AIR CARGO AND PASSENGER ENPLANEMENTS LEVELS

Before, during, and after the pandemic

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Aviation Technical Subcommittee
March 23, 2023

National Capital Region
Transportation Planning Board

Research Question

- How have air cargo and passenger enplanement levels changed before, during, and after the pandemic?

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Outline

- Context

  - Employment, Traffic Volumes, Global Supply Chain Pressure, E-Commerce

- Air Cargo/Freight

  - Overall level of freight and air cargo, share of shipments by air, changes to most common commodities shipped by air,

  - Trend by origin and destination by states and countries.

- Enplanements

 - Level of Air Passengers by month, by origin and destination states and countries.

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Part 1. Context

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Employment Trend
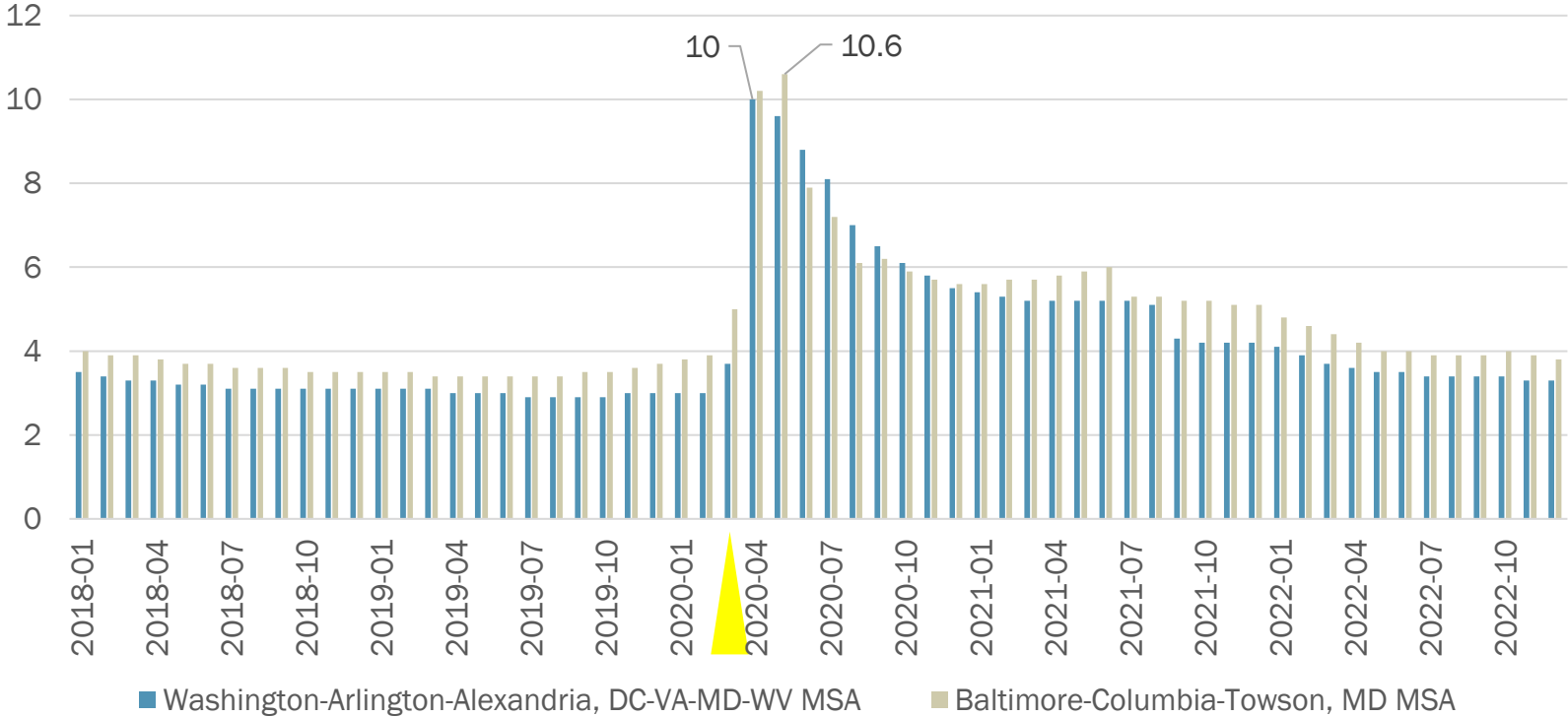## Washington and Baltimore Region
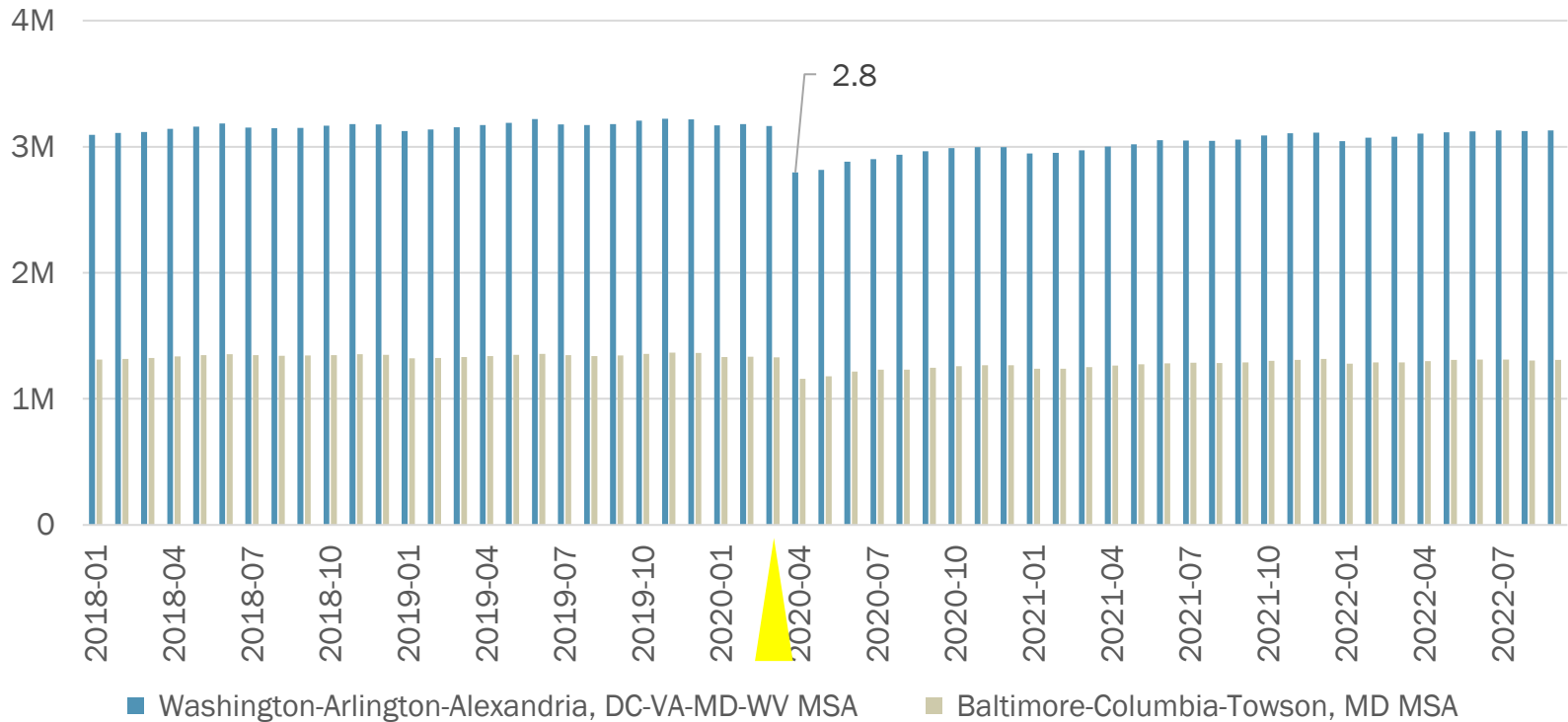
Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables

National Capital Region
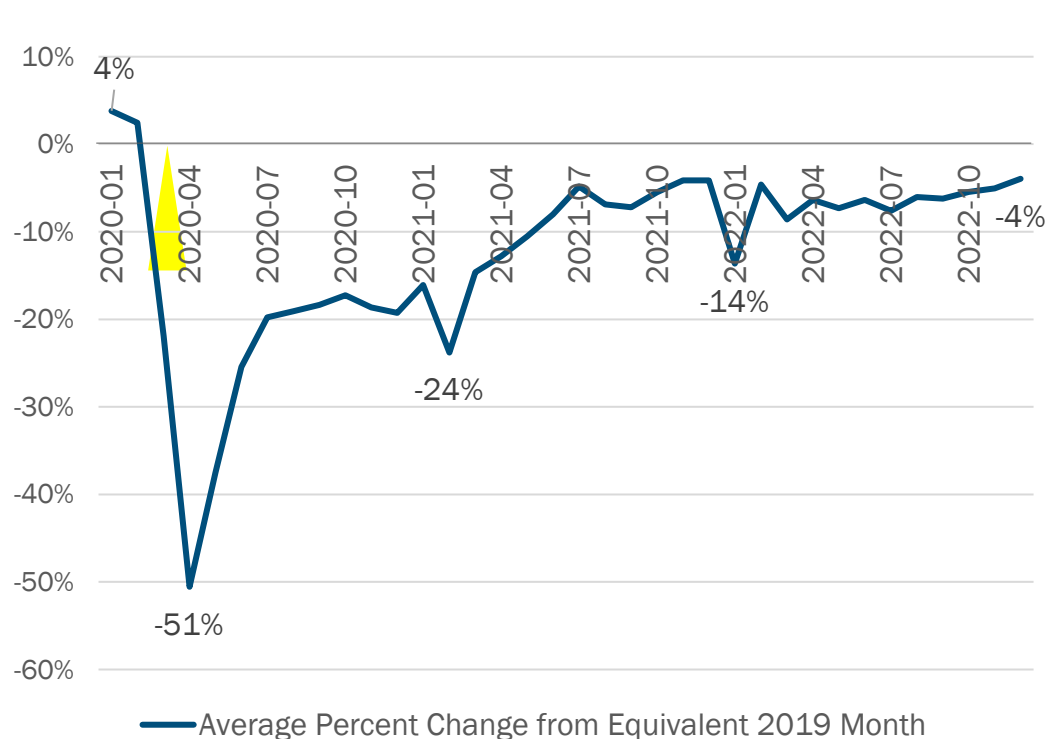Transportation Planning Board

