



## Inbound air freight prices go sky high in the midst of pandemic

*By Hayden Swegal and Alice Wiesner*

The international air freight industry, also known as the air cargo industry, experienced record high rates in the spring of 2020. Typically, about 45 percent to 50 percent of air freight is transported in the bellies of passenger planes, but in April 2020, 75 percent of this air freight capacity was removed from the market due to a severe reduction in air travel.<sup>1</sup> At the same time, personal protective equipment (PPE) was in enormous demand all over the world.<sup>2</sup> Drastically reduced shipping capacity and urgent demand for PPE pushed prices up for air freight transportation services for goods being shipped from foreign countries into the United States, also known as U.S. inbound air freight, to unprecedented heights.

This **Beyond the Numbers** article looks back at pre-pandemic inbound air freight price trends in the United States and around the world and uses U.S. Bureau of Labor Statistics (BLS) price index measures to describe the COVID-19 pandemic-related changes in the market since early 2020.

## U.S. and worldwide trends

In 2019, 6.7 million air freight tons were shipped to the United States from foreign countries according to the Department of Transportation.<sup>3</sup> Asia is the top source of U.S. inbound merchandise goods shipped via air. As seen in [table 1](#), China contributed the most, with over 842,000 freight tons, followed by Hong Kong, which shipped just under 700,000 freight tons in 2019. Inbound air freight is carried by both domestic and foreign carriers. The value of air freight transportation services provided solely by foreign carriers destined for U.S. markets was \$8.5 billion in 2019.<sup>4</sup> The dollar value for the delivery services to the United States on foreign carriers was highest from South Korea at \$1.1 billion, followed by China, Taiwan, Hong Kong, and Japan. When combined, these five countries accounted for 43.9 percent of the inbound freight ton total and 50.9 percent of the total dollar value of import air freight transportation services.

**Table 1. Top five U.S. import air freight transportation services trade partners by import dollar value and their inbound freight tons for 2019**

| Country     | Import dollar value (in millions) | Inbound freight ton totals (in thousands) |
|-------------|-----------------------------------|---|
| South Korea | \$1,113                           | 410                                       |
| China       | 1,088                             | 842                                       |
| Taiwan      | 732                               | 351                                       |
| Hong Kong   | 724                               | 699                                       |
| Japan       | 671                               | 656                                       |

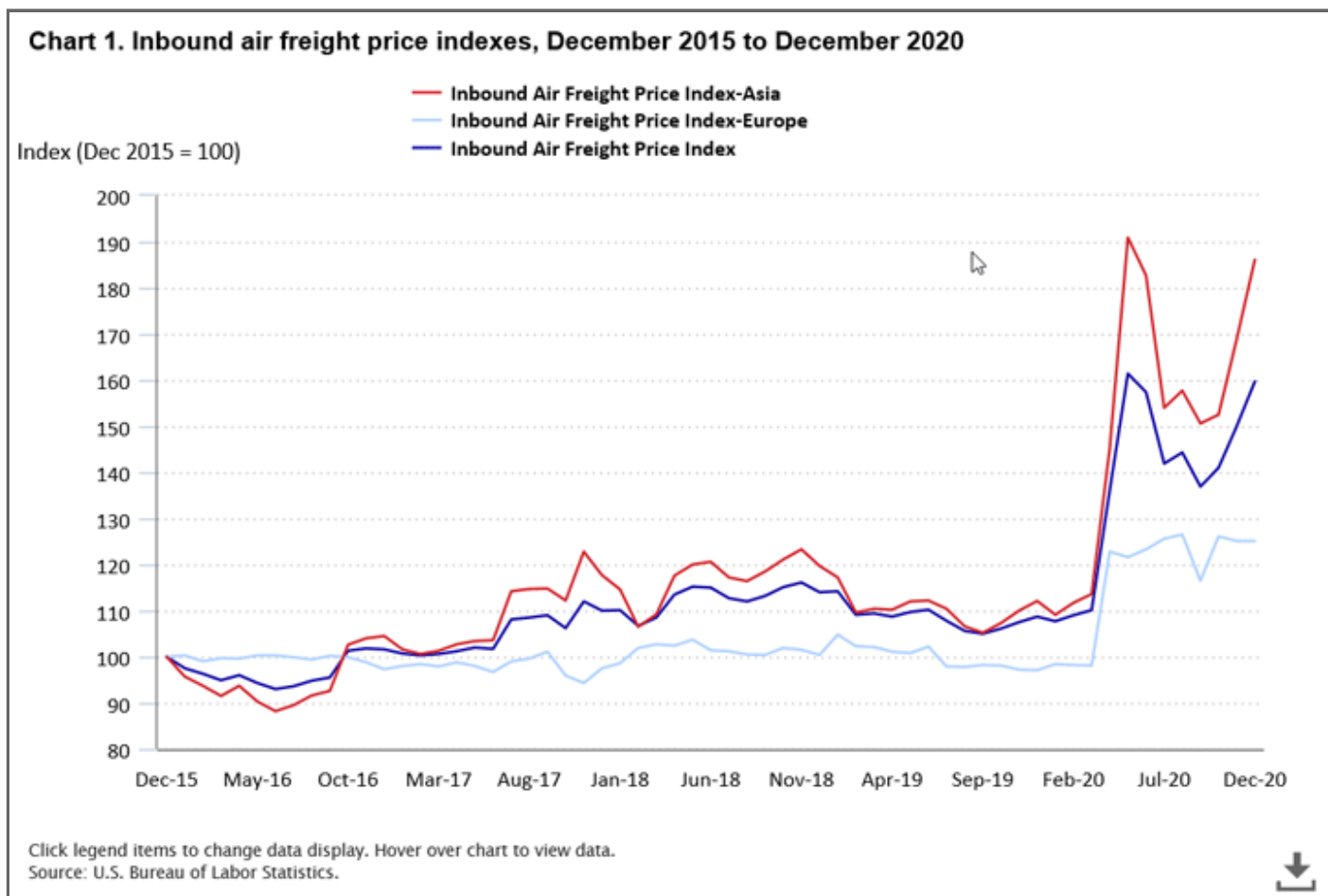
Source: Import dollar values are from the Bureau of Economic Analysis and freight ton totals are from the Department of Transportation.

