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Re: USPS Delivery Models

The United States Postal Service (USPS) network includes nearly 160 million residential and business delivery points.¹ As part of the universal service obligation, the USPS network is structured to deliver mail and parcels to these points any day that it is in service. However, continuing financial challenges, paired with decreasing mail volumes and increasing parcel volumes have prompted discussion on the most cost-effective delivery models. This memo examines the following:

1. The cost-effectiveness of two different delivery models (joint delivery and bifurcated delivery);
2. The cost-effectiveness of replacing joint delivery with parcel-only delivery on certain days, and;
3. Factors that impact USPS decisions about delivery models.

Background

Over the past few years, USPS mail volumes have declined while parcel volume has increased substantially. Since letters and parcels have different characteristics (parcels are larger and often cannot fit into mailboxes), this trend has prompted USPS and others to assess the USPS delivery model and evaluate opportunities to deliver quality service while containing costs.

USPS has two types of routes: letter and parcel. Letter routes are fixed and follow the same route daily. Parcel routes or “runs” use dynamic routing, so the driver takes a different route daily depending on the delivery points with parcels for that day. There are two different delivery models for letter and parcel routes. A joint delivery model delivers letters and parcels together on letter routes while a bifurcated system has separate letter and parcel routes.

Several postal services in different countries have delivery models that are entirely joint or bifurcated but many use a hybrid system where a portion of letter and parcel delivery services are integrated and the remainder are separate.² Currently, USPS uses a joint delivery model for the majority of its deliveries. USPS is able to deliver most parcels at the same time as letters because 94% of letter routes use small trucks or

¹ USPS. 2020. FY2019 Annual Report to Congress.

² Bender et al. 2016. “Economies of Scope in Delivering Parcels and Letters Together.” Presented at the 24th Conference on Postal and Delivery Economics, Florence Italy, May 19, 2016.

large automobiles.³ Separate parcel runs typically occur in urban areas where carriers are on foot or in areas with such high volume that timely delivery cannot be accomplished on letter routes.⁴ USPS also has parcel runs on national holidays and weekends when it does not deliver mail.⁵

Joint Delivery Models Are More Cost Effective than Bifurcated Delivery

Several recent studies have analyzed cost differences between joint and bifurcated delivery models for letters and parcels. Overall, they find that the joint delivery model is more cost effective than bifurcated delivery. Five key findings from these studies are outlined below.

1. *Marginal Costs are Lower on Letter Routes:* The marginal cost of delivering a parcel on a letter route is considerably lower than delivering on a dedicated parcel route. This is because the cost per piece is significantly lower when the letters and parcels are delivered together.⁶ Bradley et al. found that, in their status quo scenario, the marginal cost of delivering a parcel on a letter route was one sixth of the cost of delivering on a parcel route (53.14 cents versus \$3.03, respectively).⁷
2. *Joint Delivery Reduces Underutilization:* With declining mail volume, letter routes are often underutilized. The cost savings of joint delivery increases with the underutilization of letter routes. Bender et al. estimated the total cost savings of joint delivery compared to standalone delivery was 14.1% if there was 30% free capacity on letter routes. The cost savings was 9.1% with 20% free capacity, and 4.4% with 10% free capacity.⁸ (Figure 1)

³ Cohen, Robert and John Waller. 2016. "The Postal Service's Cost to Deliver Parcels on Letter Routes and Parcel Routes." Presented at the Economics Conference on E-Commerce, Digital Economy and Delivery Services. Toulouse, France. March 31-April 1, 2016.

⁴ Bradley et al. 2018. "Simulating Cost Effective Parcel Delivery Methods for Postal Services." The Contribution of the Postal and Delivery Sector, Topics in Regulatory Economics and Policy. Springer International Publishing AG.