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Unemployment Rate (%)
Washington and Baltimore Region

Source: *US Bureau of Labor Statistics, Local Area Unemployment Statistics, https://www.bls.gov/web/metro.supp.toc.htm, Table 1*

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Traffic Volumes, Average Change from Equivalent 2019 Month
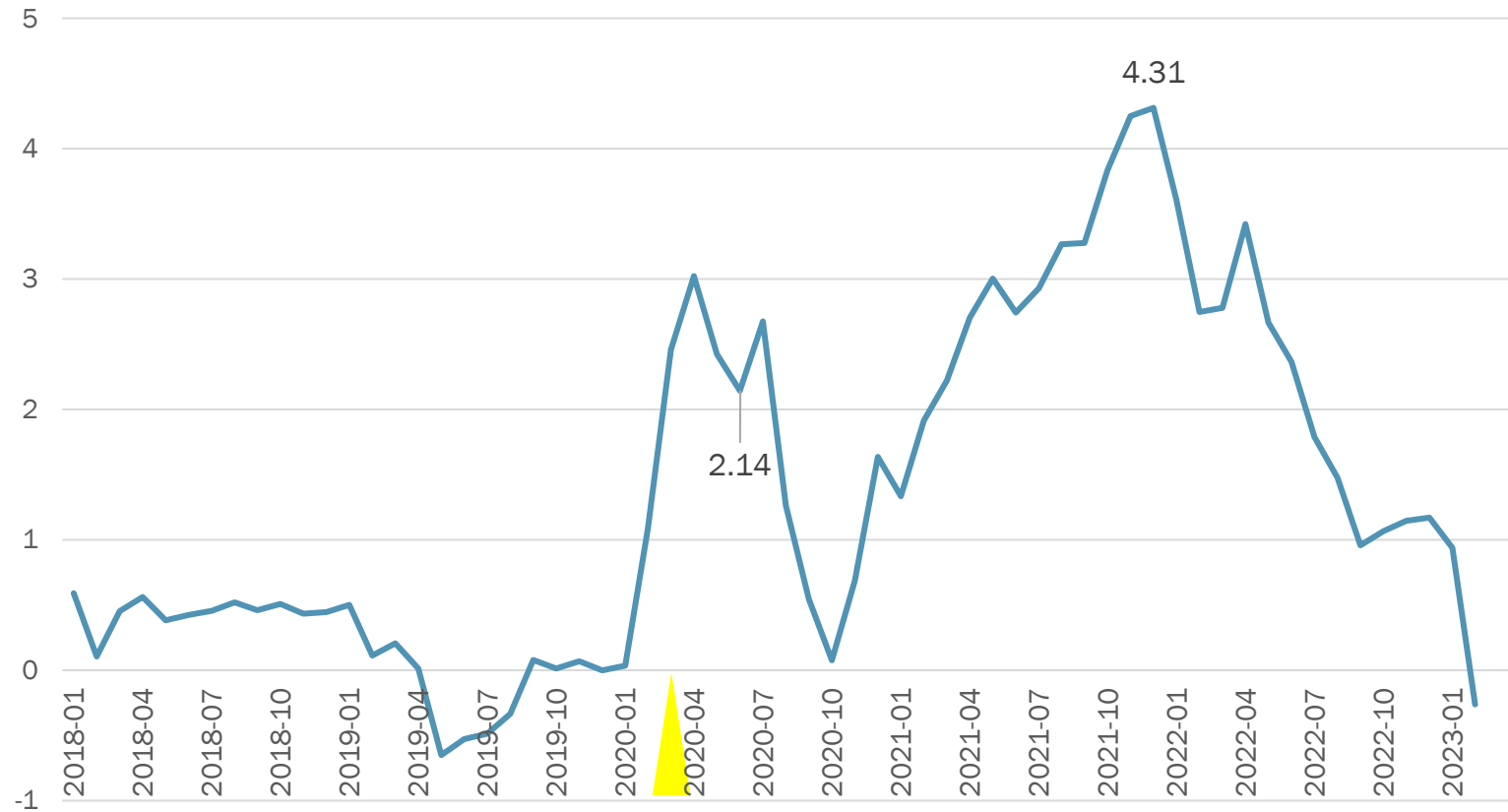## TPB Modeled Region

Continuous Count Stations in the TPB Modeled Region
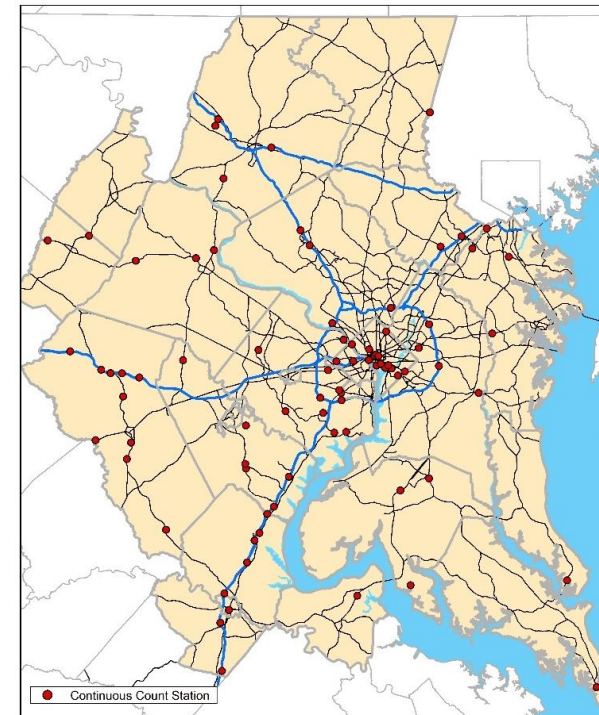
Source: National Capital Region Transportation Planning Board, COVID-19 Travel Monitoring Snapshot Pre-Pandemic to December 2022 Analysis, https://www.mwcog.org/documents/2022/05/10/covid-19-travel-monitoring-snapshot-covid19-featured-publications-traffic-monitoring/ , page 2