The international air cargo market is a smaller share of cross-border trade than ocean cargo transported on freighters. Some international cargo is transported by air on cargo and passenger planes when shippers are willing to pay the high cost to quickly deliver the goods. Air cargo services are typically used for high-value and perishable items. Air cargo demand is cyclical and depends on various factors such as global economic activity, the business restocking cycle, and export orders.<sup>5</sup> Worldwide, the international air freight industry experienced strong growth in 2017, with demand, measured in cargo ton kilometers, increasing almost 10 percent and total cargo revenue ton-miles increasing 12.9 percent.<sup>6</sup> Starting in 2018, demand slowed to an increase of 3.6 percent, with a corresponding total cargo revenue ton-miles increasing 5.6 percent. The industry experienced some setbacks in 2019 because of economic decline related to international trade disputes. Demand fell 3.9 percent that year in response, the first decrease since 2012. Total revenue ton-miles declined 7.0 percent in 2019. International air freight capacity, measured in available cargo ton-kilometers, increased 3.9 percent in 2017, 5.3 percent in 2018, and 1.6 percent in 2019. Air freight rates typically increase in the fourth quarter each year due to the holiday demand and then taper off after the New Year.<sup>7</sup> U.S. trends mirrored world trends; over the 2016–19 period, the December 12-month percent change of the Inbound Air Freight Price Index was 7.7 percent in 2017, 5.2 percent in 2018, and -6.6 percent in 2019.

## Inbound prices ascended then descended

International air freight price indexes published by BLS measure monthly price changes for transporting consolidated shipments and individual packages on flights arriving and departing the United States on both foreign carriers and U.S. carriers. Prices are collected for all areas of the world and account for both the direction of transport and residency of the companies providing and buying air freight services. Inbound air freight price indexes measure the monthly price changes of air freight flown from foreign countries into the United States on both U.S. and foreign carriers. Price indexes are available for all-world inbound air freight and for Asia and Europe, the two major trading regions beyond North America. Further details regarding the methodology of international air freight price indexes published by BLS can be found in the [Air Freight Fact Sheet](#).

From 2016 to 2019, inbound air freight price trends for the United States followed world trends. Looking at the regional impact ([chart 1](#)), we can see how a 39.8-percent increase in inbound Asian air freight prices drove the overall price index's advance from June 2016 to November 2018. Prices then declined over the subsequent 10-month period. Both Asian and European inbound air freight prices contributed to the fall, decreasing 14.7 percent and 3.2 percent, respectively, from November 2018 to September 2019.