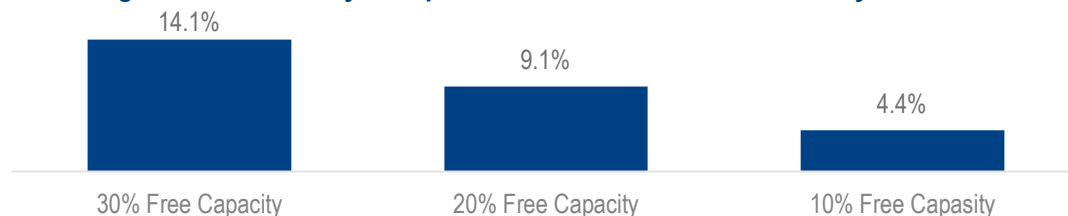
⁵ Bender, Christian M. et al. 2016. "Economies of Scope in Delivering Parcels and Letters Together." Presented at the 24th Conference on Postal and Delivery Economics, Florence Italy, May 19, 2016.

⁶ Cohen and Waller. 2016.

⁷ Bradley et al. 2018. "Simulating Cost Effective Parcel Delivery Methods for Postal Services." The Contribution of the Postal and Delivery Sector, Topics in Regulatory Economics and Policy. Springer International Publishing AG.

⁸ Bender et al. 2016. "Economies of Scope in Delivering Parcels and Letters Together." Presented at the 24th Conference on Postal and Delivery Economics, Florence Italy, May 19, 2016.

Figure 1.
Cost Savings of Joint Delivery Compared to Total Stand-Alone Delivery Costs⁹



3. *The Cost of Dedicated Parcel Routes Exceeds Parcel Contributions.* Parcel-only routes are less cost effective. Cohen and Waller estimated that, if all Parcel Select were delivered on stand-alone parcel routes using City Carrier Assistants, the USPS profit per piece would drop from 44 cents to a loss of \$1.33. The loss would be much greater if regular city or rural carriers, who have higher wages than city carrier assistants, were used. The total estimated cost of using parcel only routes was \$5.6 billion more than the cost of using letter routes and \$2.2 billion more than the total contribution from domestic Competitive products.¹⁰
4. *Even Significant Increases in Parcel Volume Would Not Merit Dedicated Parcel Routes.* Because parcels require more time to deliver than letters, at a certain point the marginal cost of delivering an additional parcel on letter routes starts to increase as volume grows. Even so, research shows that even tripling of volume on letter routes would not justify a dedicated parcel route: the letter route is still a more cost-effective means of delivering parcels.¹¹ However, there are scenarios where parcel routes can become cost effective if the wage is substantially lower than the letter carrier wage, and if productivity of parcel carriers increased.
5. *International Experience Supports Benefits of Joint Delivery.* The joint delivery model has been effective in other countries. In Europe, most countries have opted for joint delivery models. Some of the benefits of this type of system include cost reductions, economies of scale and scope, as well as increased efficiency and flexibility.¹²

⁹ Bender et al. 2016. "Economies of Scope in Delivering Parcels and Letters Together." Presented at the 24th Conference on Postal and Delivery Economics, Florence Italy, May 19, 2016.

¹⁰ Cohen, Robert and John Waller. 2016. "The Postal Service's Cost to Deliver Parcels on Letter Routes and Parcel Routes." Presented at the Economics Conference on E-Commerce, Digital Economy and Delivery Services. Toulouse, France. March 31-April 1, 2016.

¹¹ Bradley, Michael D. et al. 2018. "Simulating Cost Effective Parcel Delivery Methods for Postal Services." The Contribution of the Postal and Delivery Sector, Topics in Regulatory Economics and Policy. Springer International Publishing AG.

¹² European Regulators Group for Postal Services. 2019. On the Development of Postal Networks and Access Practices Regarding Infrastructure Related to the Parcel Market. June.

Removing Joint Delivery and Replacing it with Parcel Only Delivery Has Limited Cost Savings

While literature shows that a joint model is more cost-effective than a bifurcated model for delivering letters and parcels, there is little research available on the impact of removing letter delivery entirely on certain days of the week and replacing it with parcel delivery only. The most recent research was conducted by Swiss Economics in 2014, on behalf of the Postal Regulatory Commission. This study shows that the cost savings of a “5+” delivery model, where only parcels would be delivered on Saturdays, would be minimal.