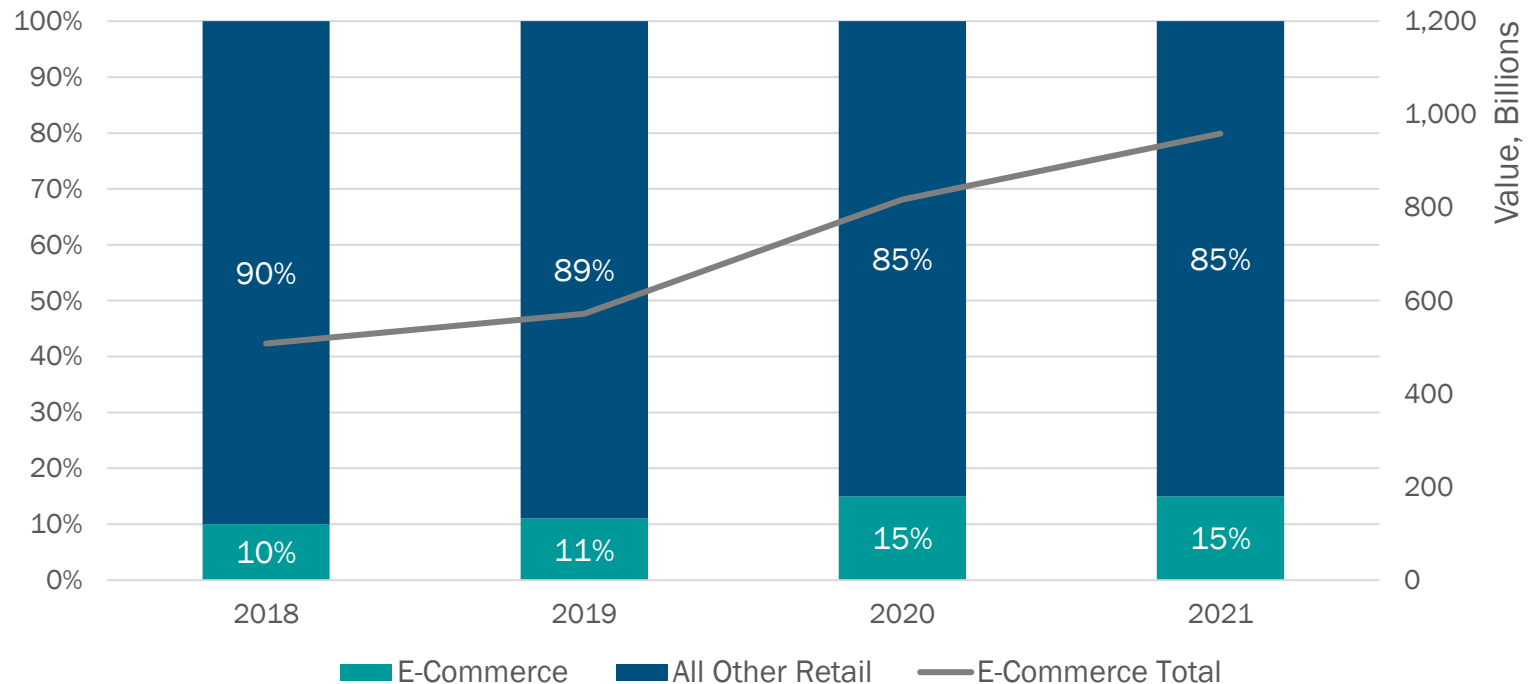# Global Supply Chain Pressure Index

Source: Federal Reserve Bank of New York, Global Supply Chain Pressure Index, https://www.newyorkfed.org/research/gscpi.html.
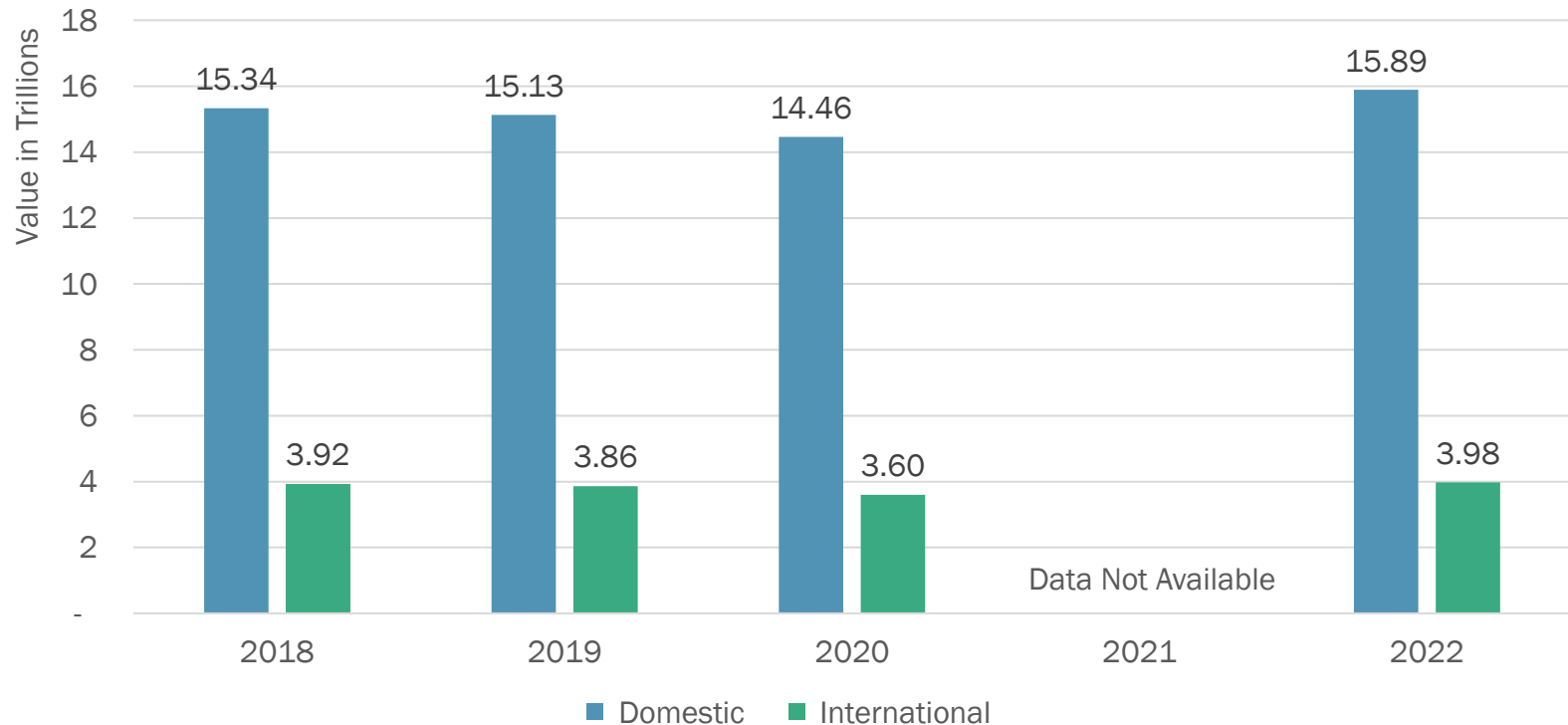
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E-commerce
United States

Source: US Census, Annual Retail Trade Survey, Estimated Annual U.S. Retail Trade Sales - Total and E-commerce, https://www.census.gov/data/tables/2021/econ/arts/annual-report.html

Note: E-commerce sales are sales of goods and services where the buyer places an order, or the price and terms of the sale are negotiated, over an Internet, mobile device (M-commerce), extranet, Electronic Data Interchange (EDI) network, electronic mail, or other comparable online system. Payment may or may not be made online.

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Freight, United States

Value in Trillions

	2018	2019	2020	2021	2022
Domestic	15.34	15.13	14.46	Data Not Available	15.89
International	3.92	3.86	3.60		3.98

■ Domestic ■ International

Source: Freight Analysis Framework, Zone Summary by Mode and Trade, 2018- 2022, https://faf.ornl.gov/faf5/SummaryTable.aspx ,

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Part 2. Air Cargo

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Air Cargo

- Air Cargo is the transport of goods by air. It provides a link in the supply chain with other forms of freight services to transport goods from one location to another.

- The total value of goods transported by air is approximately six trillion annually, accounting for 35% of world trade.

- Benefits: faster than other methods, worldwide reach, high level of security with less risk of theft or damage, time-sensitive goods, such as perishable items, less packaging than other freight transport, reliable schedule with dependable arrival and departure times that are only affected by harsh weather

- Considerations: More expensive (4 to 6 times road transport shipment; 12 to 16 times sea freight), size and weight limitations, limitations for shipping dangerous goods

Source: Asiana USA, "Air Freight vs Air Cargo", https://www.asianausa.com/air-freight-vs-air-cargo-is-there-difference/
IATA.org , 'What Types of Cargo are Transported by Air" https://www.iata.org/en/publications/newsletters/iata-knowledge-hub/what-types-of-cargo-are-transported-by-air/
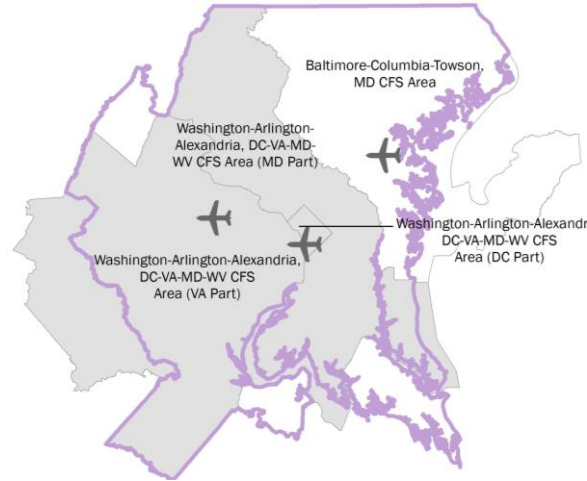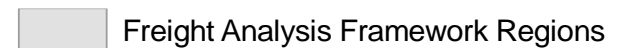
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Freight Analysis Framework Regions

Washington and Baltimore Region

Washington Region

Baltimore Region

Major Commercial Airports | Continuous Air System Planning Area | Freight Analysis Framework Regions

