has used its the surplus labor force and network to both support on-time mail delivery and create a competitive advantage in parcel deliveries.

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[9] Sappington and Sidak (2003).

[10] Shapiro (2018).

[11] Linder (2016).

In 2020, USPS's drive for market share and the fast-rising volume of parcels for delivery overwhelmed this strategy. Using USPS's on-time service standard of two days for local First-Class mail and three days for non-local First-Class mail, USPS data show that First-Class on-time mail deliveries fell from 92.5 percent in 2019 to 86.3 percent in 2020, despite a 14.1 billion decline in the volume of mail. The declining quality of mail deliveries worsened in the second half of 2020 even as lockdowns eased: Compared to the second half of 2019, on-time deliveries of First-Class mail dropped from 92.2 percent to 83.1 percent, despite a 7.8 percent decline in volume. USPS's support for its parcel delivery business has resulted in deteriorating mail service.

The current USPS leadership has embraced the downgrading of universal mail service. In April 2021, USPS proposed new service standards for First-Class mail: It asked the PRC for its official advisory opinion on USPS plans to downgrade the current 2-day and 3-day standards to 2-day, 3-day, 4-day, and 5-day standards.[12] USPS projects that this change will increase the average delivery time for First-Class mail from 2.5 days in 2020 to 3 days in 2022.

We also applied regression analysis to further explore this conclusion. We updated and modified an earlier econometric analysis that had found that higher operating expenses and parcel volume each had a statistically significant relationship with declining on-time deliveries from FY 2011 to FY 2016.[13] We used data from the 73 postal districts to model changes in USPS parcel volumes and USPS operating costs from FY 2014-Q1 to FY 2021-Q1. We found that increases in those volumes and costs each were strongly associated statistically with declining on-time deliveries for both local and non-local First-Class mail. These findings were not an artifact of the pandemic. The results held for the time period up to the pandemic and also when the 2020 data were included: During the pandemic, USPS doubled down on its support for parcel deliveries and allowed universal mail service to further deteriorate.

USPS does not publicly disclose its on-time performance record for parcel deliveries; but its monopoly division also includes some special package delivery services, and those on-time deliveries declined much less than mail. The USPS package services provided by its monopoly division include deliveries to rural Alaskan communities (the Alaska Bypass Service) and deliveries of media mail (books, other bound printed materials, CDs, and DVDs) and educational and research materials to zoos, libraries, universities, other research institutions. Compared to the second half of 2019, on-time delivery of those packages over those six months declined by just 1.5 percentage points, from 87.3 percent to 85.8 percent. Further, a recent analysis of package delivery data by a private logistics company found that USPS's on-time performance in parcel deliveries during the pandemic by its competitive division far outpaced its recent record for mail deliveries, at 90.0 percent in June 2020, 91.7 percent in March 2021, and 96.1 percent in June 2021 for parcels.[14] By contrast, a recent GAO analysis found that only 87 percent of first-class mail was delivered on time in 2020.[15]

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[12] Postal Regulatory Commission (2021). Currently, 4-day and 5-day service standards are limited to mail to or from locations outside of the contiguous 48-states, which represents less than 1 percent of 3-to-5-day mail volume.

[13] Cigno and Namoro (2018)

[14] Brunson (2021); Berman (2021).

[15] General Accounting Office (2021).

Congress and the administration could address the worsening deficiencies of the USPS's current hybrid structure. To start, Congress once again can treat universal mail delivery as a public service, not a business, by providing the appropriations needed to ensure on-time mail delivery at current mail rates. Congress took a tentative step in that direction in March 2020 when it provided the USPS a $10 billion emergency loan and then turned it into an appropriation by forgiving the loan in December 2020. But its declining on-time deliveries of mail suggest that the funds were used mainly to support parcel deliveries. Congress should condition future appropriations or loans on strict reforms that end the USPS cross-subsidies that artificially disadvantage its competitors. For example, Congress could end USPS's exclusive access to mailboxes, which serves no purpose other than to raise its competitors' costs. Congress also could partly offset any future appropriations by stipulating that income tax on profits from USPS parcel deliveries go to the Treasury instead of USPS's account there and allow USPS to close underused post offices and end subsidized mailing rates for advertising materials.

A more difficult task for Congress and the administration will involve ending USPS's ability to draw on its institutional mail delivery resources to subsidize parcel deliveries and do so without disabling its last-mile services on which the private shipping industry also now depends. First, federal regulators can be authorized to scrutinize USPS's books to ensure that its parcel delivery fees reflect the full costs of delivering those parcels. For last-mile delivery, Congress could consider applying regulatory principles used on the AT&T case in the early 1980s. Like USPS today, AT&T had leveraged its monopoly on local telephone service and control over the interconnections between local telephone companies and long-distance carriers to enable AT&T to dominate the competition in long-distance service. MCI, GTE, and other companies could not compete effectively for customers until the Justice Department's suit against AT&T over creating an illegal and unfair constraint on trade was resolved. After years of litigation, AT&T agreed to divest itself of its local Bell Operating Companies and give its competitors full access to its interconnection facilities at the same cost and terms as AT&T.

Congress could direct USPS to sell or end its parcel delivery operations, but that approach would unnecessarily disrupt local parcel deliveries. However, the AT&T model also provides a less drastic approach to establish a level playing field for parcel deliveries, one that also could preserve USPS's extensive network that provides private shipping companies local delivery services for rural and many other areas.[16] Under this approach, USPS would retain its parcel shipping operation, and federal regulators would ensure that competitors have access to its last-mile network at the same cost, terms, and conditions as USPS itself. This approach would obviate most of ways in which USPS cross-subsidizes its parcel delivery business since any savings from them would equally benefits its competitors. It also would follow the guidelines set out by the National Association of Regulated Utility Commissioners (NARUC) for allocating costs between the operations of regulated utilities and their unregulated affiliates. [17]

[16] U.S. Postal Service (2021).
[17] National Association of Regulated Utility Commissioners (2010).

II. The Role of the Parcel Transport and Delivery Industry in the Economy

The anticompetitive impact on the private shipping and delivery industry associated with USPS's cross-subsidization is significant because the industry's efficiency and development directly affect much of the economy. To begin, the industry itself is large: In 2019, air, rail, water, and truck transport – including transporting people as well as goods – generated $382 billion in value-added to U.S. GDP, more than the combined value-added of all computer and electronic parts manufacturing and all electrical equipment, appliances and components manufacturing.[18] (Table 4 below) The $175 billion in value-added generated by the truck transport industry alone in 2019 was greater than the value-added provided by the manufacture of motor vehicles, bodies, trailers, and parts.[19]

Table 4: Value-Added and Gross Output of Transport and Warehouse/Storage Industries, 2016-2020 ($ billions)

Industry	2016	2017	2018	2019	2020
	Value Added				
Truck Transport	$148.7	$156.1	$166.9	$175.0	$168.3
Air, Rail, Water Transport	$182.5	$187.7	$197.4	$207.0	$110.0
Warehousing & Storage	$58.0	$62.3	$70.5	$75.0	$82.6
Total	$389.2	$406.1	$434.8	$457.0	$360.9
	Gross Output				
Truck Transport	$327.5	$349.2	$379.2	$389.7	$365.7
Air, Rail, Water Transport	$330.8	$348.6	$376.4	$391.3	$216.4
Warehousing & Storage	$126.5	$133.1	$139.2	$144.5	$146.5
Total	$784.8	$830.9	$894.8	$925.5	$728.6

Analysis of gross output also shows the import of the private shipping and delivery industry. In 2019, air, rail, water, and truck transport had combined gross output of $781 billion, comparable to all manufacturing of motor vehicles, bodies, trailers, and parts. Similarly, the truck transport industry alone generated nearly $390 billion in gross output in 2019, comparable to all legal services or all computer and electronics manufacturing. Including warehousing and storage with shipping and transport, the combined value-added of $457 billion and gross output of $925.5 billion in 2019 were comparable to all broadcasting and telecommunications companies.

2020 was an anomalous year for the industry, because pandemic lockdowns and travel restrictions sharply reduced the value-added and gross from transporting people: The value-added from air, rail and water transport fell 46.9 percent to $110.0 billion. However, truck transport involves only freight, and its value-added declined just 3.8 percent to $168.3 billion in 2020, outpacing the value-added from manufacturers of motor vehicles, bodies, trailers, and parts. Further, the value-added from warehousing and storage increased. Similar changes are evident in the gross output data: The gross output of the air, rail and water transport industries

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[18] Bureau of Economic Analysis (2021).

[19] *Ibid.*

fell 44.7 percent to $216.4 billion in 2020 while gross output by the truck transport industry declined 6.2 percent to $365.7 billion (nearly equal to the gross output of all legal services). Add warehousing and storage and truck transport, and their gross output of $512.2 billion roughly equaled the gross output of data processing, internet publishing and other information services.

These measures do not capture the private transport and delivery industry's role in the economy, because the industry is such an integral part of the infrastructure for all wholesale and retail trade. Wholesale trade connects producers and retailers for goods used by businesses and consumers. Transport and delivery companies are not responsible for shipping and delivering many wholesale goods: Manufacturers and their business customers transport and deliver numerous types of wholesale goods by themselves, including motor vehicles, metals and minerals, lumber and construction materials, petroleum, and many farm and grocery related products. However, commercial shipping companies transport and deliver a large share of other wholesale products, including furniture and home furnishings, professional and commercial equipment and supplies, computer and peripheral equipment, household appliances, apparel, and often paper and paper products, and beer, wine and distilled alcoholic beverages. We estimate that the wholesale goods transported by commercial shippers accounted for 51.1 percent of wholesale trade from 2016 to 2020, including nearly $3 trillion in 2020. (Table 5 below)

Table 5: B2B -- Wholesale Sales and Estimated Wholesale Sales Transported Commercially, 2016-2020 ($ billions)[20]

	All Wholesale Sales	Wholesale Sales Transported Commercially
2016	$5,211.7	$2,718.9
2017	$5,560.8	$2,851.0
2018	$5,937.0	$2,984.3
2019	$5,966.0	$2,966.0
2020	$5,708.1	$2,988.1

Many of the same goods are transported and delivered from wholesalers to retailers for purchases by business customers and consumers. Again, retailers receive and sell many types of goods that have not been transported and delivered by commercial shipping companies. Those retail sales include purchases at gas stations, auto dealers, restaurants and bars, supermarkets, and grocery stores.[21] Other products are usually transported by commercial delivery services or by consumers themselves after in-store purchases. These selected retail goods include purchases at auto parts, furniture, electronics, and appliances stores, building materials stores, clothing and accessories stores, sporting goods, and bookstores, as well as through e-commerce. We estimate that these selected retail goods accounted for 59.8 percent of retail sales from 2016 to 2020,

[20] U.S. Census Bureau (2020). These data cover wholesale merchants except manufacturers' sales branches and offices (to avoid double-counting).

