



# Directional Traffic Patterns and Hub Expansion Boost Amazon Air’s Prospects for Third-Party Shipping

Chaddick Institute *Air Cargo Commentary*  
By Joseph P. Schwieterman, November 19, 2024

Amazon Air’s rollout of an [Amazon Air Cargo](#) website earlier this autumn indicates it is moving more aggressively into third-party shipping, a step many observers, including me, had long anticipated. The unit has undergone much expansion in recent years while increasingly catering to non-Amazon shippers through *Fulfillment by Amazon* and other programs. However, this latest move signifies a broader push to serve shippers not affiliated with Amazon, including freight forwarders, handlers of time-sensitive general freight, and private companies needing logistics support. Amazon Air’s willingness to offer “ad hoc” and charter cargo services indicates operational flexibility is the order of the day.



Based on a review of publicly available information, we find that the move has considerable upside potential for Amazon Air. Three primary factors underscore our optimism.

**1) Due to sharp directional traffic flows, many flights by Amazon Air contractors are prone to having significant unused capacity, according to our data analysis. This gives Amazon Air many opportunities to gain incremental revenue through third-party sales.**

Amazon Air’s contractors handle considerably more *outbound* than inbound traffic at its largest hubs, according to our review of domestic data for January–April 2024 from the TranStats Data Portal of the Bureau of Transportation Statistics. This directional imbalance (measured in tonnage) is greater than at FedEx or UPS. This pattern, we believe, largely stems from Amazon’s clustering of fulfillment centers, warehouses, and other strategic assets around its airline hubs, which make these airports large traffic generators. We evaluated T-100 segment data encompassing 81,000 records and organized by carrier, flight segment, and month. Amazon Air does not report traffic to BTS due to its use of contractors. To overcome this, we reviewed the traffic of its U.S. contractors at its largest hubs, where the vast majority of traffic appears Amazon-related.<sup>i</sup>

We found a pervasive gap between inbound and outbound traffic at large Amazon Air and FedEx, and UPS hubs (Figure 1). Our review encompassed four large hubs for each service provider. At 11 of the 12 hubs, inbound traffic falls short of outbound traffic, with FedEx’s Newark Liberty International hub being the exception.



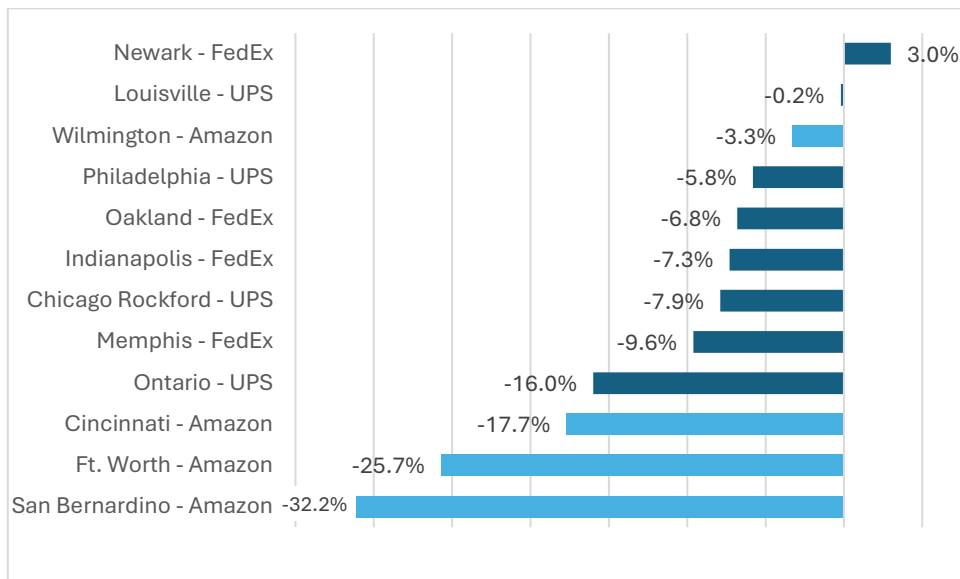
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PHOTO (ABOVE): BOEING 737 AT GERMANY’S LEIPZIG/HALLE AIRPORT IN EARLY 2023 (M. NAJBERG PHOTO).

### Figure 1: The Difference in Inbound vs. Outbound Cargo at Amazon Air, FedEx & UPS Hubs

January–April 2024, tons handled. Excludes traffic by other airport users. Negative numbers signify more outbound traffic.



Source: BTS T-100 domestic segment data. Results for Amazon Air reflect tonnage by its contractor carriers at hub airports, which also handle non-Amazon traffic at these airports, particularly at Cincinnati CVG.

Three of the four Amazon Air hubs have an 18% or more imbalance—a more considerable gap than any other hub. Although nearly all the hubs evaluated have more outbound than inbound traffic, making them “net shippers” of cargo, the imbalance facing Amazon Air contractors at hub airports tends to be more significant. At San Bernardino International (SBD) and Fort Worth Alliance (AFW), the gaps are 32.2% and 25.7%, respectively, while at Cincinnati-Northern Kentucky Intl. (CVG), it was 17.7%. FedEx’s or UPS’s largest hubs have more balanced flows, as does Amazon’s Wilmington (OH) hub, the smallest of the unit’s four hubs on the table. (The CVG estimate should be viewed more cautiously than the others due to the arrangements by some Amazon Air contractors to also serve DHL International at that hub). Considering that CVG now has around 42 daily Amazon Air arrivals, these contractors would need to handle about the equivalent of eight more planes of inbound tonnage, at existing load factors, to eliminate the imbalances at that airport.<sup>ii</sup> Amazon Air’s contractors at Florida’s Lakeland Linder (not shown on the chart, but roughly the same size as Wilmington), conversely, carry 33.7% more *inbound* than outbound cargo, indicating its flights there have much capacity in the opposite direction.