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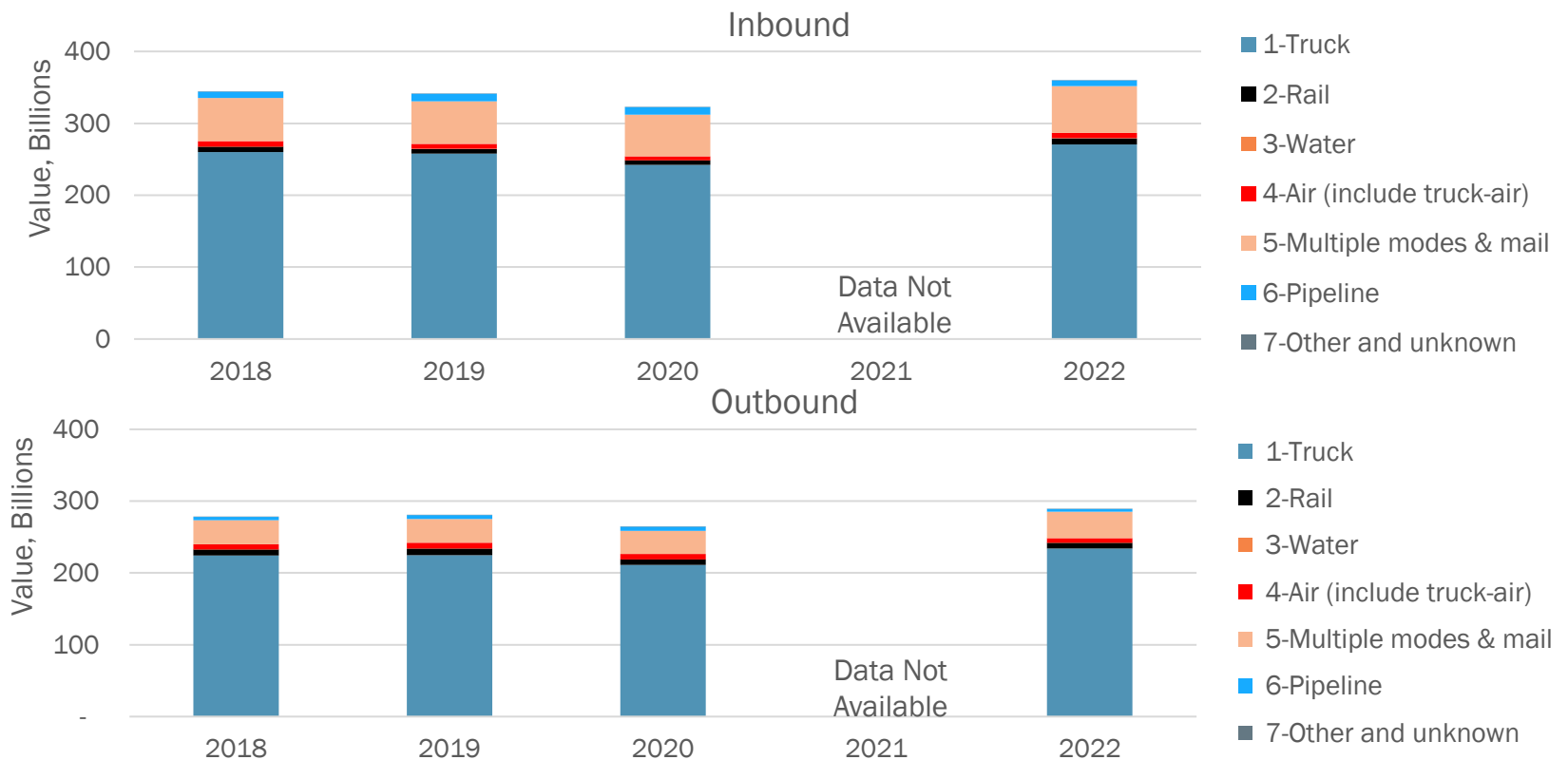Before, during, and after the pandemic
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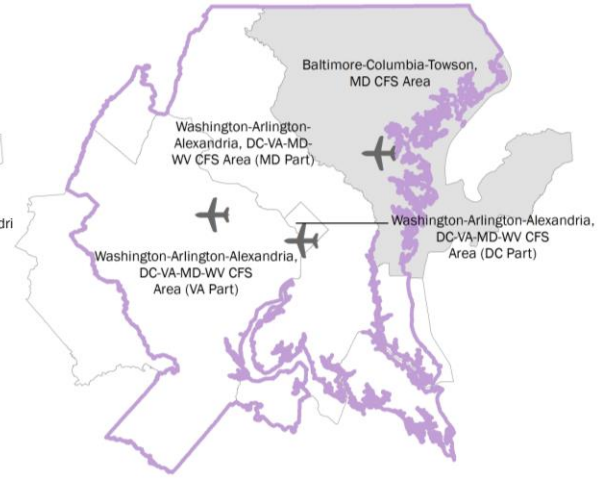
Freight, Washington and Baltimore Regions
Outbound and Inbound Freight Shipments

Source: Freight Analysis Framework, Zone Summary by Mode and Trade, 2018- 2022, https://faf.ornl.gov/faf5/SummaryTable.aspx ,
Washington Region: Washington DC-VA-MD-WV (DC, MD, and VA Parts); Baltimore Region: Baltimore-Columbia-Towson, MD CFS Area

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Air Cargo (Washington Region)
Share of Value($) of Outbound and Inbound Freight Shipments
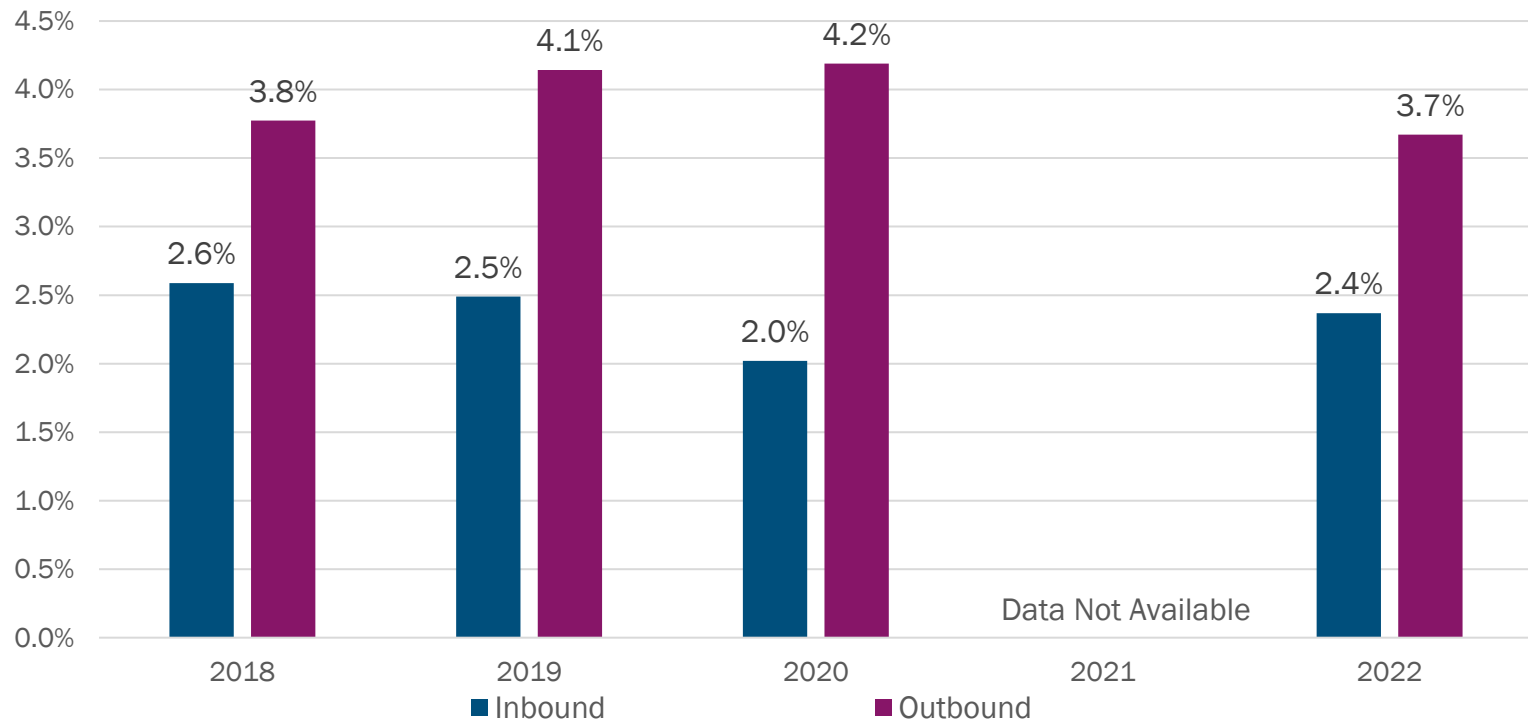
Source: Freight Analysis Framework, Zone Summary by Mode and Trade, 2018- 2022,
https://faf.ornl.gov/faf5/SummaryTable.aspx , Washington Region: Washington DC-VA-MD-WV (DC, MD, and VA Parts)
Mode: 4-Air (include truck-air) : Includes shipments move by air or a combination of truck and air in commercial or private aircraft. Includes air freight and air express. In the case of imports and exports by air, domestic moves by ground to and from the port of entry or exit are categorized with Truck.