Swiss Economics estimated that the cost savings of switching from Saturday letter routes (delivering letters and packages) to parcel-only routes was expected to range from \$912 million to \$2.0 billion. However, after factoring lost letter volume and revenue as well as increased work activity Monday through Friday for letter delivery, the total financial savings were only expected to range from \$625 million (0.9% of the USPS operating budget) to \$1.3 billion (2.1% of the operating budget). (Table 1)

Table 1.
Expected Cost Savings from a 5+ Delivery Model, 2012¹³

	Plan 5+ Low	Plan 5+ High
Direct Avoided Costs	\$912 M	\$1,966 M
Lost Contribution	-\$287 M	-\$573 M
Total Financial Savings	\$625 M	\$1,393 M
Total Operating Expenses	\$67,697 M	\$67,697 M
Savings as % of Operating Expenses	0.9%	2.1%

Thus, reducing the number of joint delivery days and increasing the number of parcel delivery days is unlikely to have a significant impact on USPS financial position. Additionally, the more USPS cuts back on letter delivery, the faster volume can be expected to decline.

Other studies suggest that there is no financial benefit to parcel-only delivery days. Specifically, Cohen and Waller found that USPS “clearly does not recover the extra cost of using parcel routes during peak load situations, on holidays (when parcels but not letters are delivered) or in other situations, including routine parcel delivery on Special Purpose Routes. Under these circumstances, parcels become unprofitable.”¹⁴

¹³ Trinkner, Urs, Ph.D. and Andreas Haller. 2014. “Impact of Discontinuance of Saturday Delivery for Letters and Flats.” Swiss Economics. February.

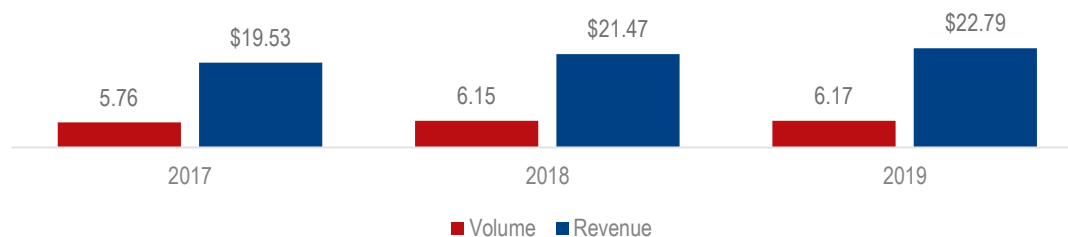
¹⁴ USPS. 2020. Ready-Now Future Ready: The U.S. Postal Service Five-Year Strategic Plan. May 6.

Looking Forward: Factors to Consider

As USPS assesses its delivery models, there are three main factors that it needs to consider: parcel volume and revenue, parcel delivery points, financial challenges, and USPS plans for its next generation vehicle fleet.

1. *Parcel Volume & Revenue*: Parcel volume and revenue have grown substantially, even in the last few years. From 2017 to 2019 volume grew nearly 7% from 5.8 billion to 6.2 billion, and revenue grew nearly 17% from \$19.5 billion to \$22.8 billion. (Figure 2)

Figure 2.
Shipping & Package Revenue and Volume 2017-19 (Billions)¹⁵



Parcels have become a key revenue driver for USPS. However, the profitability of parcels is largely due to the letter network. According to Cohen and Waller: “the Postal Service as currently structured would not be able to be a profitable last mile parcel delivery firm without the benefits that arises out of its letter monopoly and joint delivery of parcels and letters.”¹⁶ Indeed USPS recognizes these benefits. In its 2020 strategic plan it states: “Package revenue growth was driven primarily by volume growth due to the affordability and scope of our last-mile delivery services.”¹⁷

Parcel growth has been even more pronounced since the outbreak of the COVID-19 pandemic. According to McKinsey & Co., last-mile deliveries have increased tenfold.¹⁸ Even though USPS has realized more competition in last-mile delivery services, USPS can leverage its network to maintain its position as a leader in last-mile parcel delivery.¹⁹

¹⁵ USPS. 2020. Ready-Now Future Ready: The U.S. Postal Service Five-Year Strategic Plan. May 6.