[21] Restaurants and supermarkets relied more on delivery services during the pandemic, but major commercial transport companies generally were not involved.

including 65.6 percent in 2020.[22] There are no data to determine the shares of those retail sales transported by customers. Assuming here that half of those selected retail sales are transported by commercial companies, the transport and delivery firms handled an estimated 33.6 percent of the retail goods sold from 2016 to 2020, including 36.3 percent in 2020.

Table 6: B2C – Retail Sales, Selected Retail, and Estimated Retail Sales Transported Commercially, 2016-2020[23] ($ billions)

	All Retail Sales	Selected Retail Sales	Selected Retail Transported Commercially
2016	$4,853.0	$3,169.5	$1,584.8
2017	$5,053.2	$3,213.6	$1,606.8
2018	$5,396.4	$3,532.1	$1,766.1
2019	$5,452.2	$3,749.5	$1,874.8
2020	$5,638.4	$4,094.7	$2,047.4

E-commerce is at once the fastest-growing part of the digital economy, the fastest-growing segment of retail, and the area of the economy that depends most intensively on commercial transport and delivery. The significance of the digital economy has increased steadily and sharply over the past 20 years, with its value-added growing at an average annual rate of 9.9 percent.[24] The revenues from e-commerce (and mail order houses) have grown even faster: They increased from $113.8 billion in 2000 to $263.5 billion in 2010 and $883.9 billion in 2020, growing at an average annual rate of 33.8 percent.[25] Over the five years from 2016 to 2020, e-commerce and mail order sales jumped 96.9 percent, including a 25.3 percent increase in 2020 alone. As a result, e-commerce's share of all retail sales jumped from 9.2 percent in 2016 to 15.7 percent in 2020; and its share of the selected retail sales typically transported commercially rose from 28.3 percent to 43.2 percent. (Table 7 below) Since e-commerce depends vitally on the services of the private transport and delivery industry, the industry is a truly essential part of the economic infrastructure for the fastest-growing part of the economy.

[22] U.S. Census Bureau (2021).

[23] *Ibid.*

[24] See, for example, Nicholson, Jessica (2020). The BEA reports that from 1998 to 2017, the value-added of the overall economy grew at an average annual rate of 2.3 percent rate. Further, quality-adjusted prices for the digital economy's goods and services declined at an average annual rate of 1.0 percent from 2010 to 2018, while prices rose at an average annual rate of 1.6 percent. All told, the inflation-adjusted gross output of the digital economy grew at an average annual rate of 6.3 percent from 1998 to 2017 compared to 2.1 percent for the U.S. economy. See Barefoot, Curtis, Jolliff, Nicholson, and Omohundro (2019).

[25] U.S. Census Bureau (2021). By comparison, all retail sales grew at a 5.2 percent average annual rate.

Table 7: Selected Retail Sales, E-Commerce Retail Sales, and
E-Commerce Share of Selected Retail Sales, 2016-2020[26] ($ billions)

	E-Commerce Retail Sales	E-Commerce Share of All Retail Sales	E-Commerce Share of Selected Retail Sales	E-Commerce Share of Selected Retail Transported Commercially
2016	$448.8	9.2%	14.2%	28.3%
2017	$551.3	10.9%	17.2%	34.3%
2018	$611.7	11.3%	17.3%	37.5%
2019	$705.5	12.9%	18.8%	37.6%
2020	$883.9	15.7%	21.6%	43.2%

All told, the private transport and delivery industry plays a critical role in the daily operations of wholesale and retail trade and in the development of e-commerce and the digital economy. The USPS practice of cross subsidizing its parcel delivery operations thus could impair the progress of e-commerce and the digital economy in the United States by disincentivizing investments to enhance efficiency and innovation in the private transport and delivery industry.

III. The USPS's Use of Cross-Subsidies

In a Declaration submitted to the PRC in 2018, we provided an analytic estimate of the subsidies that Congress provides USPS to support universal mail delivery and the extent to which USPS has employed them to sustain and expand its competitive parcel delivery operations.[27] Subsidies for universal mail service are necessary and appropriate to offset the costs of certain requirements, including mandated six days per-week residential mail service, discounted mailing rates for periodicals and religious, educational, political, and other non-profit organizations, and restrictions on closing underused post offices. The PRC estimated that two principal subsidies – the monopoly over First-Class mail service and the exclusive right to use mailboxes and mailrooms of office buildings and apartment houses – were worth $3.2 billion in 2019.[28]

Our analysis showed that this estimate was both understated and partial.[29] We found that the USPS's direct subsidies and special privileges were worth $12.9 billion in 2016 and substantially more by 2019.[30] The PRC estimate did not account for the value of several special provisions for USPS, including its exemptions from paying state and local taxes on property and real estate and fees for its vehicles, the value of its ability to borrow from the U.S. Treasury at highly preferential rates, and the value of its right to draw on any federal income tax payments owed on profits from its competitive operations. We also found that its exclusive right to use mailboxes and central mailrooms was worth far more than the PRC calculated.

[26] *Ibid*.
[27] Shapiro (2018).
[28] Postal Regulatory Commission (2021).
[29] However, this subsidy estimate was lower than the PRC's accounting of the costs of the congressional requirements, which it estimated at $4.64 billion. In this way, the PRC could claim that but for those requirements, the USPS would be financially sound. See Postal Regulatory Commission (2021).
[30] Shapiro (2018).

The significance of the special privileges and tax exemptions granted to USPS for universal mail service lies in how USPS uses them to compete for parcel delivery business, given its relatively low productivity compared to its competitors. BLS data document in detail the large disparity over several decades between the productivity gains of USPS and of private companies that carry out similar operations. (See Table 8 below) BLS measured the productivity of the private "transportation and warehousing" industries that correspond broadly to the main operations of the USPS, including air transportation, line-haul railroads, general freight trucking, and general warehousing and storage.[31] From 1987 to 2018, those four industries achieved average annual labor productivity growth of 2.4 percent, or six times the USPS's estimated annual gains of 0.4 percent.[32] Since those estimates, the BLS also found that USPS's productivity declined 2.7 percent in 2019, compared to average gains of 1.7 percent by the four corresponding private industries.[33] These gaps in productivity explain the USPS's need to cross-subsidize its parcel operations in order to compete with private companies.[34]

Table 8: Average Annual Productivity Growth, USPS, and Associated Private Industries, 1987-2018[35]

Industry	Productivity	Output	Hours	Unit Labor Costs
USPS ("Postal Service")	**0.4%**	**- 0.6%**	**- 1.0%**	**2.9%**
Private Parcel Transport and Warehousing Industries				
Air Transport	3.1%	2.8%	- 0.3%	0.9%
Line Haul Railroads	3.5%	1.8%	- 1.6%	- 0.4%
General Freight Trucking	1.1%	2.4%	0.9%	1.2%
General Warehousing and Storage	2.0%	6.7%	4.0%	- 0.1%
Simple Average	**2.4%**	**3.4%**	**0.8%**	**0.4%**

The cross subsidies distort the competitive playing field for the parcel delivery industry. Every private company in the industry must pay local, state, and federal taxes and market interest rates to borrow funds, and those special privileges for the USPS's monopoly mail operations are also used to support its competitive parcel operations. Similarly, while USPS's access to mailboxes and mailrooms for parcels as well as mail is reasonable, denying that access to private parcel delivery companies serves no purpose other than to increase their costs compared to the USPS. By lowering USPS's costs to deliver parcels and raising its competitors' costs, cross subsidies give the USPS a significant advantage that helps explain its fast-growing revenues from parcel deliveries. As a result, USPS parcel revenues grew substantially faster than its competitors from similar services in nine of 10 years from 2008 to 2017. (Table 9 below)

[31] The air and railroad segments transport people as well as goods, but their productivity should be similar.
[32] Bureau of Labor Statistics (2020).
[33] Bureau of Labor Statistics (2021).
[34] These data show that USPS's fast-rising unit labor costs account for much of the productivity differences. The disparities also help explain the USPS's regular rate increases for mail and large operating deficits.
[35] Bureau of Labor Statistics (2020). We do not include "couriers and messengers," because their services correspond more closely to USPS express mail, which is a competitive product.

Table 9. Annual Change in Revenues, USPS Parcel Services and its Competitors, FYs

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
USPS	6.0%	-3.0%	6.7%	3.6%	27.1%	20.3%	11.2%	7.5%	12.6%	11.9%
Competitors	- 2.3%	- 15.1%	-7.1%	5.5%	3.6%	2.4%	3.4%	6.3%	3.5%	5.1%

USPS derives perhaps its largest artificial competitive advantage from its ability to draw on its institutional resources for universal mail service for its parcel operations, since the same facilities, equipment, personnel, and vehicles used to sort, store, ship, and deliver mail are also used for packages. USPS is legally required to transfer the associated savings from its competitive division to its monopoly service, so its package shipping fees should reflect the value derived from those institutional resources. In practice, USPS and PRC consistently underestimate the "appropriate share" of institutional resources to be attributed to the parcel delivery operations. This approach enables the USPS to increase revenues from parcel deliveries by lowering reported costs and to justify charging less than its competitors.