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Air Cargo (Baltimore Region)
Share of Value($) of Outbound and Inbound Freight Shipments
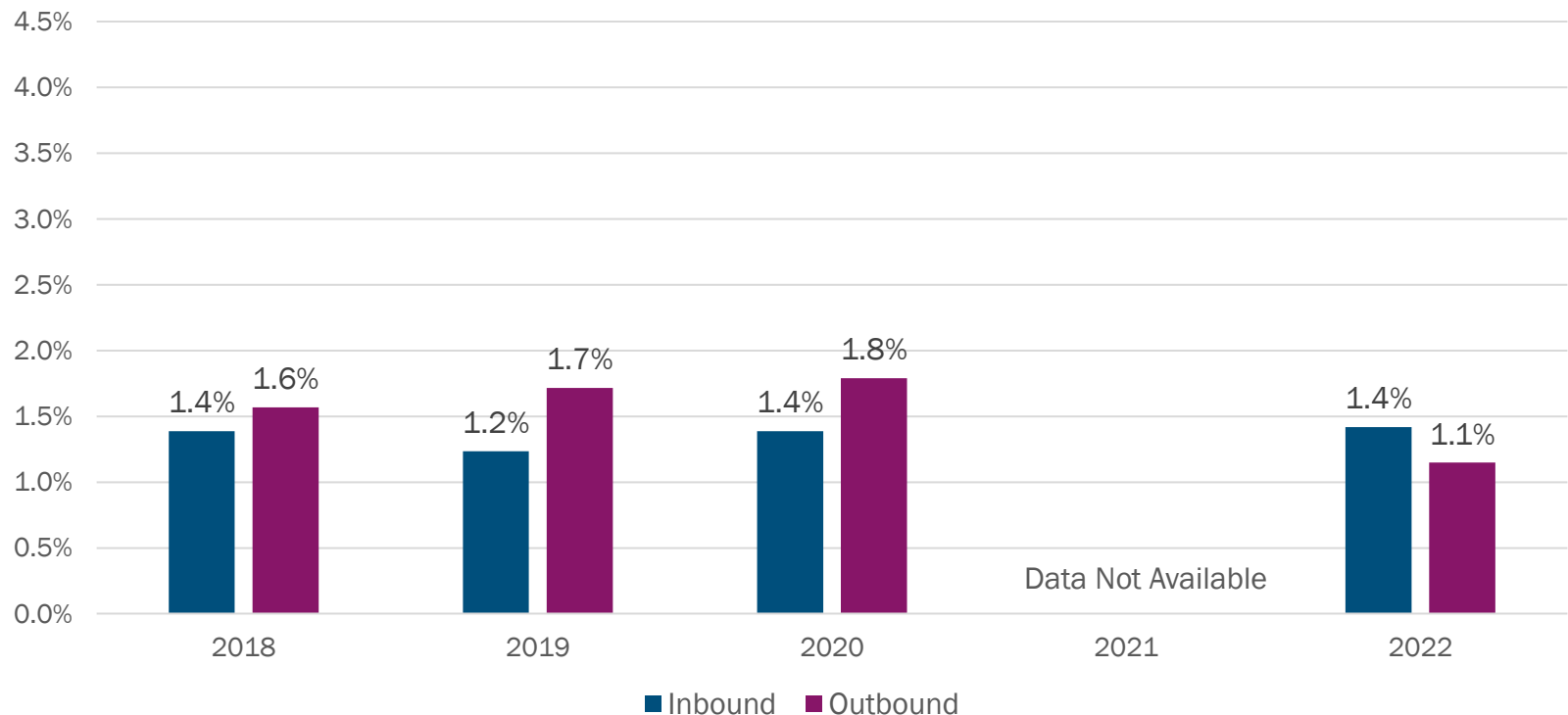
Source: Freight Analysis Framework, Zone Summary by Mode and Trade, 2018- 2022,
 https://faf.ornl.gov/faf5/SummaryTable.aspx , Baltimore Region: Baltimore-Columbia-Towson, MD CFS Area
Mode: 4-Air (include truck-air) : Includes shipments move by air or a combination of truck and air in commercial or private
 aircraft. Includes air freight and air express. In the case of imports and exports by air, domestic moves by ground to and
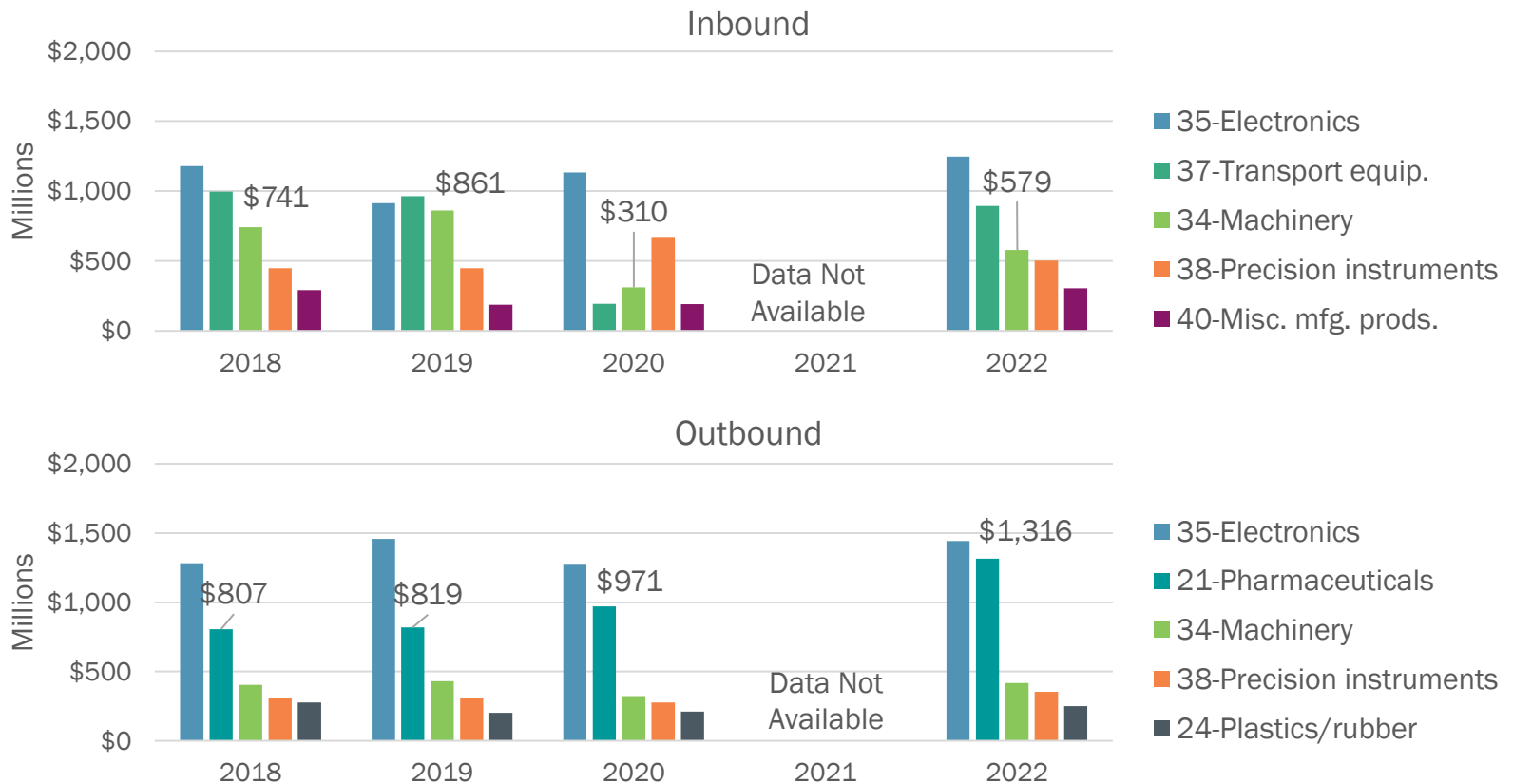*from the port of entry or exit are categorized with Truck.*

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Top 5 Commodities by Air, 2022 Washington Region

Inbound

Outbound

Legend (Inbound):
- 35-Electronics
- 37-Transport equip.
- 34-Machinery
- 38-Precision instruments
- 40-Misc. mfg. prods.

Legend (Outbound):
- 35-Electronics
- 21-Pharmaceuticals
- 34-Machinery
- 38-Precision instruments
- 24-Plastics/rubber

Source: Freight Analysis Framework, Zone Summary by Mode and Trade, 2018- 2022, https://faf.ornl.gov/faf5/SummaryTable.aspx , Washington Region: Washington DC-VA-MD-WV (DC, MD, and VA Parts); Mode: 4-Air (include truck-air) : Includes shipments move by air or a combination of truck and air in commercial or private aircraft. Includes air freight and air express. In the case of imports and exports by air, domestic moves by ground to and from the port of entry or exit are categorized with Truck.
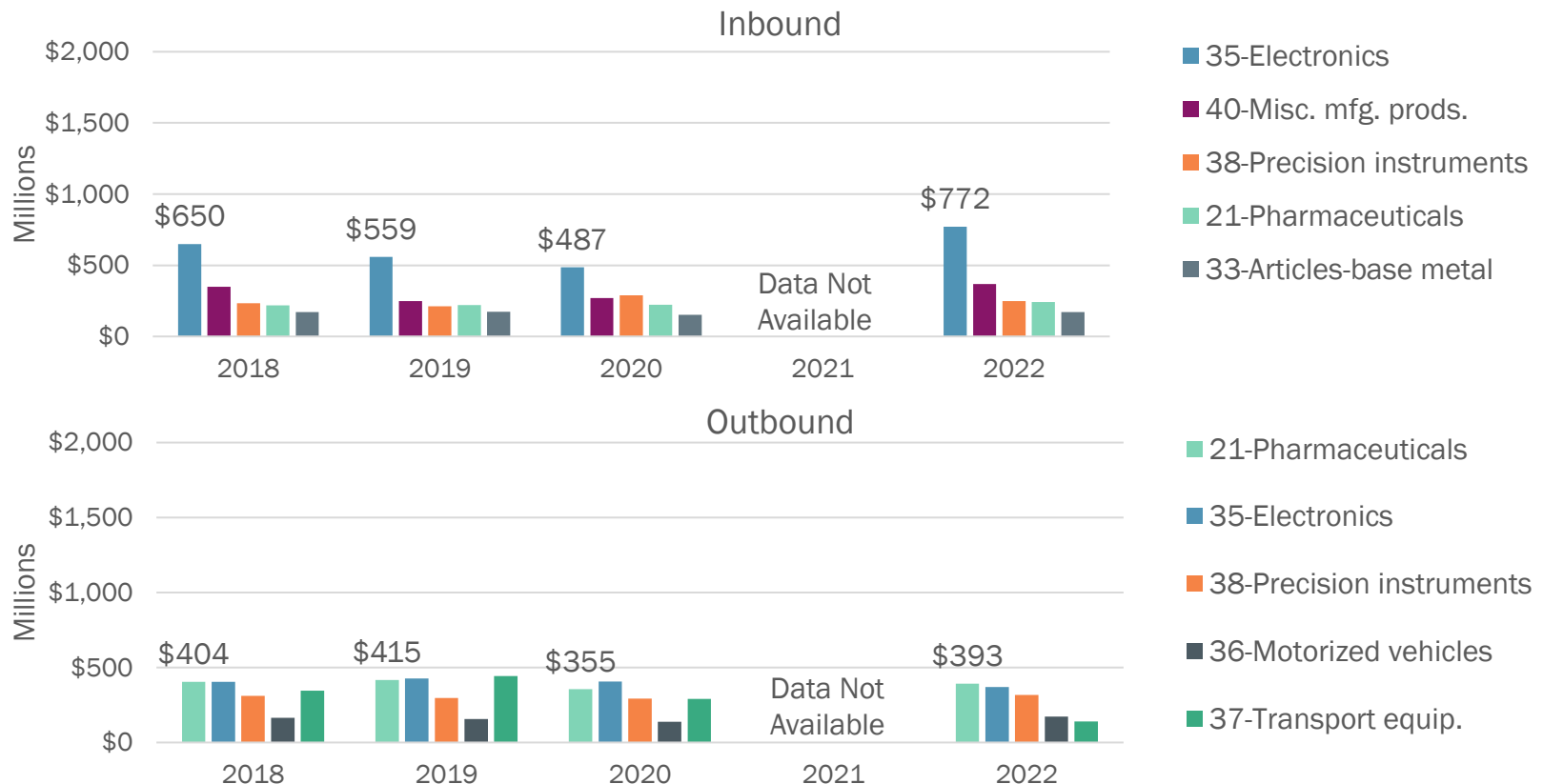
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Top Commodities by Air, 2022 Baltimore Region