Inbound air freight prices began to increase in October 2019. They rose throughout the remainder of the year and into earlier 2020, capping off with record-breaking price advances in April and May. Before April, increases in the Inbound Air Freight Price Index for Asia offset relatively minor declines in the Inbound Air Freight Price Index for Europe. Inbound air freight prices then recorded increases of 23.6 percent from March to April and 18.7 percent

from April to May, led by record-breaking advances in air freight prices from Asia. The rise in April was the largest 1-month advance since the price index was published on a monthly basis, and the increase in May was the second largest. The magnitude of the changes was caused by the unprecedented COVID-19 pandemic.

## Planes grounded while demand takes off

Beginning in March 2020, the international economy experienced widespread lockdowns to prevent the spread of COVID-19. This affected the airline industry because airlines stopped flying passenger planes, especially those designated for international travel. Considering that almost half of air cargo is flown in the bellies of passenger planes, the airline industry decided to ground these planes, severely restricting the overall capacity of air freight. According to Flightradar24, a global flight tracking service, the number of commercial flights (including cargo flights) dropped from 81,309 on March 18, 2020, to 23,926 on April 12, 2020, an astounding 70.6 percent.<sup>8</sup>

From March through May 2020, drastic changes in the air freight market affected both capacity and prices worldwide. Global capacity drastically reduced starting in March 2020. The International Air Transport Association (IATA) reported that international capacity declined almost 25 percent year-over-year in March 2020 and continued to decline on a 12-month basis, decreasing 40.9 percent in April, 32.2 percent in May, 33.9 percent in June, and 32.9 percent in July.<sup>9</sup> Global air freight demand declined drastically as well while manufacturing capabilities stalled around the world. In addition, the IATA reported that total capacity in April, including domestic and international, contracted 27.7 percent over the past year, the largest drop since the series was first published in 1990. When capacity declined, this sharp reduction caused cargo load factors, the capacity that is actually utilized, to rise; shippers used more of the available space—planes were fuller. For example, the international Asia Pacific cargo load factor reached 72.1 percent for the year ended in April 2020, an increase of 14.4 percent from April 2019. A 42.5-percent decline in capacity over the same period more than offset a 28.1-percent drop in demand. The Europe region experienced similar capacity restraints and a demand decline. The advance in the Asia Pacific and Europe cargo load factors showcased not only the fall in capacity, but also the enormous need for cargo space to quickly transport PPE to the United States. In addition, daily freighter utilization, defined as average travel time per plane, was close to 11 hours a day, the highest level since IATA started publishing the data in 2012.

Restricted capacity and U.S. demand for PPE, which primarily came from Asia, contributed to U.S. inbound air freight prices spiking in April and May of 2020. As seen in [table 2](#), the Inbound Air Freight Price Index increased 23.6 percent from March to April and 18.7 percent from April to May. Before April 2020, the largest 1-month advance was a 6.3-percent rise in July 2017. Both European and Asian inbound air freight prices contributed to the increase from March to April 2020, rising 25.2 percent and 27.8 percent, respectively. These advances were the largest 1-month increases since the price indexes were first published on a monthly basis in December 2005. Inbound air freight prices from Asia drove the rise in May, advancing 31.4 percent and setting a new monthly record, while inbound air freight prices from Europe fell 1.0 percent.

**Table 2. Inbound air freight price indexes 1-month and 12-month percent changes for 2020**

| Month   | Inbound Air Freight Price Index |                         | Inbound Air Freight Price Index for Europe |                         | Inbound Air Freight Price Index for Asia |                         |
|---------|---------------------------------|-------------------------|--|-------------------------|--|-------------------------|
|         | 1-month percent change          | 12-month percent change | 1-month percent change                     | 12-month percent change | 1-month percent change                   | 12-month percent change |
| January | -0.9                            | -5.6                    | 1.3  | -6.1                    | -2.6                                     | -6.9                    |

See footnotes at end of table.