When the PRC first defined this minimum "appropriate share" in 2007, it considered using the competitive division's share of USPS revenues with some adjustments – an approach consistent with financial accounting. Instead, the PRC opted for a single percentage that would be "more easily understood."[36] For 2007, it set the competitive business's minimum share at 5.5 percent of USPS institutional or fixed costs, based on its own assessment of those costs in 2005 and 2006.[37] The PRC formally maintained the 5.5 percent level until 2016, when it increased to a formula that calculated it to be 8.8 percent.[38]

The PRC and USPS do not permit any outside agency or private researchers to examine USPS's detailed cost accounting and thereby verify the minimum 5.5 percent and 8.8 percent appropriate-share calculations. By the principles of financial accounting, however, the 5.5 percent and 8.8 percent appropriate shares estimates are implausible. USPS use of its facilities, equipment, personnel, and vehicles for its competitive operations should generally increase with the growing volume and revenues from its parcel deliveries. Yet, while the share of USPS revenues from its competitive operations jumped from 10.6 percent in 2007 to 24.8 percent in 2016, and those revenues increased from $7.4 billion to $18.5 billion, the official share of USPS institutional costs attributed to those operations remained 5.5 percent. As a result, its payments for the use of USPS institutional resources rose from $1.7 billion to only $2.0 billion.[39]

Since 2016, the PRC has used the minimum 8.8 percent as the appropriate share of institutional costs attributed to USPS's competitive division. Yet, its parcel revenues have continued to rise sharply. Those revenues increased by $10.0 billion or 63.8 percent from 2016 to 2020, raising the competitive division's share of all USPS revenues from 24.8 percent to 39.0

[36] Postal Regulatory Commission (2007).
[37] Postal Regulatory Commission (2008). At Section 3015.7(c).
[38] *Ibid.* On February 8, 2018, the PRC issued a Notice of Proposed Rulemaking proposing a formula for calculating the appropriate share requirement. RM 2017-1. See Postal Regulatory Commission (2018).
[39] Similarly, the competitive division's official share of the costs of USPS institutional resources remained 5.5 percent even as the volume of parcels it delivered increased by 2.9 billion units or 185.7 percent from 2007 to 2016 – and as the volume of mail using those resources fell by 48.4 billion units or 23.9 percent.

percent. Once again, the minimum 8.8 percent contribution share cannot be reconciled with any form of financial accounting.[40] USPS and the PRC do not publicly report the institutional costs associated with USPS's two types of operations, but the pattern is clear: Use a low appropriate-share measure despite the value the parcel division derives from drawing on other subsidies and special privileges created for universal mail delivery, to justify low parcel-delivery prices that expand its market share. In the end, the actual losses generated by the USPS competitive division are simply rolled into the persistent deficits reported for its overall operations.

IV. The USPS Prioritizes Parcel Deliveries Over Universal Mail Service

The USPS's use of cross subsidies for parcel deliveries is consistent with a broader reorientation of its priorities. With the steady decline in mail volume and revenues, including the lowest volume of First-Class mail in 2020 for nearly 50 years, its focus on universal service delivery has waned. Instead, with consumers increasingly turning to e-commerce and the volume of retail-trade parcels rising sharply, USPS has devoted increasing attention and resources to its competitive operations, including resources drawn from its mail services.

The steady, gradual changes in demand for mail and parcel deliveries have produced a dramatic shift in USPS's business model, especially over the last decade. Until quite recently, universal mail delivery was USPS's main business, and its revenues from parcel delivery services were modest. In 2000, First-Class Mail, Priority Mail, Periodical Mail, and Standard Mail generated $57.7 billion in revenues, compared to $2.9 billion from "Package Services" and Express Mail.[41] Those mail services were still in high demand in 2010, generating revenues of $59.2 billion; and USPS parcel services were attracting more customers, generating revenues of $8.7 billion.[42] As a result, while mail revenues remained dominant, the share of revenues from USPS's parcel delivery services increased from 4.8 percent in 2000 to 14.7 percent in 2010.

This trend greatly intensified over the past decade. Revenues from the market dominant mail services which had peaked in 2005 at $62.6 billion and fell to their 2000 levels by 2010, declined by an additional $3.9 billion from 2010 to 2015. Over those five years, USPS revenues from competitive parcel deliveries increased $6.4 billion to $15.1 billion.[43] By 2019, USPS revenues from its mail services had declined to $42.0 billion or by more than one-third, while its revenues from parcel shipping increased more than 50 percent to $22.8 billion.[44] The gap narrowed further in 2020, when USPS revenues from parcel shipping reached $28.5 billion – more than the $23.7 billion from First-Class Mail – and its main mail services brought in $38.6 billion.[45] As a result, the revenue split between USPS's two segments narrowed from 95.2 percent mail

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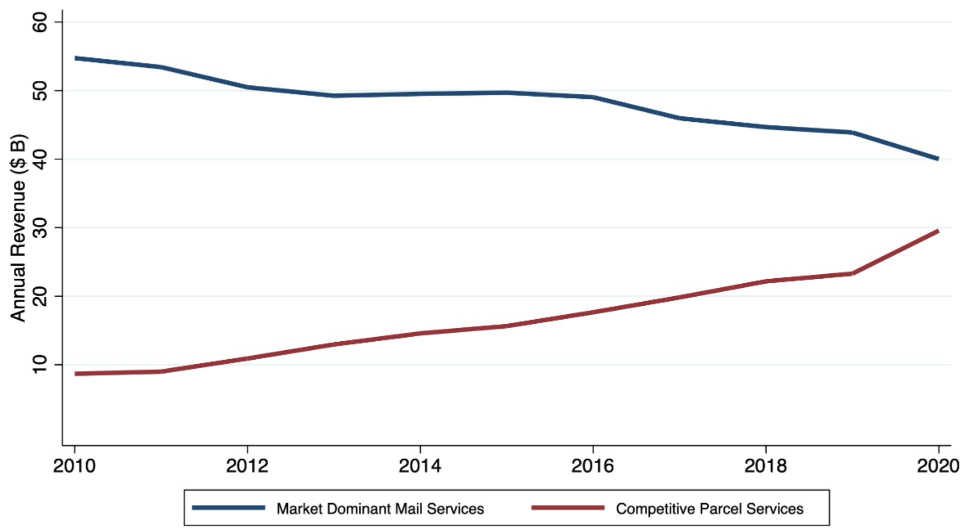
[40] Similarly, the 8.8 percent appropriate share does not reflect the large increases in the volume of parcel deliveries, which rose by 2.6 billion units or 58.5 percent from 2016 to 2020 – and as the volume of mail using institutional resources declined by an additional 25.1 billion pieces or 16.3 percent.
[41] U.S. Postal Service (2003).
[42] U.S. Postal Service (2012).
[43] U.S. Postal Service (2015).
[44] U.S. Postal Service (2020).
[45] *Ibid.*

and 4.8 percent parcels in 2000, and 80.6 percent mail and 19.4 percent parcels in 2015, to 57.5 percent mail and 42.5 percent parcels in 2020.

Figure 1. USPS Revenues, Market Dominant and Competitive Segments, FY 2010 - FY2020



These dramatic shifts in the sources of USPS's revenues changed its basic business model. First-Class Mail has always been USPS's most profitable product on a per-unit basis and a crucial source of resources to subsidize its competitive services. USPS maintained this status and role for First-Class Mail by raising its rates five times from 2010 to 2020, knowing that as a monopoly service, demand for First-Class Mail is relatively insensitive to incremental rate increases. In fact, USPS explicitly incorporated this approach in its most recent strategic plan. The initiatives set out in its 10-year public plans issued in 2021 propose to raise more revenues from parcel deliveries through innovations to enhance and expand those services while raise more revenues from mail deliveries by raising postal rates.[46] Even so, Americans pay much less for mail delivery than people in other countries (Table 10 below): First-Class mail rates in the United States are 28 percent lower than Japan, 45 percent lower than the United Kingdom, 61 percent lower than France, and 88 percent lower than Denmark.

Table 10: Domestic First-Class Mail Rates: U.S., Major European Countries, and Japan, 2020[47]

	US	Japan	Germany	UK	France	Italy	Denmark
Postal Rate	$0.55	$0.76	$0.90	$1.00	$1.40	$1.70	$4.60

The fast-rising use of electronic communications sharply eroded the market for mail deliveries much more than price, and USPS revenues from First-Class Mail fell from $32.1 billion in 2010 to $23.7 billion in 2020. Over the same decade, as the growth of internet retail steadily increased demand for parcel shipping services, USPS used its cross subsidies to underprice its competitors and capture a growing share of that rising demand. During the pandemic lockdowns in the Spring of 2020 (April to June or USPS FY 2020 Q3), USPS revenues from parcel shipping at

[46] U.S. Postal service (2021-B).

[47] Deutsche Post (2020); Japan Post (2021).

$8,826 million matched the revenues from mail deliveries at $8,823 million, for the first time ever.

Based on USPS data on the "cost coverage" for its mail and parcel services, USPS has met the new market conditions with a business model reflecting new priorities. USPS accounting distinguishes the "attributable costs" directly associated with each mail and parcel service from the "institutional costs" for personnel, equipment, facilities, and vehicles used for all USPS services. In USPS accounting, cost coverage represents the revenues generated by each unit of mail or parcels as a percentage of its attributable costs. While the measure does not include the shared institutional costs, the cost coverage margin for a particular service can suggest how profitable it is.

We analyzed USPS's cost coverage margins by service from FY 2015 to FY 2020. We found that while First-Class Mail remains the most profitable service by this measure, its per-unit profitability and that of USPS's other mail services have declined steadily. (Table 11 below) Over the same five years, the cost coverage for USPS parcel services has increased steadily. By 2019, the reported cost coverage margin for USPS 's competitive parcel services, per-unit, exceeded that per-unit margin for all monopoly mail services except First-Class Mail. These trends suggest that parcel services may soon surpass overall mail services in per-unit profitability, as reported by USPS. Based on these dramatic changes, USPS has shifted more resources from universal mail service to its competitive parcel operations, where sales volumes, revenues, and per-unit profits all have risen. As we will see, those changes already have produced a sharp decline in on-time delivery of First-Class Mail.

Table 11: Cost Coverage for USPS Market Dominant and Competitive Services, FY 2015 - FY 2020

	2015	2016	2017	2018	2019	2020
Competitive Parcel Services						
Competitive Services	138.0%	148.2%	149.0%	149.1%	151.7%	-
Market Dominant Services						
Market Dominant Services	-	181.3%	169.5%	166.6%	160.9%	155.5%
Domestic First-Class Mail	-	-	211.1%	211.0%	202.1%	-
Marketing Mail	159.8%	158.3%	146.7%	142.4%	139.1%	129.5%
Periodicals	-	74.0%	69.3%	67.5%	64.0%	56.9%
Package Services	104.9%	102.3%	103.5%	102.6%	96.9%	92.5%

To be sure, these cost-coverage measures substantially overstate the actual profitability of USPS services. The measures do not take account of the cost savings that the mail services derive from their special privileges and subsidies or the savings that parcel services derive from cross subsidies based on those special privileges and subsidies. Equally important, these USPS measures do not account for institutional costs – the facilities, equipment, personnel, and vehicles used to provide a unit of mail or of parcel service. This omission results in overstating the per-unit profitability of the parcel services since, as noted earlier, USPS and the PRC underestimate the share of institutional resources used to provide the parcel services.