Air cargo integrators face less extensive imbalances partially because of their “anywhere to anywhere” business models, which results in large volumes of traffic originating at hundreds of locations worldwide. The evidence indicates that Amazon Air’s more specialized role, focusing primarily on business-to-consumer and business-to-business shipping, results in a disproportionate share of traffic originating at a limited number of fulfillment-center and warehouse clusters, such as those around CVG and SBD.

Amazon Air and other air cargo providers have a variety of strategies at their disposal to lessen the imbalances. They can deadhead planes from net-receiver airports that need more outbound capacity and shift traffic to motor vehicles on routes with large directional disparities. They can reduce rates to attract traffic to offset the imbalances. To a certain degree, imbalances may be inevitable due to constraints posed by headwinds and other meteorological issues, limitations on runway length, curfews, and other technical factors. Moreover, in our analysis, we consider only imbalances in the *weight* of cargo handled. *Volume* constraints (cubic) may also be at play.

Amazon Air regularly adjusts its schedule, apparently with considerable sophistication, to optimize capacity. This includes large-scale seasonal adjustments. As described on the next page, however, its schedules are much more regular than they were a few years ago. As a result of such regularity and the severity of the directional disparities, we believe it has considerable upside potential selling unused capacity to third parties.

## 2) Amazon Air schedules are now more regular from day to day.

A second factor boosting Amazon Air’s prospects for third-party shipping is its enhanced ability to sell its available freighter space well into the future due to increased regularity in its flight schedule. When we began our independent reviews in early 2020, Amazon Air had a more decentralized route network and a higher propensity to change schedules daily or weekly. Present-day Amazon Air more closely resembles FedEx and UPS and is characterized by the same number of outbound and return flights between hub airports and spoke airports. More flights operate at roughly the same time each day. The hopscotch-style network prevalent during the early pandemic period, when schedules and routes were highly fluid, is mostly gone. Some Amazon Air planes, like one of the newly acquired A330s, essentially operates the same routes day after day. The regularity allows excess capacity to be sold with less risk that it will interfere with Amazon’s internal needs.



An Amazon Air 737 departs San Bernardino Intl. in 2023 (Peiwen Chen)

## 3) The expansion of Cincinnati-Northern Kentucky Intl. (CVG) and other hubs allows Amazon Air to offer more comprehensive shipping options to third parties.

Growth at the CVG superhub continues to be robust. During the first week of November 2024, the overnight departure “bank” (cluster) from 12:30 to 5 a.m. has around 14 flights daily, roughly the same as in March. The afternoon bank from 1 to 4 p.m. generally had around 18 departures, several more than eight months ago. In addition, a half dozen “partner flights” (planes operated by contractors not branded as Amazon Air but appearing to be flying on Amazon Air missions) augment these clusters. Amazon Air’s CVG operation has grown by several flights since March, and its total activity at CVG about two-and-a-half the size it was in early 2021.

CVG’s enormous geographic reach is a key strategic advantage, as it is within a 10-hour truck trip of around 64% of the U.S. population.<sup>iii</sup> However, flight activity at Amazon Air’s CVG superhub activity remains far less than at FedEx and UPS’s largest hubs. In our view, Amazon Air’s CVG is not yet at a scale that it can offer prospective customers the capacity to support next-afternoon delivery across the *entire* U.S. mainland, which would require more expansion. Even so, Amazon Air is well-positioned to cater to general air freight and retailers needing second-day deliveries across the mainland.

CVG’s growth is augmented by expansion at secondary hubs, which also favors third-party sales. In March 2024, 80.5% of Amazon Air flights (within the U.S. mainland) operated to or from its five largest hubs, up from 65.6% in early 2021. Flight activity at four of its five busiest hubs—CVG, SBD, Ohio’s Wilmington Air Park, and Lakeland-Linder—grew sharply over the previous year, while non-hub flying fell. Such concentration makes it easier to attract customers with large-scale shipping needs. Although directional imbalances bring added complexity, Amazon Air’s hub expansion is multiplying its opportunities for third partners at key logistics locations.

We emphasize that our analysis covers only a few aspects of Amazon’s enormously complex air cargo system, and the data has notable limitations by excluding international cargo and other factors. Nevertheless, the findings, together with a general air-cargo rebound underway and FedEx and UPS’s recent flight cutbacks and reticence to add capacity back—indicate Amazon Air is well positioned for generating revenue through third-party shipping. We will provide more insights about directional flows at cargo airports in general in a January presentation at the Transportation Research Board conference.

***This brief is prepared as an extension of the Chaddick Institute’s mission to promote public understanding of the evolution of transportation systems. The findings are based entirely on the Chaddick Institute’s independent analysis of publicly available data, without proprietary Amazon data or perspective. Any opinions expressed are those of the authors.***

<sup>i</sup> We apportioned traffic from contract carriers to FedEx and Amazon using data based on their commitments to these three service providers indicated on fleet rosters on Planespotters.com. Data from CVG Airport is affected by the propensity for some carriers, such as ATI, to lease planes to both Amazon Air and DHL.

<sup>ii</sup> This estimate is based on the additional Amazon Air planes being loaded with cargo tonnage equal to the CVG average. If planes are filled, fewer than eight planes would be needed.

<sup>iii</sup> For details, please refer to this edition of the Lane Report at <https://www.lanereport.com/111101/2019/03/cvg-offers-more-and-cheaper-flights-short-commutes-and-easy-access-to-most-of-america/>