**Table 2. Inbound air freight price indexes 1-month and 12-month percent changes for 2020**

| Month     | Inbound Air Freight Price Index |                         | Inbound Air Freight Price Index for Europe |                         | Inbound Air Freight Price Index for Asia |                         |
|-----------|---------------------------------|-------------------------|--|-------------------------|--|-------------------------|
|           | 1-month percent change          | 12-month percent change | 1-month percent change                     | 12-month percent change | 1-month percent change                   | 12-month percent change |
| February  | 1.2                             | -0.1                    | -0.2                                       | -4.0                    | 2.3                                      | 1.9                     |
| March     | 1.0                             | 0.6                     | -0.2                                       | -4.0                    | 1.7                                      | 2.9                     |
| April     | 23.6                            | 25.2                    | 25.2                                       | 21.5                    | 27.8                                     | 31.9                    |
| May       | 18.7                            | 47.2                    | -1.0                                       | 20.6                    | 31.4                                     | 70.4                    |
| June      | -2.5                            | 42.8                    | 1.5  | 20.7                    | -4.3                                     | 62.8                    |
| July      | -9.9                            | 31.6                    | 1.9  | 28.4                    | -15.7                                    | 39.4                    |
| August    | 1.7                             | 36.7                    | 0.7  | 29.4                    | 2.4                                      | 48.0                    |
| September | -5.1                            | 30.4                    | -7.9                                       | 18.6                    | -4.5                                     | 43.2                    |
| October   | 3.0                             | 32.9                    | 8.3  | 28.5                    | 1.3                                      | 42.2                    |
| November  | 6.3                             | 39.5                    | -0.8                                       | 28.7                    | 10.8                                     | 53.6                    |
| December  | 6.5                             | 46.9                    | 0.0  | 28.8                    | 10.1                                     | 66.0                    |

Source: U.S. Bureau of Labor Statistics.

To cope with the sudden supply and demand changes, airlines around the world converted their passenger planes into cargo-only, either by securing shipments and packages onto their planes’ seats or by removing the seats in order to make space for freight.<sup>10</sup> By the end of April 2020, roughly 900 passenger planes were exclusively used for cargo transportation around the globe.<sup>11</sup> On May 22, the Federal Aviation Administration issued an exemption allowing various U.S. airlines to secure freight on top of and under their planes’ seats when no passengers were being transported.<sup>12</sup> By mid-June, the total number of passenger planes used solely for cargo transportation increased to over 2,300.<sup>13</sup> On July 10, another exemption was issued allowing airlines to remove seats and secure cargo using the now unused seat tracks.<sup>14</sup> As of late August, nearly 2,500 passenger planes were used solely for freight-only flights.<sup>15</sup>

## The new normal?

Inbound air freight prices fell after the April 2020 and May 2020 increases, declining 2.5 percent from May to June and 9.9 percent from June to July. Despite the monthly decreases, the effects of the price shocks continued to linger. Before April 2020, the largest 12-month advance was a 21.8-percent increase from July 2007 to July 2008. The over-the-year increases recorded from March 2020 to March 2021 all exceeded the July 2008 12-month advance, including a 47.2-percent rise from May 2019 to May 2020, the new high-water mark. While prices remained elevated, strong pre-holiday demand for the months leading into December contributed to 1-month advances in the Inbound Air Freight Price Index which rose 3.0 percent in October 2020 and 6.3 percent in November 2020. Coinciding with the end of the seasonal demand was the beginning of COVID-19 vaccine distribution, further straining available air cargo capacity.<sup>16</sup> Inbound air freight prices had a 1-month advance of 6.5 percent in December 2020.

Vaccine distribution continues to be a demand factor for air freight transporters to consider throughout 2021. Also, the easing of COVID-19 restrictions and improving conditions for the global economy are all affecting air freight prices.<sup>17</sup> Although inbound air freight prices declined between December 2020 and March 2021, the price index

remains high. Until passenger planes are flying internationally again, the current situation is likely to be the new normal.<sup>18</sup>

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## NOTES

<sup>1</sup> Cathy Buyck, “More Airlines Are Stuffing Cargo Into Passenger Seats To Counter Coronavirus Slump,” *Forbes*, March 26, 2020, <https://www.forbes.com/sites/cathybuyck/2020/03/26/airlines-spot-revenue-opportunity-and-use-their-passenger-aircraft-to-ship-urgent-cargo/?sh=6405458c7c68>.

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<sup>2</sup> “Why countries can’t meet the demand for gear against covid-19,” *The Economist*, April 19, 2020, <https://www.economist.com/international/2020/04/19/why-countries-cant-meet-the-demand-for-gear-against-covid-19>.

<sup>3</sup> “Segmented 2019 Inbound Freight Data,” Department of Transportation, Bureau of Transportation Statistics, T-100 databank. Retrieved from the Office of Airline Information, September 15, 2020, <https://www.transtats.bts.gov/DataIndex.asp>.

<sup>4</sup> “Table 2.1. U.S. Trade in Services, by Type of Service,” U.S. Bureau of Economic Analysis, June 30, 2020, <https://apps.bea.gov/iTable/iTable.cfm?ReqID=62&step=1>, International services tab.