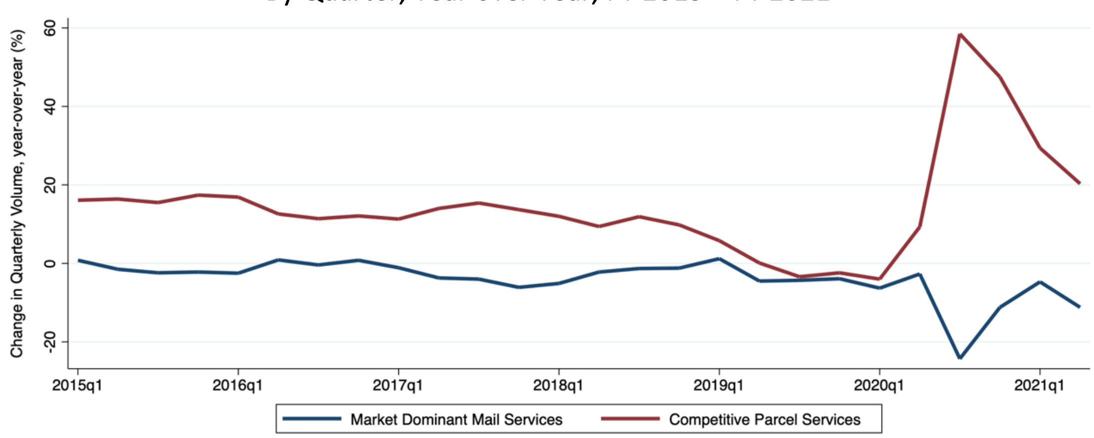
The Impact of the Pandemic on USPS

As noted earlier, the COVID-19 pandemic accelerated the increases in the volume and revenues from USPS parcel deliveries and the declines in the volume and revenues from its mail deliveries.[48] At the same time, on-time deliveries of First-Class Mail declined sharply.

The advantages of e-commerce for people during a pandemic lockdown drove the acceleration in parcel deliveries in 2020. The USPS Inspector General (USPS OIG) reports that the share of Americans with internet connections who ordered goods online at least once monthly jumped 24 percentage points in 2020 to 80.5 percent, after rising just 2.4 percentage points in 2018 and again in 2019.[49] Moreover, the volume of parcels delivered by USPS during the second, third and fourth quarters of 2020 outpaced the growth in e-commerce. Note, again, these data refer to USPS Fiscal Year quarters, so for example, FY 2020 Q2 corresponds to calendar year 2020 Q1 or January through March 2020. The USPS OIG also found that based on surveys, a substantial share of the COVID-19 related spurt in online retail will likely persist after the pandemic, while industry analysts expect the online share of retail to fall sharply from its recent levels.[50]

Both expectations are consistent with recent data on quarterly changes in the volume of USPS mail and parcels delivered, reinforcing the changes in its business model. Figure 2 illustrates that the quarterly growth rate of USPS parcels delivered compared to that quarter a year earlier turned dramatically higher with the pandemic's onset in early 2020. Even as lockdowns waned in the second half of 2020 and parcel delivery growth slowed, that growth still far outpaced any pre-pandemic quarter. While the sharp decline in rate of mail delivered eased late in the year, it remained more negative than any pre-pandemic quarter in recent history.

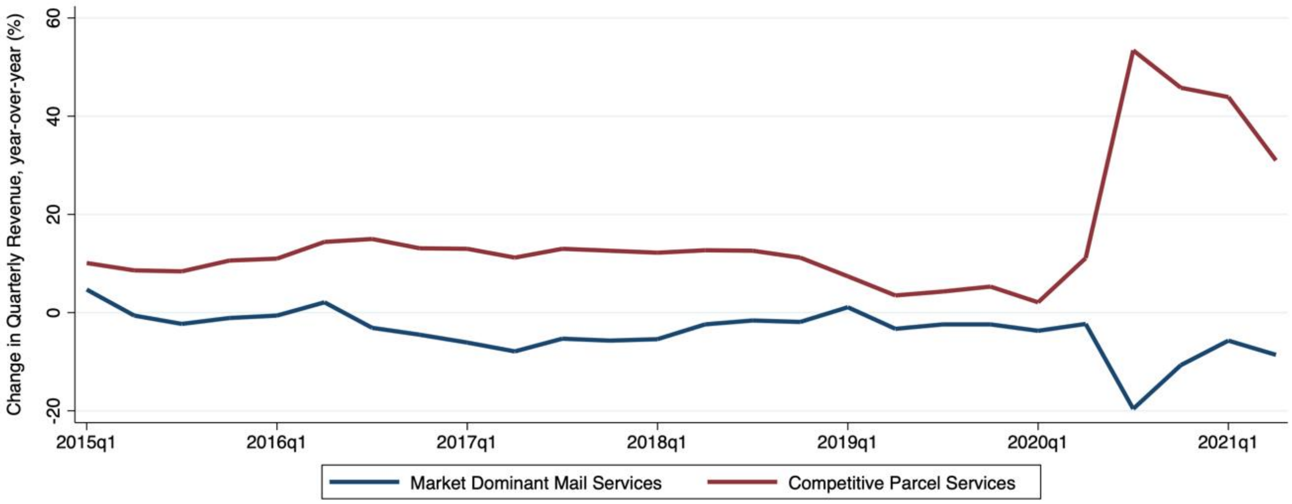
Figure 2. Changes in the Volume of USPS Market Dominant Mail and Competitive Parcel Services, By Quarter, Year over Year, FY 2015 – FY 2021



[48] Accenture (2020). Most of that growth spurt came from households ordering goods online on a weekly basis, which rose 16 percentage points in 2020.
[49] Office of the Inspector General of the U.S. Postal Service (2021-A).
[50] *Ibid*; Buhler (2020).

As expected, the same patterns are evident in the rates of change in USPS revenues from mail and parcel services by quarter, year over year (Figure 3 below).

Figure 3. Changes in Revenues from USPS Market Dominant Mail and Competitive Parcel Services, By Quarter, Year over Year, FY 2015 – FY 2021



The pandemic also brought on new financial pressures for the USPS, especially from the mail operation. USPS OIG has reported that USPS expected to need an additional $744 million from March through September 2020, including $402 million for additional medical leave, $204 million for personal protective equipment, and $124 million for additional transportation costs. In the end, Congress authorized a $10 billion emergency Treasury loan for USPS under the CARES Act, and in December 2020 forgave its repayment.[51] In April 2021, USPS announced it had spent $8.65 billion of the forgiven loan.[52] Moreover, while these pandemic-related needs raised most per-unit costs, the sharp increases in the volume and revenues from parcel deliveries more than offset those additional costs and the financial pressures from falling mail revenues. As noted earlier, while 2020 revenues from mail deliveries fell by nearly $3.8 billion, the subsidized reported revenues from parcel deliveries increased nearly $5.8 billion (Table 1 above). As a result of much higher parcel volume, USPS revenues in FY 2020 exceeded its own projections under its own pandemic scenarios by $2.9 billion to $6.2 billion.[53] On balance, the pandemic did not hurt USPS's bottom line.

The Impact on USPS Performance

The pandemic clearly intensified the existing, longer term trend of steadily declining volume and revenues from USPS mail deliveries. One apparent result has been a sharp decline in on-time deliveries of First-Class Mail, the touchstone of universal mail service, especially since July 2020. This declining performance cannot be explained by a lack of resources, as USPS's increased revenues from parcel deliveries far outpaced the decreased revenues from mail

[51] Consolidated Appropriations Act Text (2020).
[52] U.S. Postal Service (2021-C)
[53] U.S. Postal Service (2021-B).

deliveries, and the additional funding from Congress far outpaced USPS's expectations of additional costs.

The USPS defines on-time delivery as one-to-two days for local mail and three-to-five days for non-local mail. According to USPS, the share of First-Class Mail delivered on-time averaged 92.5 percent from FY 2016 to FY 2019 and declined to 89.7 percent in FY 2020.[54] (Again, FY 2020 covers October 2019 to September 2020.) However, a week-by-week analysis of on-time First-Class Mail deliveries from the onset of the pandemic in March 2020 through March 2021 shows a much more serious deterioration. Compared to 2019, the decline in on-time deliveries of First-Class Mail began in July 2020, worsened through November, deteriorated further from December to mid-March of 2021, and then partly recovered from mid-March to early April. (Table 12 below) The lowest point occurred during the holiday period covering the last two weeks of December 2020 and the first week of January 2021. Mail deliveries usually slow somewhat over those weeks, and the share of First-Class Mail delivered on-time a year earlier dipped to 89.0 percent. However, USPS data show that the holiday decline in on-time performance was much more extreme in late 2020 and early 2021, with on-time deliveries of First-Class Mail decreasing to 64.9 percent. (Table 11 below)

Table 12: Share of First-Class Mail Delivered On-Time by USPS
Averages Based on Weekly Data, March 2019 to April 2021

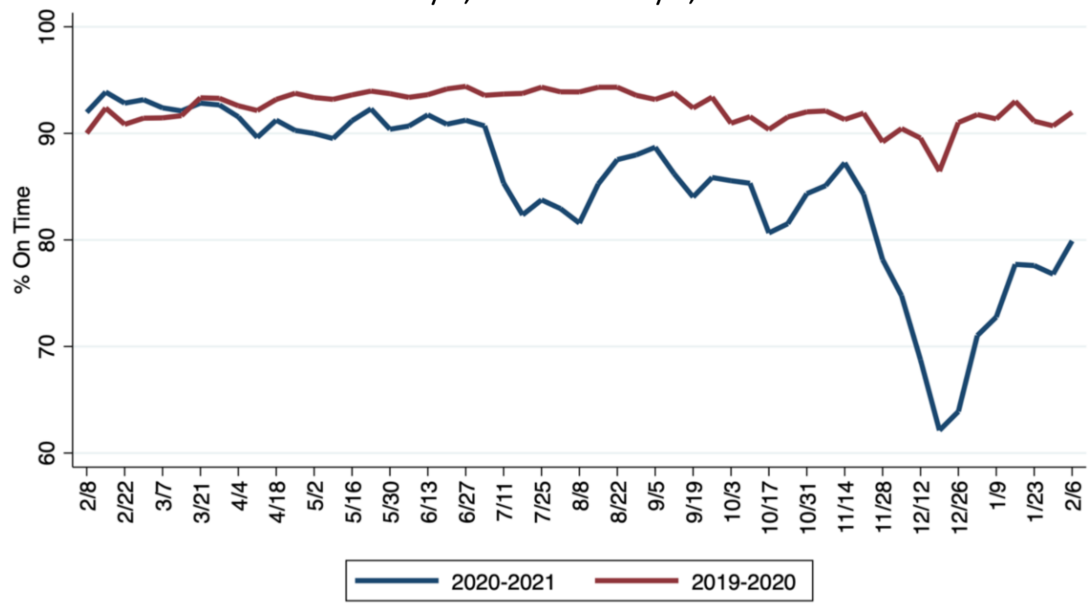
	Period 1 3/20 – 7/15	Period 2 7/17 – 12/2	Period 3 12/4 – 3/10	Period 4 3/12/ - 4/8
2020-2021	91.1%	84.8%	73.7%	85.8%
2019-2020	93.4%	92.8%	91.2%	92.5%

Based on data from the Centers for Disease Control and Prevention (CDC), this waning on-time performance did not correspond to the waves of COVID-19 infections.[55] The first and second waves of COVID-19 occurred during Period 1 (March 20 – July 15, 2020), when USPS's performance with First-Class Mail nearly matched its record in 2019. While on-time deliveries deteriorated throughout Period 2 (July 17 – December 2, 2020), COVID-19 cases fell for the first two months of that period and then rose sharply for the remainder of it. Similarly, while on-time mail delivery declined sharply over Period 3 (December 4, 2020 – March 10, 2021), the third wave of the pandemic peaked on January 8, 2021, followed by a decline over the following two months. And as COVID-19 cases rose again during the four weeks of Period 4 (March 12 – April 8, 2021), on-time deliveries improved to the levels of Period 2 though remaining far below the performance for corresponding weeks one year earlier.