Inbound

Millions

- $2,000
- $1,500
- $1,000
- $500
- $0

$650 $559 $487 $772

2018   2019   2020   2021   2022

Data Not Available

- 35-Electronics
- 40-Misc. mfg. prods.
- 38-Precision instruments
- 21-Pharmaceuticals
- 33-Articles-base metal

Outbound

Millions

- $2,000
- $1,500
- $1,000
- $500
- $0

$404 $415 $355 $393

2018   2019   2020   2021   2022

Data Not Available

- 21-Pharmaceuticals
- 35-Electronics
- 38-Precision instruments
- 36-Motorized vehicles
- 37-Transport equip.

Source: Freight Analysis Framework, Zone Summary by Mode and Trade, 2018- 2022, https://faf.ornl.gov/faf5/SummaryTable.aspx ,
Baltimore Region: Baltimore-Columbia-Towson, MD CFS Area
Mode: 4-Air (include truck-air) : Includes shipments move by air or a combination of truck and air in commercial or private aircraft. Includes air
freight and air express. In the case of imports and exports by air, domestic moves by ground to and from the port of entry or exit are categorized
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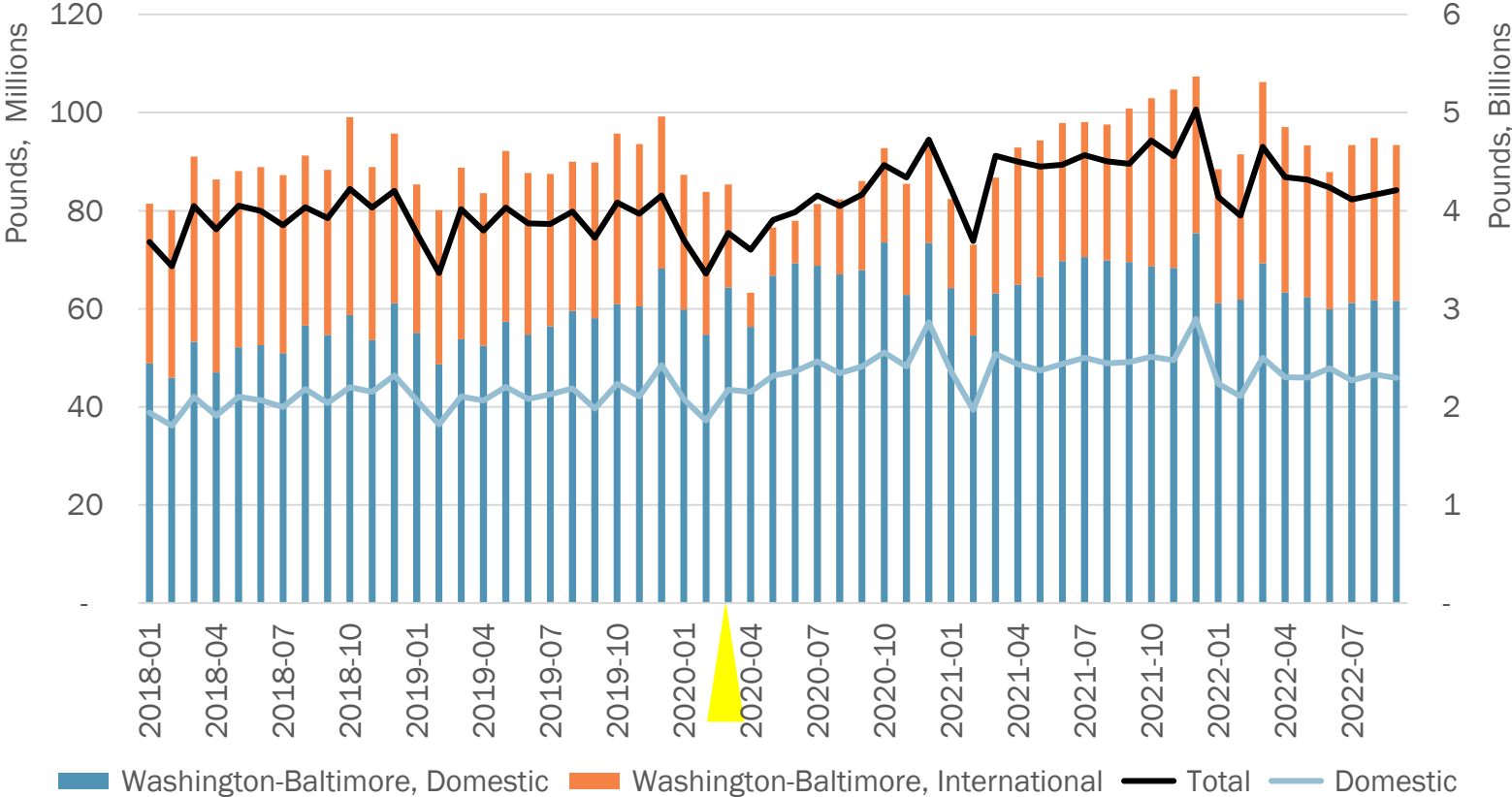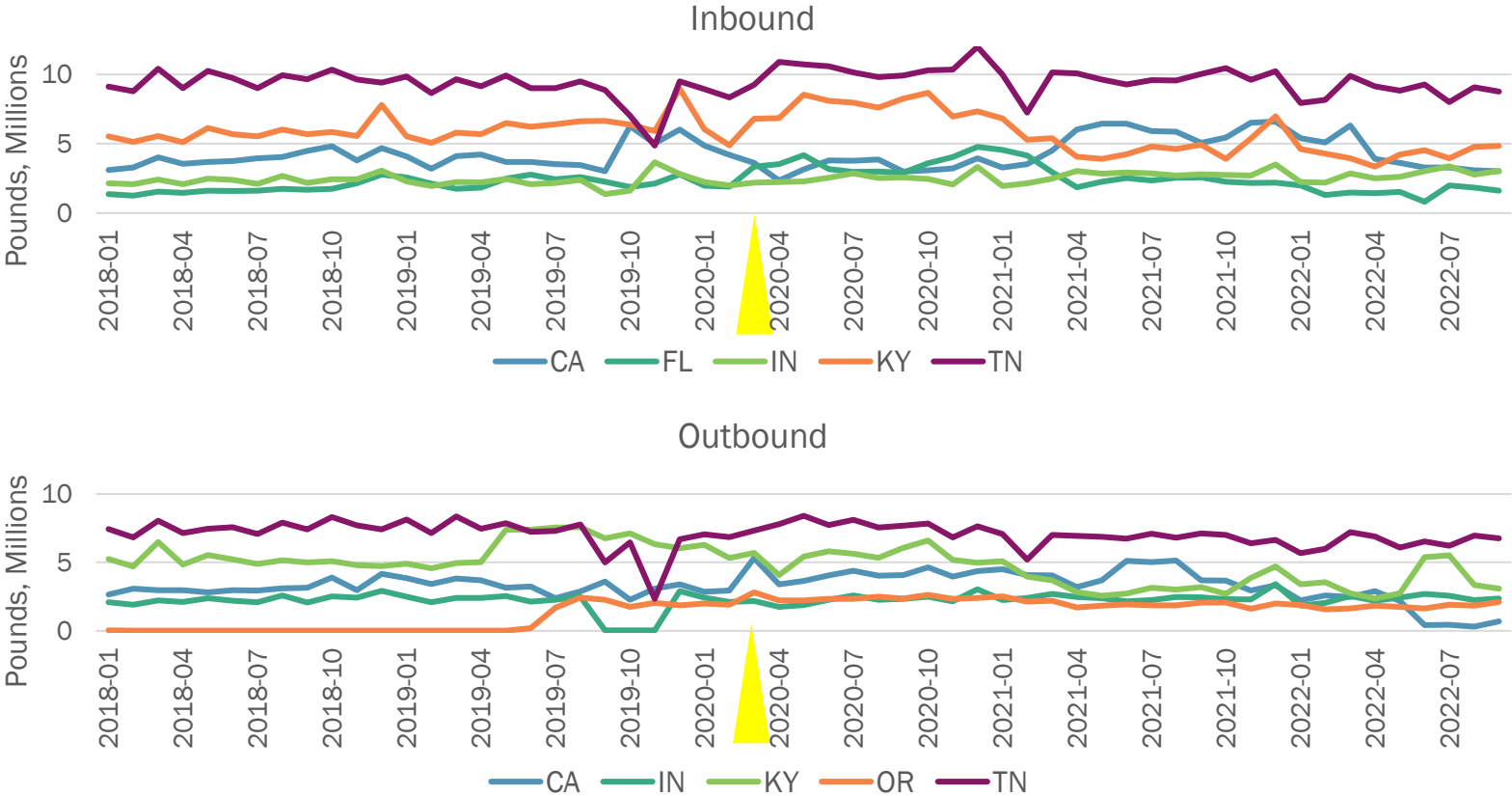
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Air Freight
Washington-Baltimore Airports

Source: U.S. Bureau of Transportation Statistics, Air Cargo https://www.bts.gov/topics/freight-transportation/air-cargo
Notes: 9 months of data observed from BTS in 2022.