<sup>5</sup> *IATA Annual Review 2019*, International Air Transport Association, June 2019, <https://www.iata.org/contentassets/c81222d96c9a4e0bb4ff6ced0126f0bb/iata-annual-review-2019.pdf>.

<sup>6</sup> Ton is defined as a metric ton, which is 1,000 kilograms, or 2,204.6 pounds. A ton-mile is one ton of freight carried one mile. Cargo ton kilometers (CTK’s) measures air freight traffic (demand) by weight while revenue ton-miles measures air freight traffic by value (revenue).

“IATA Economics,” International Air Transport Association, December 2017, December 2018, and December 2019, <https://www.iata.org/en/publications/economics/?page=3&Search=&EconomicsL1=144&EconomicsL2=147&Ordering=DateDesc>.

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<sup>7</sup> Jesse Cohen, “Peak Season for Air Cargo: Past Results, Present Challenges,” *FreightWaves*, October 23, 2019, <https://www.freightwaves.com/news/air-cargos-year-end-and-preview-of-2020>.

<sup>8</sup> See live flight tracker real-time flight tracker map, *Flightradar24*, <https://www.flightradar24.com/data/statistics>.

Also see Ian Petchenik, “Pause or plateau: July marks inflection point in flight traffic recovery,” *Flightradar24 Blog*, August 3, 2020, <https://www.flightradar24.com/blog/pause-or-plateau-july-marks-inflection-point-in-flight-traffic-recovery/>.

<sup>9</sup> “IATA Economics,” International Air Transport Association, March 2020, April 2020, May 2020, June 2020, and July 2020, <http://www.iata.org/en/publications/economics/?page=3&Search=&EconomicsL1=144&EconomicsL2=147&Ordering=DateDesc>.

<sup>10</sup> Cathy Buyck, “More Airlines Are Stuffing Cargo Into Passenger Seats To Counter Coronavirus Slump,” *Forbes*, March 26, 2020, <https://www.forbes.com/sites/cathybuyck/2020/03/26/airlines-spot-revenue-opportunity-and-use-their-passenger-aircraft-to-ship-urgent-cargo/?sh=6405458c7c68>

<sup>11</sup> Charles Kauffman, and Jeff Lee, “Cargo Facts launches passenger-freighter database,” *Cargo Facts*, Royal Media, April 30, 2020, <https://cargofacts.com/allposts/equipment/aircraft/cargo-facts-launches-passenger-freighter-database/>.

<sup>12</sup> “Partial Grant of Exemption,” Exemption No. 18561, Regulatory Docket No. FAA-2020-0429 (U.S. Department of Transportation, May 20, 2020), [http://www.faa.gov/coronavirus/regulatory\\_updates/media/18561.pdf](http://www.faa.gov/coronavirus/regulatory_updates/media/18561.pdf).

<sup>13</sup> Kauffman and Lee, “Return to the skies of passengers doesn’t spell the end of passenger freighters,” *Cargo Facts*, Royal Media, April 30, 2020, <https://cargofacts.com/allposts/equipment/aircraft/cargo-facts-launches-passenger-freighter-database/>.

<sup>14</sup> “Partial Grant of Exemption,” Exemption No. 18584, Regulatory Docket No. FAA-2020-0492 (U.S. Department of Transportation, July 10, 2020), [www.faa.gov/coronavirus/regulatory\\_updates/media/18584.pdf](http://www.faa.gov/coronavirus/regulatory_updates/media/18584.pdf).

<sup>15</sup> “Passenger Freighter Database,” *Cargo Facts*, Royal Media, <https://cargofacts.com/pax-freighter/>, accessed August, 2020.

<sup>16</sup> Stephanie Nebehay, “Air freight prices 'outrageous' as COVID-19 shots rolled out, says WHO expert,” *Reuters*, December 8, 2020, <https://www.reuters.com/article/us-health-coronavirus-who-vaccines/air-freight-prices-outrageous-as-covid-19-shots-rolled-out-says-who-expert-idUSKBN28I2RM>.

<sup>17</sup> Eric Kulisch, “Airlines to lose \$48B despite banner year for cargo,” *FreightWaves Inc.*, April 21, 2021, <https://www.freightwaves.com/news/airlines-to-lose-48b-despite-banner-year-for-cargo>.

<sup>18</sup> Eric Kulisch, “Suez bypass: Good luck finding an air cargo alternative,” *FreightWaves Inc.*, March 30, 2021, <https://www.freightwaves.com/news/suez-bypass-good-luck-finding-an-air-cargo-alternative>.

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