Issues surrounding mail-in voting for the November 2020 election also do not explain the sharp decline in USPS's on-time performance, since on-time deliveries fell most sharply and reached their lowest levels well after the election.

[54] U.S. Postal Service (2020); U.S. Postal Service (2017); U.S. Postal Service (2016).
[55] Centers for Disease Control and Prevention (2021).

Figure 4: Share of First-Class Mail Delivered On-Time, Per Week, February 8, 2019–February 6, 2021



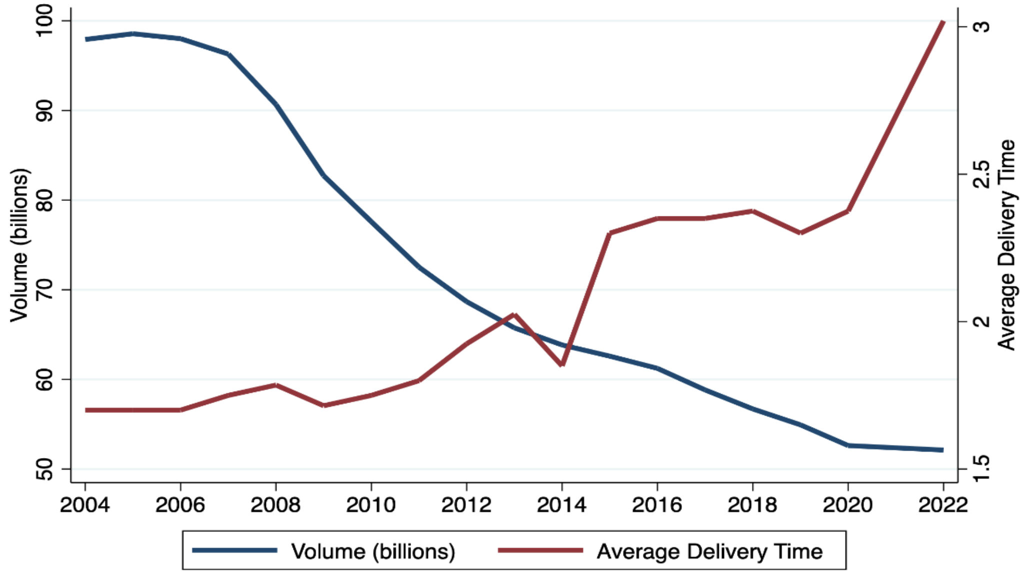
A more detailed analysis of on-time performance by type of mail service from 2015 through 2020 (including FY 2021 Q1, October-December 2020), for those for which we have complete data, shows the same dramatic erosion. This analysis shows falling on-time performance in all categories from 2019 to 2020 and stark declines in the last three months of 2020 in all areas except non-local mail, which performed poorly throughout 2020.

Table 13: USPS On-Time Mail Delivery, By Class and Type of Mail, FY 2015 - FY 2021-Q1

	2015	2016	2017	2018	2019	2020	2021-Q1
First-Class							
1 Unit/2 Days	93.2%	94.7%	94.7%	93.8%	92.0%	91.5%	85.0%
1 Unit/ 3-5 Days	76.5%	83.7%	85.6%	82.5%	80.9%	78.8%	78.3%
Presort/ 2 Days	93.6%	95.1%	95.6%	94.9%	94.1%	92.8%	82.0%
Presort /3-5 days	87.8%	91.7%	93.7%	92.0%	92.0%	89.9%	54.8%
Periodicals	77.7%	80.1%	85.6%	85.6%	85.7%	80.9%	69.8%

The recent decline in USPS's on-time performance for First-Class Mail, its flagship service, requires a broader context. The data analyzed above applies the USPS standard for on-time delivery of two days or less for local mail and three-to-five days for non-local mail and then sorts all mail deliveries into those delivered on time or not. USPS data also provide the average delivery time for all First-Class Mail, local and non-local and on time and not, from 1990 to 2020. For the first 15 years of that period, the burden of the growing volume of First-Class Mail led to longer average delivery times: From 1990 to 2005, the average delivery time increased from 1.6 days to 1.85 days as the annual volume of First-Class Mail grew from 85 billion pieces to nearly 100 billion pieces. However, as the volume of First-Class declined by nearly 50 percent from 2005 to 2020, the average delivery time more than doubled to 2.5 days.

Figure 5: Average Volume and Delivery Times for First-Class Mail, 2004 – 2020 and USPS Projections for 2020 – 2022



This decline is clearly associated with the resources available to deliver mail, and the data reflect the new USPS business model: As the volume and revenues from mail deliveries decline, resources used to deliver the mail contract even more, leading to a steadily rising average time to deliver mail. In this respect, USPS is carrying out mail deliveries not as a universal public service, but as would a business. Moreover, the current USPS leadership has actively embraced the downgrading of universal mail service. In April 2021, USPS asked the PRC for its advisory opinion on USPS's new proposed service standard for First-Class mail: USPS proposes to replace the current 2-day and 3-day standards with new 2-day, 3-day, 4-day, and 5-day standards.[56] Under these new standards, USPS projects that the average delivery time for First-Class mail will increase from 2.5 days in 2020 to 3 days in 2022. The PRC registered its concerns that "the Postal Service did not conduct any operational or pilot testing of its proposed service standard changes. The Commission finds this lack of testing problematic as mail processing is complex and requires timely execution to provide reliable service performance."[57] Nevertheless, the USPS announced the new standards will take effect on October 1, 2021. [58]

Econometric Analysis of the USPS Business Model

We also used regression analysis to further examine and confirm the impact of this business model. We employed a dynamic linear panel regression model to test the relationship between the quality of mail deliveries and the rising volume of parcels delivered and increases in controllable operating costs. As noted earlier, our analysis modified and extended a previous econometric analysis covering FYs 2011 to 2016 that found that operating expenses and parcel volume each had a statistically significant negative relationship with on-time mail deliveries.[59] An

[56] Postal Regulatory Commission (2021-A). Currently, 4-day and 5-day service standards are limited to mail to or from locations outside of the contiguous 48-states, which represents less than 1 percent of 3-to-5-day mail volume.

[57] Postal Regulatory Commission (2021-B)

[58] Federal Register (2021).

[59] Cigno and Namoro (2018).

updated and broader analysis of USPS behavior using data from the 73 postal districts was critical, as trends in operating costs, parcel volume have accelerated since FY 2016.

The two most relevant independent variables for this analysis are revenue-weighted parcel volumes (*Comp_Vol_W)* and the growth of operating costs relative to inflation growth (*LGRROE*), and the dependent variables are on-time performance of First-Class local mail and First-Class non-local mail. We examined two time periods, first applying the model from October 2013 through December 2019 (FY 2014 to FY 2020) to exclude the impact of the pandemic, and then extending it through December 2020 to include the pandemic. The model states,

$$P_{dq} = \gamma + \alpha P_{d(q-1)} + \beta_1 Onight_q + \beta_2 LGRROE_q + \beta_3 LGRROE_{q-1} + \beta_4 Comp\_Vol\_W_q + \beta_5 Logcosts_q + \beta_6 Logrevenue_q + \beta_7 Inflation_q + \theta_d + error_{dq}$$ [60]

Controlling for the effects of the independent variables, we found negative and statistically significant relationships between increases in parcel volumes and on-time deliveries of First-Class local and First-Class non-local mail by postal district and between increases in inflation-adjusted operating costs and those on-time mail deliveries. The results were strong for both types of First-Class Mail and over both time periods, with modestly weaker relationships when the data from the pandemic period were included. The full specifications and results of the four regressions are provided in the Appendix.

These results demonstrate that when the growth of USPS's inflation-adjusted operating costs increased and when USPS parcel volumes increased, on-time delivery of First-Class mail deteriorated. These findings support the conclusion that USPS's business model has prioritized its parcel delivery business over universal mail service. The strong relationship between rising operating costs and declining on-time mail deliveries directly reflects USPS shifting resources from mail to parcel deliveries, a conclusion supported further by the strong relationship between rising parcel volumes and declining on-time mail deliveries. As USPS increased its subsidies and other supports for its parcel business and thereby expanded its market share in parcel deliveries, it had to apply cost containment measures to its mail delivery mission and allow the quality of universal mail service to decline.

USPS does not issue data on average delivery times for its parcels, overall or by class of parcel service. However, other data further support USPS's prioritization of parcel delivery over mail service. We know that as the volume and revenues from mail deliveries declined sharply, the volume and revenues from parcel deliveries increased sharply despite USPS having to

[60] Subscripts *q* and *d* are "quarter" and "postal district." The covariates are:

- Lag of Performance (Lag of Dependent).
- Dummy variable of the third and fourth quarters of 2015, to control for overnight mail suppression. (*Onight*)
- Relative costs (*LGRROE*): One-quarter lag of difference between the growth rate of the USPS's controllable operating expenses and the growth rate of CPI-U. The costs exclude prefunded pension and health benefits and workers compensation.
- The log of revenue-weighted competitive volumes (*Comp_Vol_W*).
- Total controllable operating costs (*Logcosts*).
- Total operating revenue (*Logrevenue*).

compete with private companies in an industry with much higher productivity. This further suggests that USPS increased the cross-subsidies for parcel delivery so it could grow its market share in that business, despite being less productive than its competitors. Since the greatest cross-subsidy comes from the parcel segment's use of the USPS network of facilities, equipment, personnel and vehicles for mail deliveries, the USPS has almost certainly shifted resources from its universal public service mission to its competitive segment.