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Air Freight (Top 5 States)
Washington-Baltimore Airports

Inbound

Pounds, Millions

CA — FL — IN — KY — TN

Outbound

Pounds, Millions

CA — IN — KY — OR — TN

Source: U.S. Bureau of Transportation Statistics, Air Cargo https://www.bts.gov/topics/freight-transportation/air-cargo
Notes: 9 months of data observed from BTS in 2022

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Air Freight (Top 5 Countries)
Washington-Baltimore Airports
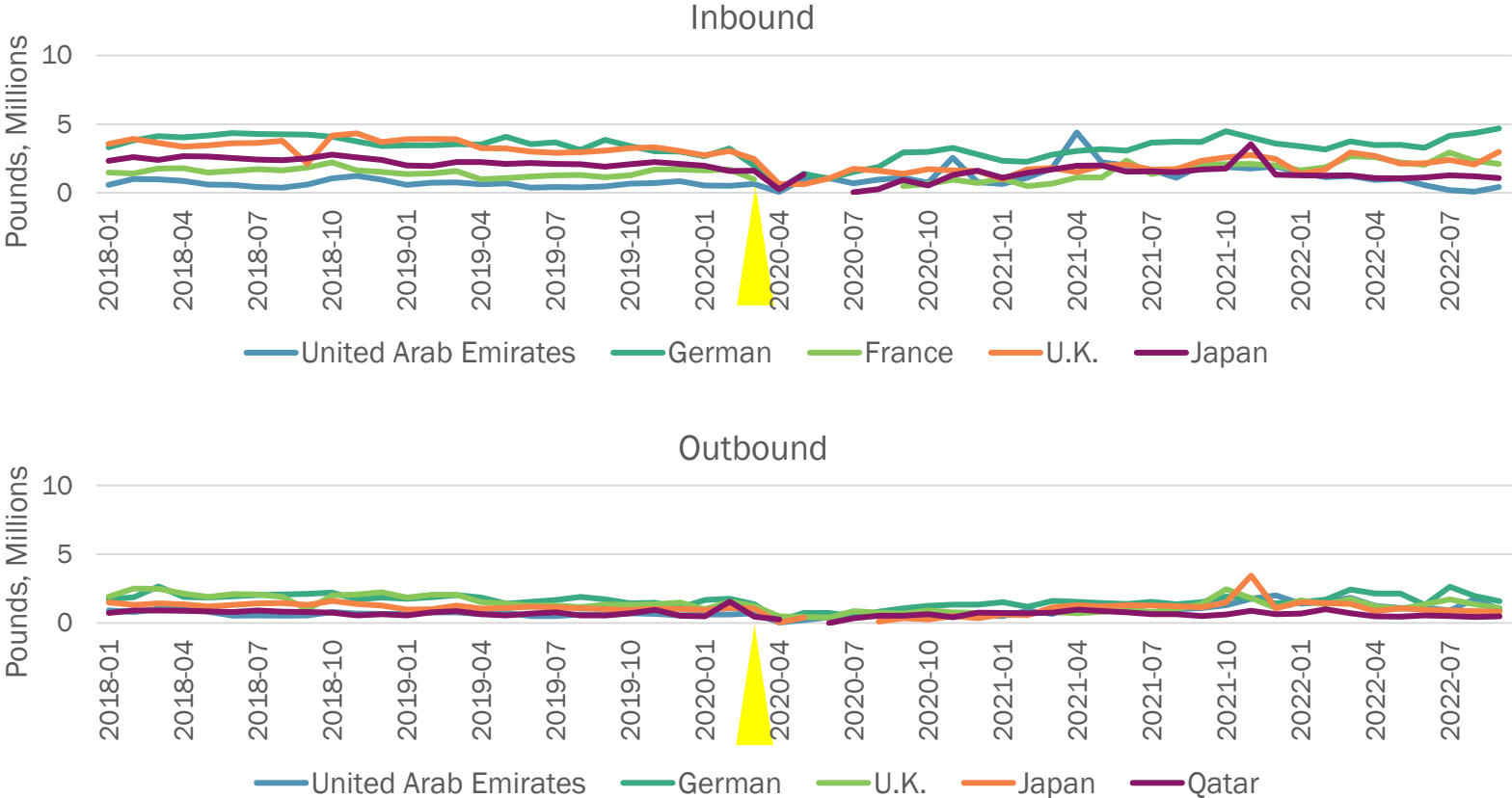
Inbound

Legend: United Arab Emirates, German, France, U.K., Japan

Outbound

Legend: United Arab Emirates, German, U.K., Japan, Qatar

Source: U.S. Bureau of Transportation Statistics, Air Cargo https://www.bts.gov/topics/freight-transportation/air-cargo
Notes: 9 months of data observed from BTS in 2022.

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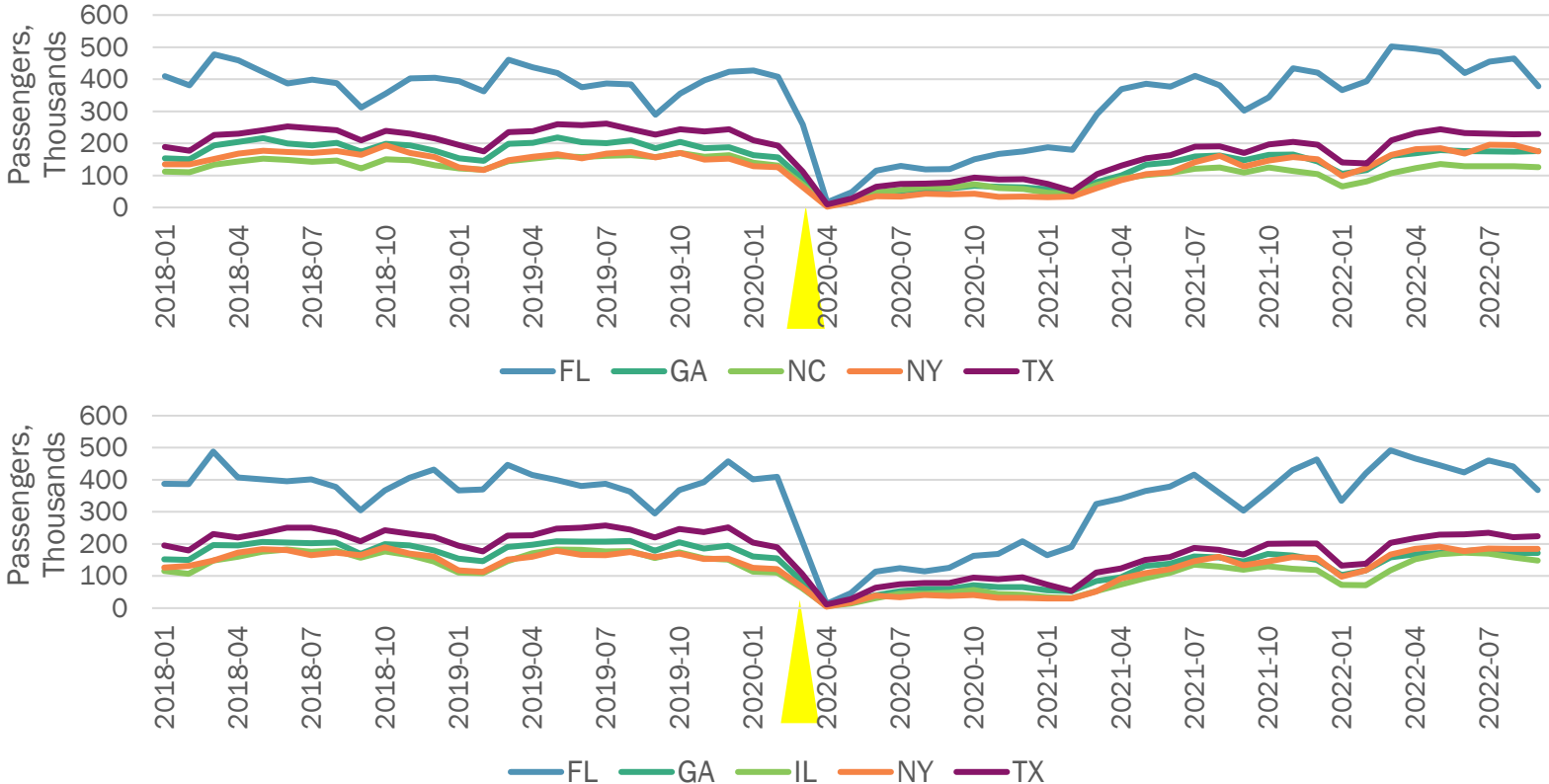# Part 3. Air Passenger Traffic