¹⁶ Cohen, Robert and John Waller. 2016. “The Postal Service’s Cost to Deliver Parcels on Letter Routes and Parcel Routes.” Presented at the Economics Conference on E-Commerce, Digital Economy and Delivery Services. Toulouse, France. March 31-April 1, 2016. pp. 17.

¹⁷ USPS. 2020. Ready-Now Future Ready: The U.S. Postal Service Five-Year Strategic Plan. May 6. Pp. 12.

¹⁸ Bhattacharjee, Dilip, et al. 2020. “US freight after COVID-19: What’s next?” McKinsey and Co. June 2.

¹⁹ USPS. 2020. Ready-Now Future Ready: The U.S. Postal Service Five-Year Strategic Plan. May 6.

2. *Parcel Delivery Points*: The number of delivery points that receive parcels will increase as volume continues to grow. In addition, USPS is looking to establish itself as a key player in the returns industry. According to its strategic plan, USPS is working to build out the infrastructure to “enable flexible and frictionless returns from every home”.²⁰ This new service will also increase the number of delivery points with parcels. As a result, it makes even more sense to keep letter routes in place. As parcel return and delivery volume grows, there will be limited efficiencies created by dynamic routing because so many delivery points will be served daily. Since letters are fast and easy to deliver (about 10 seconds per delivery point), the burden of delivering letters with parcels on letter routes is small.
3. *Financial Challenges*: The financial stability is an ongoing issue for USPS. While the issue is partly driven by operations, the majority of the deficit is due to benefits funding obligations.²¹ In order to control operating costs, USPS is better off maximizing efficiencies and containing costs on its current joint delivery system than switching to a bifurcated system with separate letter and parcel routes.
4. *The Next Generation Vehicle Fleet*: The current USPS vehicle fleet was not built to handle large parcel volumes and therefore does not reach maximum efficiency on joint delivery. Specifically, some vehicles are not large enough accommodate higher parcel volumes, which results in overflow parcel only routes. Additionally, inefficiencies are created when vehicles do not have sufficient dismount access or staging space to handle parcels effectively.²² USPS has an opportunity to maximize efficiency of joint delivery with its next generation delivery vehicles. USPS plans to begin production and deployment of new delivery vehicles as part of its current strategic plan. As USPS invests in this new fleet, it should consider vehicles that can accommodate larger parcel volumes and have features that make it easier for carriers to efficiently deliver parcels.²³ These features would increase to cost-savings of a joint delivery model.

In sum, research supports the cost-effectiveness of joint delivery models over bifurcated delivery. For USPS, the profitability of parcels is largely due to the fact that they are delivered on letter routes along with mail. Switching to a bifurcated model or replacing joint delivery with parcel only delivery on certain days is unlikely a solution to financial challenges faced by USPS.

²⁰ USPS. 2020. Ready-Now Future Ready: The U.S. Postal Service Five-Year Strategic Plan. May 6.

²¹ USPS. 2020. Ready-Now Future Ready: The U.S. Postal Service Five-Year Strategic Plan. May 6.

²² Bradley, Michael D. et al. 2018. “Simulating Cost Effective Parcel Delivery Methods for Postal Services.” The Contribution of the Postal and Delivery Sector, Topics in Regulatory Economics and Policy. Springer International Publishing AG.

²³ USPS. 2020. Ready-Now Future Ready: The U.S. Postal Service Five-Year Strategic Plan. May 6.

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