The pertinent data all suggest that for the past decade, USPS compromised its historically high performance of its public service mission by supporting its parcel delivery business in a highly contested market. When conditions around the pandemic further and sharply depressed mail volumes and increased parcel volumes, USPS shifted more resources from mail to parcel deliveries. The result was the breakdown of on-time delivery of First-Class mail.

V. The Critical Role of Last Mile Delivery

USPS and private shipping companies not only compete; they also work together. For more than a decade, USPS has offered a Parcel Select service that provides last-mile or local delivery for parcels transported by private shipping companies from other cities or states to a local area. This USPS local delivery service serves the interests of both USPS and those companies: It gives private shippers access to the final portion of USPS's logistics system and nationwide network for universal mail delivery, and it provides USPS a growing source of business for its shipping division. Since its inception, this service has been a crucial source of growth for USPS in the volume of parcels it delivers and the associated revenues. (Table 14 below)

Table 14: The Role of Last-Mile Deliveries for USPS: Parcel Select and Other Parcel Services, Volume and Revenues, FY 2010-FY 2020 (millions)[61]

	Volume (Units)			Revenues		
	Parcel Select	Other Parcels	Parcel Select Share	Parcel Select	Other Parcels	Parcel Select Share
FY 2010	238.4	1,181.6	16.8%	$503.8	$8,177.7	5.8%
FY 2011	343.0	1,130.0	30.4%	$626.1	$8,368.2	7.0%
FY 2012	937.6	1,595.5	37.0%	$1,341.4	$9,569.0	12.3%
FY 2013	1,287.0	1,861.7	41.5%	$1,904.3	$11,058.3	14.7%
FY 2014	1,483.9	1,964.1	43.0%	$2,529.3	$12,046.6	17.4%
FY 2015	1,876.6	2,082.4	47.4%	$3,298.5	$12,341.5	21.1%
FY 2016	2,369.4	2,130.2	52.7%	$4,608.1	$13,045.9	26.1%
FY 2017	2,796.1	2,307.5	54.8%	$5,661.7	$14,168.7	28.6%
FY 2018	2,997.0	2,666.3	52.9%	$6,407.8	$15,766.3	28.9%
FY 2019	2,909.0	2,702.6	51.3%	$6,800.9	$16,490.6	29.2%
FY 2020	3,499.6	3,628.8	49.1%	$8,689.3	$20,881.5	29.4%

The data show that from FY 2010 to FY 2020, the volume of parcels delivered through this service jumped more than 14-fold, from 238.4 million to 3,499.6 million units, and USPS revenues

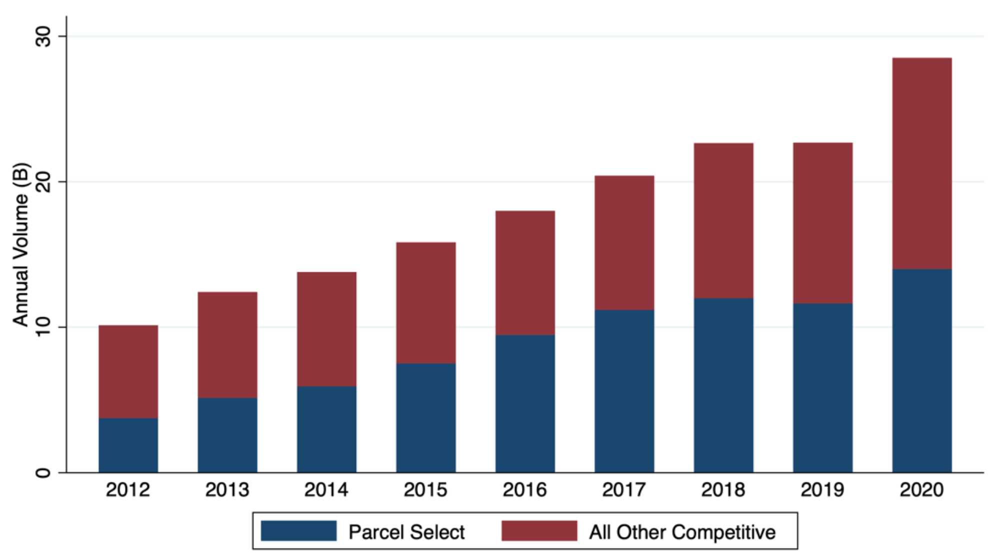
[61] U.S. Postal Service (2010). U.S. Postal Service (2011). (Rest TK from IY)

from it increased more than 18-fold, from $503.8 million to $9,238.9 million. Over the last half-decade (FY 2016 – FY 2020), Parcel Select accounted for 51.9 percent of all parcels delivered by USPS and 28.6 percent of its parcel revenues. The disparity reflects greater use of the service for smaller packages, consistent with USPS delivery limits to parcels weighing 70 pounds or less with combined width, length, and height of 130 inches or less.[62]

The arrangement works for both sides. Under Parcel Select, USPS virtually doubled the volume of parcels it handles by leveraging its nationwide monopoly network to offer local parcel deliveries; and private shipping and delivery companies can reach every residence and office in the country without bearing the cost of building out all their local networks to do so. Moreover, since 2012, the major private delivery companies including FedEx, UPS, and Amazon have negotiated discounts on Parcel Select rates under Negotiated Service Agreements (NSA). Those discounted rates are not available publicly.[63] These Agreements drove the very rapid growth in the volume and revenues of Parcel Select services from 2012 to 2017. Since 2017, Parcel Select deliveries have consistently accounted for about one-half of the volume and nearly 30 percent of the revenues for all USPS parcel delivery operations.

Figure 6 below tracks the annual volume of parcels delivered by USPS and shows that from 2012 to 2017, parcels delivered under the Parcel Select service increased much more rapidly than parcels delivered through all other USPS parcel delivery services.

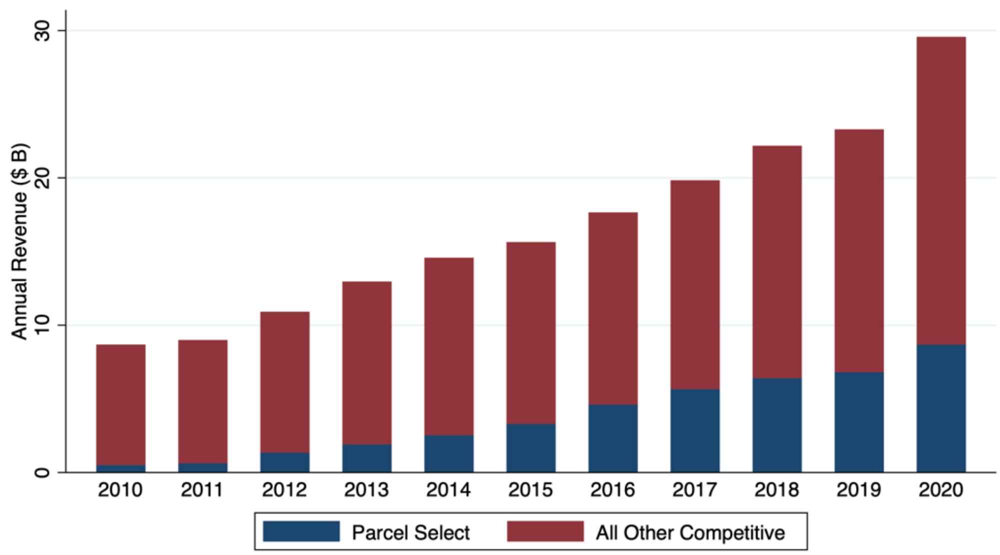
Figure 6: The Contribution of Parcel Select and Other USPS Delivery Services to the Total Volume of USPS Parcels Delivered, FY 2012 - FY 2020



Similarly, Figure 7 tracks the annual USPS revenues from parcel deliveries and shows that revenues from Parcel Select services grew more rapidly than revenues from other USPS parcel delivery operations from early 2012 to early 2013 and from early-2015 to mid-2017.

[62] FedEx “SmartPost, UPS “SurePost” and Amazon account for a substantial majority of Parcel Select deliveries over the past decade, with most of the remainder from consolidator firms that handle shipping for numerous clients.
[63] U.S. Postal Service (2011-2020).

Figure 7: The Contribution of Parcel Select and Other USPS Delivery Services to the Total USPS Revenues from Parcels Deliveries, FY 2012 - FY 2020



The growth in e-commerce, however, led private parcel delivery companies to invest more in parts of their own local delivery networks. As a result, the growth in Parcel Select slowed in 2017 and 2018; and in 2019, the volume declined and the revenue growth from the service slowed sharply (Table 15 below). However, the pandemic revitalized USPS's Parcel Select service along with its other parcel services. From FY 2020 Q2 (January-March 2020) through FY 2020 Q4 (July-September 2020), the quarterly volume and revenues of Parcel Select services increased at rates not seen since 2012 and 2013. In FY 2021 Q1 (October-December 2020), the volume and revenues from Parcel Select and other USPS parcel services continued to grow substantially even as the growth in e-commerce eased.

Table 15: The Impact of the Pandemic on USPS Last-Mile Deliveries: Volume, Revenues and Growth in Parcel Select, By Quarter, Year-Over-Year, FY 2019 Q1 - FY 2021 Q1 (millions)

	Last-Mile Volume (Units)			Last-Mile Revenues		
	Parcel Select	Other Parcels	Parcel Select Growth	Parcel Select	Other Parcels	Parcel Select Growth
FY 2019 Q1	910.5	772.7	4.0%	$2,032.5	$4,598.9	11.0%
FY 2019 Q2	670.3	676.8	- 4.0%	$1,552.3	$3,984.7	4.0%
FY 2019 Q3	648.9	666.4	- 8.0%	$1,554.9	$3,996.9	2.0%
FY 2019 Q4	680.2	646.6	- 5.0%	$1,661.2	$3,910.1	7.0%
FY 2020 Q1	878.5	736.5	- 4.0%	$2,121.4	$4,649.7	4.0%
FY 2020 Q2	696.0	776.3	4.0%	$1,713.7	$4.441.3	10.0%
FY 2020 Q3	992.8	1,091.8	53.0%	$2,497.7	$6,022.9	61.0%
FY 2020 Q4	932.3	1,024.2	37.0%	$2,356.6	$5,767.6	42.0%
FY 2021 Q1	993.7	1,098.0	13.0%	$2,671.0	$7,058.4	26.0%

The Parcel Select service is a prime example of USPS cross-subsidization. USPS's costs for Parcel Select deliveries are modest. Universal mail service covers every residence and business, and the Parcel Select packages are delivered by the same USPS employees in the same vehicles and at the same time they deliver the mail and the packages shipped entirely through USPS. Again, USPS does not issue detailed data on the costs to provide this service or how much it charges private shipping and delivery companies for local deliveries under their NSAs.