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Air Passengers (Enplanements)
Washington-Baltimore Airports
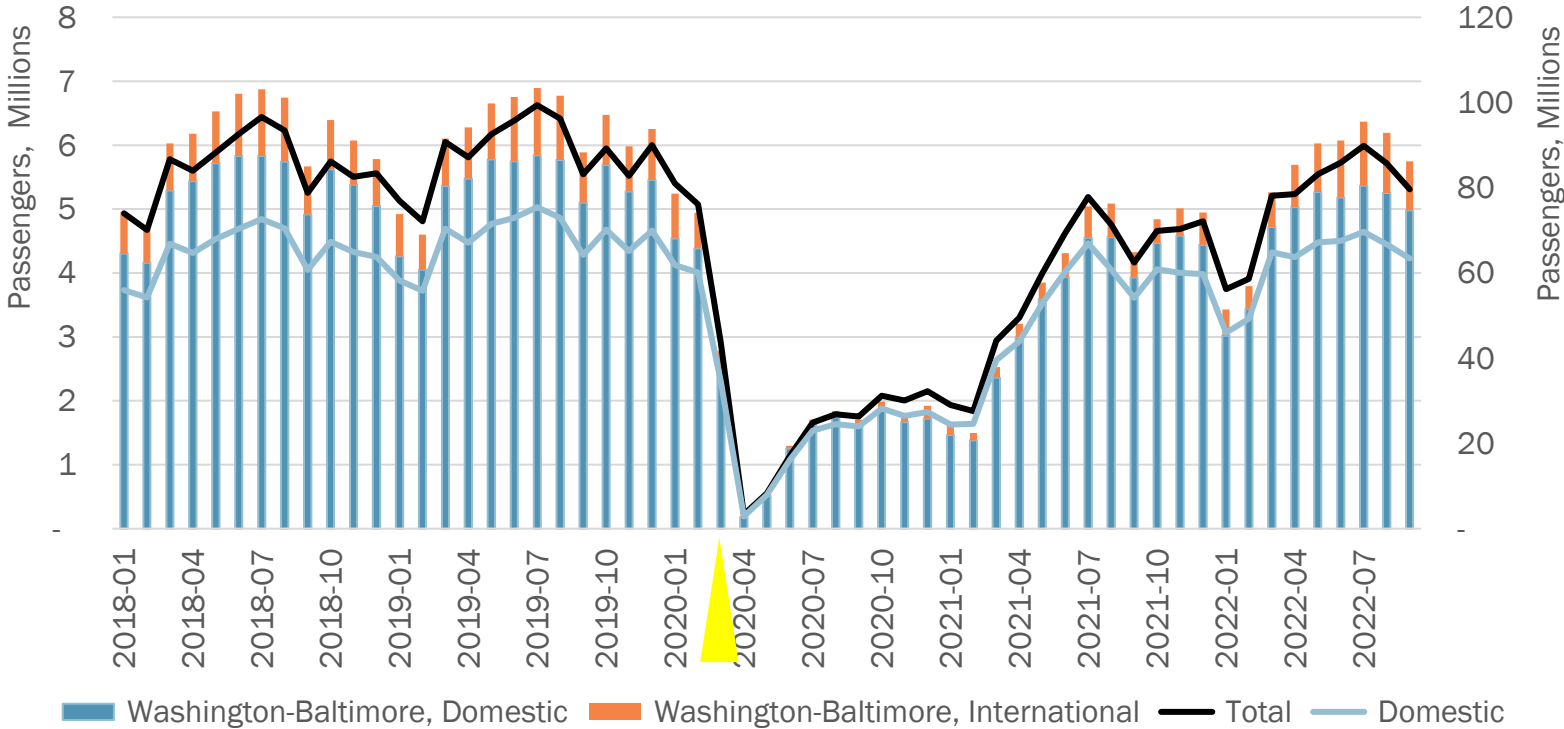
Source: U.S. Bureau of Transportation Statistics, Air Cargo https://www.bts.gov/topics/freight-transportation/air-cargo
Notes: 9 months of data observed from BTS in 2022.

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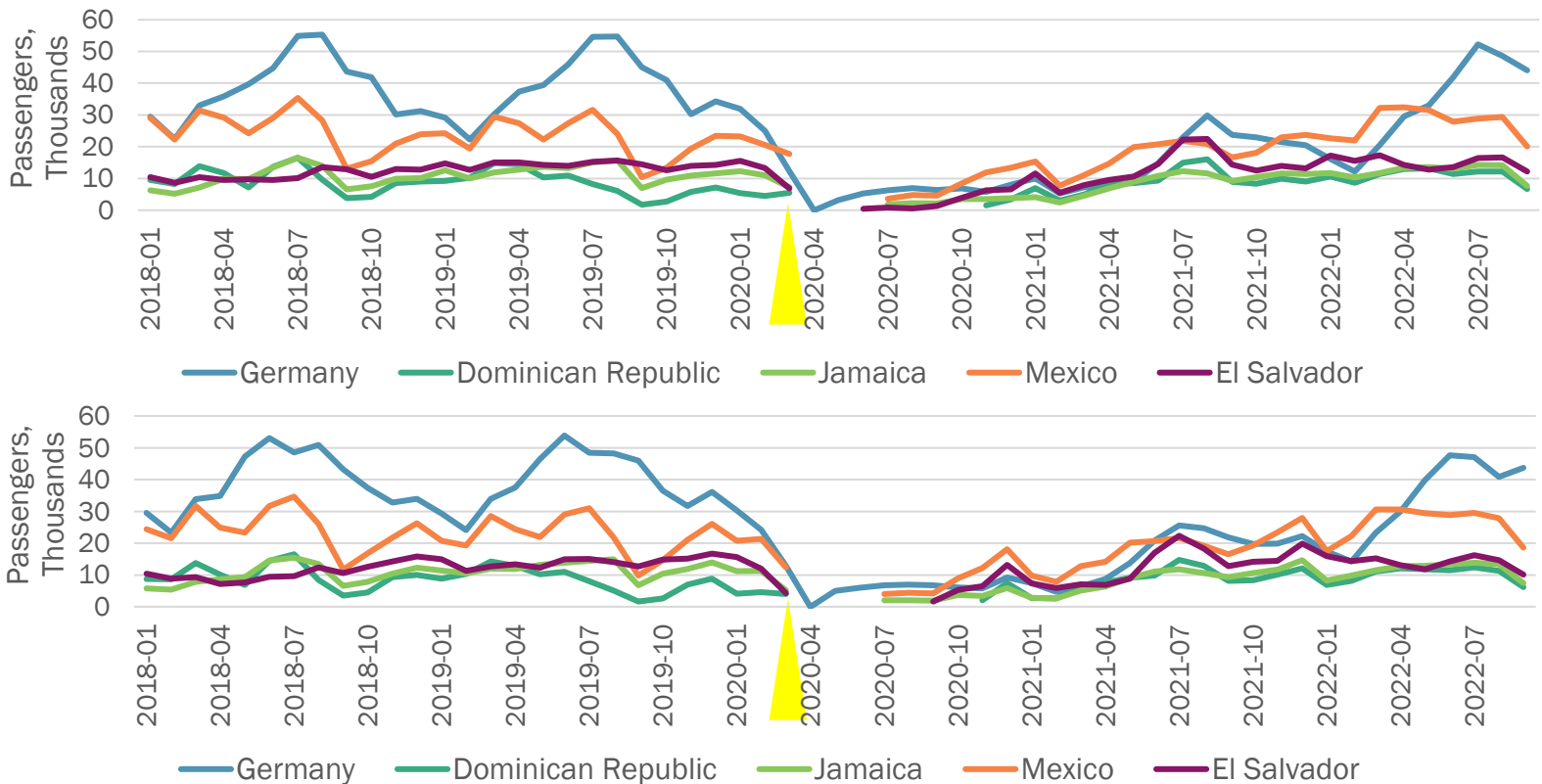Before, during, and after the pandemic
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Air Passengers (Top 5 States)
Washington-Baltimore Airports

Source: U.S. Bureau of Transportation Statistics, Air Cargo https://www.bts.gov/topics/freight-transportation/air-cargo
Notes: Only 9 months of data observed from BTS in 2022

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Air Passengers (Top 5 Countries), Inbound
Washington-Baltimore Airports

Source: U.S. Bureau of Transportation Statistics, Air Cargo https://www.bts.gov/topics/freight-transportation/air-cargo
Notes: only 9 months of data observed from BTS in 2022.

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Key Takeaways

- The arrival of the pandemic aligned with a shock to several sectors including but not limited to employment, traffic levels, and the global supply chain. E-commerce grew throughout this time period.
- Across the United States, freight declined in 2020 and recovered by 2022; this is also observed in the Washington-Baltimore region.
  - The share of freight shipped by air in the Washington-Baltimore remained steady during these years
  - The quantity of outbound pharmaceutical commodities gradually increased for the Washington region
- Air passenger trips were highly impacted by the pandemic and have returned to pre-pandemic levels. This applies both to overall levels as well as to the top 5 inbound and outbound states and countries.

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