Given the cross-subsidies that give USPS a competitive advantage in all parcel deliveries, the costs to private shipping companies for this last-mile service presumably are less than it would cost them to fully build out their delivery systems to reach every residence and business. In addition, USPS presumably charges those private companies more than the full costs it bears to deliver their parcels while delivering its mail at the same time.

VI. A New Economic Model for USPS Reform

The challenges and problems that USPS faces begin with its most singular feature: USPS is a hybrid that provides both monopoly and competitive services. Its monopoly segment is required to provide a critical public service while operating under Congressional requirements that raise its costs and limit its ability to generate more revenues.[64] Its competitive segment is expected to cover its costs like a private business while operating within a public institution that cannot use normal business strategies to improve its productivity and so compete effectively. The USPS's principal responses have been the cross subsidies for its parcel delivery business, to increase its market share and provide the appearance of profits, and its large annual operating deficits that totaled $168 billion from 2007 to 2020.[65]

USPS's critics and defenders along with disinterested analysts have long debated the implications of this cross-subsidization. On one occasion, the USPS and PRC took a modest step to reduce the impact of cross-subsidies by raising the competitive division's minimum appropriate share of institutional costs from 5.5 percent to 8.8 percent. Nevertheless, that level also significantly underestimates the accurate appropriate share. In addition, USPS's various other cross-subsidies give its parcel delivery business additional, significant competitive advantages that impairs the market for transporting and delivering billions of packages.

We have seen that the pandemic-based restrictions on normal business activity in 2020-2021 intensified these distortions. Demand for parcel deliveries by homebound families rose sharply while demand for First-Class mail continued to decline. In response, the USPS doubled down on its cross subsidies for parcel deliveries and, as a result, further expanded its share of that market: The share of USPS revenues generated by parcel deliveries jumped from 35.1 percent in 2019 to 42.3 percent in 2020, increasing 7.2 percentage-points or more than double the average 3.3 percentage-point annual rise from 2015 to 2019.

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[64] In addition to guaranteeing six day per-week residential deliveries, maintaining underused post offices, and being unable to raise postal rates by more than inflation except under "extraordinary circumstances," USPS is also required to fully prefund pension and healthcare costs for future retirees.

[65] General Accounting Office (2020).

We also have seen that the dramatic shifts in demand for deliveries of mail and parcels associated with the 2020-2021 pandemic also help explain why on-time mail delivery deteriorated sharply in 2020. Even with several billion fewer pieces of mail to deliver, USPS's on-time delivery rate fell to 82.5 percent over the second half of 2020, its lowest performance on record. USPS now appears to treat its universal mail delivery mission as a shrinking, money-losing enterprise that generates subsidies, privileges, and resources for its growing parcel delivery enterprise.[66]

Congress and the administration can directly address USPS's growing operational deficiencies. Universal mail delivery should be treated once again as a public service, like public health and law enforcement. As a public service, USPS mail delivery should be held to high on-time performance standards. To do so, Congress can direct the USPS and PRC to raise mail and parcel delivery fees each year to ensure that each service generates the revenues needed to cover its expected costs.[67] Alternatively, Congress can subsidize universal mail delivery through appropriations and direct that USPS set its parcel delivery fees to produce the resources required to cover its delivery costs. However, any additional public funds appropriated by Congress for USPS should be contingent on reforms that prevent their direct or indirect use for cross subsidies.

Curbing USPS's use of cross subsidies will be challenging, especially without unraveling the parts of its nationwide delivery network that most private delivery companies rely on for last-mile service. Antitrust principles offer one way to meet this challenge. Normally, an enterprise that dominates one market and uses cross subsidies to gain advantages in an adjacent or related market may be subject to lawsuits by its injured competitors and antitrust proceedings by the government. The courts have held that USPS can be sued for tort claims,[68] but also that USPS is not subject to antitrust law.[69] In this context, a competitor in package deliveries could sue for damages under certain circumstances and gain access to the books for USPS's parcel delivery operations.[70] However, to prevent USPS's structural issues from impairing both a robust market for parcel deliveries and universal mail delivery, Congress should end the USPS exemption from antitrust regulation for its competitive business.

In this context, the case involving AT&T and the landmark 1983 Modified Final Judgment (MFJ) opening long-distance telephone service to fair competition may provide a practical

[66] Compromising the performance of mail deliveries to subsidize and support its expanding parcel delivery operations is aligned with the economic incentives facing the managers of a hybrid monopoly-competitive enterprise. As parcel deliveries claimed more resources, the USPS raised rates on mail delivery, knowing that higher rates have little effect on demand because mail customers have few alternatives. Subsidizing package delivery charges also makes economic sense within a public enterprise indifferent to profits because the USPS and PRC also know that those low rates are necessary to attract customers from competitors. In economic terms, demand in a competitive market is much more price-sensitive than demand in a monopoly sphere.

[67] Such annual rate adjustments for mail and parcel deliveries presumably would correspond generally to the share of USPS revenues produced by each division.

[68] *Federal Express Corporation v. United States Postal Service* (1998).

[69] *United States Postal Service v. Flamingo Industries (USA) Ltd., et al.* (2004).

[70] Alternatively, Congress could investigate the impact of USPS practices on a competitive parcel delivery market and subpoena those books.

strategy for ending USPS's cross subsidies while preserving its nationwide last-mile network.[71] William Baxter, the Assistant Attorney General for Antitrust when the MFJ was reached, described the AT&T case in a way that also describes USPS's approach to parcel deliveries, noting that, "… regulated monopolies have the incentive and opportunity to monopolize related markets in which their service is an input … (and) the most effective solution to this problem is to "quarantine" the regulated monopoly segment of the industry."[72]

In AT&T's case, Baxter and the courts found that the most effective way to quarantine the monopoly segment was "separating its ownership and control from the ownership and control of firms that operate in potentially competitive segments of the industry."[73] As a result, AT&T had to divest itself of its Bell Operating Companies that provided local telephone service. In this case, selling off USPS's parcel delivery service to the highest bidder would be impractical, since it would have little value without the resources, subsidies and privileges drawn from universal mail delivery service. Any reform should take account of the benefits that consumers derive from private delivery companies' use of the USPS network for the local leg of their parcel deliveries.[74]

Now setting aside the divestiture feature of the MFJ, the resolution of the AT&T case offers another strategy more directly applicable to USPS's cross subsidization. For AT&T, regulation by the Federal Communications Commission (FCC) ensured that its competitors would gain fair access to AT&T monopoly of the interconnection facilities that linked long-distance calls to the local telephone networks that AT&T had given up. This approach drew on the longstanding legal doctrine of an "essential facility": When an enterprise owns and controls an input critical to its competitors and no acceptable substitute is available, the dominant enterprise must make that input accessible to its rivals at a reasonable price and on reasonable terms and conditions.[75]

Courts have applied this doctrine numerous times involving, for example, access to copyrighted news services, wholesale electricity, and ski lifts.[76] The economics underlying it were also evident in a 1990s case involving Microsoft. In that case, the court held that Microsoft used its dominant position in computer operating systems to force personal computer makers to bundle Microsoft's Internet Explorer browser and block those PC manufacturers from installing Netscape or other competing browsers.[77] The judgment found that Microsoft's practices injured consumers by distorting the market in ways that harmed its competitors, even though its practices did not result in higher prices for consumers.[78] Similarly, while USPS's cross subsidies

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[71] *United States v. Western Electric Co (*1983), commonly referred to as Modification of Final Judgement or MFJ.
[72] Baxter (1983).
[73] *Ibid.*
[74] In this regard, USPS's use of its monopoly leverage may more closely resemble another anti-competitive practice by Microsoft in the 1990s, when it used access to its market-dominant operating system to induce application developers to favor Microsoft. See Weiser (2009).
[75] Joskow and Noll (1999).
[76] *Associated Press v. United States* (1945*); Otter Tail Power Co. v. United States* (1973); *Aspen Skiing Co. v Aspen Highlands Skiing Corp.* (1985).
[77] *United States v. Microsoft Corp* (D.D.C. 2000). See Weiser (2009), *op cit.*
[78] Before the Supreme Court adopted price effects as the main measure of consumer welfare in antitrust cases, a shift that protects monopolist and oligopolist enterprises that dominate markets through large economies of scale

may result in lower prices for its parcel delivery services, they nevertheless harm consumers by limiting the capacity of other companies to develop and offer new and better ways to transport and deliver parcels.

USPS's ability to leverage its monopoly resources and privileges to dominate local parcel deliveries may not meet the strict requirements of the essential facility doctrine. Its competitors' higher productivity and efficiency allow them to offer parcel delivery services even as they compete on terms that favor the USPS. As such, the USPS cross subsidies harm consumers by distorting the parcel delivery market. Further, USPS could use its dominance in mail deliveries to impose anticompetitive terms on its competitors' access to its last-mile parcel delivery services, as President Donald Trump urged when he pressed USPS to double its local delivery fees for Amazon and other parcel delivery companies in 2018.[79]

The USPS may not be subject to antitrust liability as part of the government, but Congress can rewrite that provision; and in any case, USPS is subject to rules established by Congress and regulation by the Executive Branch.[80] Under those conditions, a regulatory approach like the one applied to AT&T could address the impact of USPS's current anticompetitive practices on the parcel delivery market. By this approach, the USPS would retain its parcel delivery operations subject to regulations designed to ensure that cross subsidies no longer disadvantage its competitors and injure consumers by distorting the parcel delivery industry.

First, Congress can authorize the Federal Trade Commission (FTC) to scrutinize USPS's books on its parcel-delivery costs and expenses to ensure that USPS parcel delivery fees reflect the full costs of delivering those parcels.[81] These circumstances recall the FCC's efforts to ensure fair competition in the long-distance market by regulating the interconnection services that AT&T had to provide its competitors for long-distance service. Since AT&T wholly dominated those interconnection services, the regulations stipulated that AT&T would make those services available to competitors at the same costs borne by AT&T and under the same terms and conditions, including quality. In the parcel delivery industry, USPS dominates last-mile services, and the FTC also could be directed to examine USPS's books and operations to establish the real costs borne by USPS for those services, after taking account of the contribution (subsidy) provided by its monopoly resources. The FTC would then establish the terms and conditions for the local delivery services that USPS provides its own customers. On those bases, FTC oversight could ensure that USPS's competitors access those last-mile delivery service at the same cost, terms, and conditions as USPS itself.[82]

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that keep their prices relatively low, the goal of antitrust law and litigation was to preserve effective competition at all levels of an industry's supply chain. See, for example, Steinbaum and Stucke (2020).

[79] Paletta and Dawsey (2018).

[80] *Postal Service v. Flamingo Industries (USA) Ltd*. (2004).

[81] Congress would have to authorize the FTC to regulate in this area, since "common carriers" are currently exempt from FTC authority.

[82] This approach also recalls the Microsoft case, in which the court required Microsoft to provide access for third-party companies developing and marketing competitive applications competing with Microsoft products to the application programming interfaces with its dominant operating platform.

This approach should disable or strongly discourage USPS from using its monopoly subsidies and privileges to support its parcel delivery business. It would nullify the competitive benefits that USPS derives from undercharging its parcel delivery division for the institutional resources used in local parcel deliveries. Equal access by USPS's competitors to its local delivery service network under the same terms and conditions as the USPS also would end its mailbox monopoly. The equal access regulation also could stipulate that fees charged by USPS for last-mile deliveries take appropriate account of the savings in each area derived from USPS's exemptions from state and local income and property taxes, vehicle registration fees, and parking fines.

This approach would empower the FTC, or alternatively the PRC, to apply a regulatory approach used many times in the past. For example, utilities often have regulated and unregulated divisions, and the National Association of Regulated Utility Commissioners (NARUC) has established cost allocation guidelines in recognition that "utilities have a natural business incentive to shift costs from non-regulated competitive operations to regulated monopoly operations since recovery is more certain with captive ratepayers."[83] NARUC's guidelines hold that state regulators should require utilities to allocate and classify costs on a direct basis for each asset, service or product, for both their regulated and unregulated operations. Further, "the price for services, products and the use of assets provided by a regulated entity to its non-regulated affiliates should be the higher of fully-allocated costs or prevailing market prices," with the objective to "lessen the possibility of subsidization." The FTC could apply comparable guidelines for the pricing of USPS parcel deliveries, including last-mile services.

VII. Conclusions

In this study, we reviewed how the U.S. Postal Service conducts its monopoly mail and competitive parcel delivery operations and analyzed the consequences. We traced the effects of the declining volume of mail and the growing volume of parcels delivered by USPS on its revenues streams and analyzed how USPS has subsidized its parcel business by leveraging the special privileges, rights and resources provided to support universal mail delivery. We also examined how the pandemic lockdowns intensified these dynamics, with serious consequences for universal mail service.

By normal economic standards, USPS should be unable to compete successfully with private parcel shipping companies because, as government data show, its unit labor costs are much higher and its productivity growth is much slower. Given these underlying conditions, USPS has rapidly expanded its market share of the parcel delivery industry by: 1) using its special privileges, rights, and resources from its monopoly mail operations to underprice its competitors in parcel shipping; and 2) using its unique mail service network that reaches every residence and business, financed by postal rates, to sell last-mile or local delivery services to its parcel shipping competitors.

These developments have substantially altered USPS's business model. From 2010 to 2020, the volume of parcels delivered by USPS increased 416 percent, from 1.4 billion to 7.3

[83] National Association of Regulated Utility Commissions (2010).

billion units, while the volume of mail delivered fell 30 percent from 169 billion to 122 billion pieces. Over the same years, USPS revenues from its parcel operations jumped 229 percent from $8.7 billion to $28.5 billion, while its revenues from mail operations fell 23 percent from $57.7 billion to $44.6 billion. Notably, half of USPS's parcel business involves agreements with its major competitors to cover the last miles to deliver parcels to their final destinations.

With these dramatic changes in demand, USPS has shifted its focus, resources, and operations away from universal mail service and towards its competition for parcel deliveries. In 2020, USPS on-time deliveries of First-Class mail fell from 92.5 percent to 86.3 percent – despite $2 billion in increased revenues, all from its parcel business; an emergency $10.0 billion Treasury "loan" quickly forgiven by Congress; and a decline in the volume of mail to be delivered of 14.5 billion pieces. Further, over the last three months of 2020, on-time deliveries of presorted First-Class two-day mail fell to 82.0 percent, and on-time delivery of presorted First-Class three-to-five-day mail fell to 54.8 percent. From December 2020 to March 2021, on-time deliveries of all First-Class mail fell further to 73.7 percent. This waning on-time performance did not correspond to the waves of COVID-19 infections or mail-in voting for the November 2020 election. Moreover, USPS recently embraced the downgrading of its universal mail service mission by proposing new service standards that will increase average delivery times for First-Class mail from 2.5 days in 2020 to 3.0 days in 2022, by its own projections.

Econometric analysis shows that the declining quality of universal mail service directly reflects the changes in the USPS business model. We applied regression analysis using data on on-time deliveries from the 73 postal districts from FY 2014-Q1 to FY 2021-Q1: The results showed that increases in the volume of parcels delivered by USPS and increases in USPS operating costs were strongly associated statistically with declining on-time deliveries for both local and non-local First-Class mail. Notably, these operating costs did *not* include the mandated prefunding of USPS pension and retiree health benefits. Since mail volume declined sharply over this period, the increases in operating costs were tied only to USPS's parcel business. Finally, these findings also were not an artifact of the pandemic. The results held for the period up to but excluding the pandemic and the period including the 2020 data, which strengthened the results. During the pandemic, therefore, USPS doubled down on its support for parcel deliveries and allowed universal mail service to further decline.

The USPS's business model to support its parcel delivery services also has impaired the underlying market. Facing competition from a public enterprise setting artificially low prices based on its access to extensive government support should be expected to reduce private companies' incentives to invest and innovate. Given the shipping and delivery industry's critical role in the economy, these arrangements serve to hinder the development of new and better ways to transport and deliver goods across the economy.

Congress can restore well-functioning universal mail delivery and revitalize the critical parcel shipping and delivery industry by ending USPS's use of cross-subsidies for its competitive business. First, Congress should direct the PRC and USPS mission to set postal rates that cover postal costs or appropriate the funds necessary to restore universal, on-time mail service. Any appropriation must bar its use in any way to support USPS's parcel delivery operations. To unravel the cross-subsidies, Congress should pursue established strategies to prevent monopolies from leveraging their exclusive resources to tilt an adjacent market in its favor. Using the model of the Modified Final Judgement in the AT&T case, Congress could authorize the FTC to scrutinize USPS's books to ensure that its parcel delivery charges reflect the full costs to deliver those parcels. Further, Congress could direct the FTC to ensure that private delivery companies have fair access to USPS last-mile services at the same cost and on the same terms as USPS for its own local deliveries. In effect, this would constitute a mandate for the FTC (or perhaps the PRC) to follow the established principles for state regulators overseeing utilities with both regulated monopoly and unregulated competitive operations. These reforms should disable or negate the cross-subsidies and restore a genuine competitive market in parcel deliveries.

Appendix

$$P_{dq} = \gamma + \alpha P_{d(q\text{-}1)} + \beta_1 \mathrm{Onight}_q + \beta_2 \mathrm{LGRROE}_q + \beta_3 \mathrm{LGRROE}_{q\text{-}1} + \beta_4 \mathrm{Comp\_Vol\_}W_q + \beta_5 \mathrm{Logcosts}_q + \beta_6 \mathrm{Logrevenue}_q + \beta_7 \mathrm{Inflation}_q + \theta_d + \mathrm{error}_{dq}$$

Subscripts *q* and *d* represent "quarter" and "district," and the dependent variable represents the service performance of market dominant mail. The covariates used are as follows:

- Lag of Performance (Lag of Dependent)
- Dummy variable of the third and fourth quarters of 2015, to control for overnight mail suppression. (*Onight*)
- Relative costs (*LGRROE*): One-quarter lag of difference between the growth rate of the U.S. Postal Service's controllable operating expenses and the growth rate of CPI-U.
- The log of revenue-weighted competitive volumes (*Comp_Vol_W*)
- Total controllable operating costs (*Logcosts*)
- Total operating revenue (*Logrevenue*)

We assume that all covariates are endogenous except for the dummy controlling for overnight-mail suppression in the third quarter of 2015 and the effects in the following quarter.

Two-Day (Local) First-Class Mail: (1) Including COVID, and (2) Prior to COVID

	(1)	(2)
VARIABLES	P_Two Day	P_Two Day
L.P_two day	0.458***	0.378***
	(0.0161)	(0.0200)
LGRROE	-0.0460***	-0.0479*
	(0.0169)	(0.0257)
L.LGRROE	0.139***	0.387***
	(0.0197)	(0.0237)
Comp_Vol_W	-0.291***	-0.362***
	(0.0805)	(0.128)
log_cost	-0.845**	-2.236***
	(0.427)	(0.476)
log_rev	-2.406***	-1.213***
	(0.217)	(0.203)
Onight	-0.0357**	-0.146***
	(0.0182)	(0.0226)
Constant	84.30***	90.60***
	(6.822)	(7.948)
Observations	1,794	1,526
Number of id	73	73

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Three-to-Five Day (Non-Local) First-Class Mail: (1) Including COVID, and (2) Prior to COVID

	(1)	(2)
VARIABLES	**P_Three to Five Day**	**P_Three to Five Day**
L.P_ThreeToFiveDay	0.409***	0.329***
	(0.00274)	(0.0102)
LGRROE	-0.246***	-0.312***
	(0.00106)	(0.0155)
L.LGRROE	0.241***	0.556***
	(0.00133)	(0.0135)
Comp_Vol_W	-0.0857***	-0.231***
	(0.00840)	(0.0598)
log_cost	1.128***	-0.147
	(0.0381)	(0.263)
log_rev	-5.817***	-4.683***
	(0.0307)	(0.135)
Onight	-0.310***	-0.507***
	(0.00362)	(0.0165)
Constant	113.2***	119.7***
	(0.612)	(4.185)
Observations	1,798	1,530
Number of id	73	73

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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