ECONOMIC IMPACT STUDY OF

SAN FRANCISCO INTERNATIONAL AIRPORT

FY2020 & FY2021 IMPACT AND INITIAL RECOVERY FROM COVID-19

PREPARED FOR

CITY AND COUNTY OF SAN FRANCISCO

SAN FRANCISCO AIRPORT COMMISSION

PREPARED BY

EBP

IN ASSOCIATION WITH

ICF INTERNATIONAL

COREY, CANAPARY & GALANIS

AND THE BAY AREA COUNCIL ECONOMIC INSTITUTE

SFO San Francisco International Airport

PREPARED FOR

CITY AND COUNTY OF SAN FRANCISCO

SAN FRANCISCO AIRPORT COMMISSION

PREPARED BY

EBP

IN ASSOCIATION WITH

ICF INTERNATIONAL

COREY, CANAPARY & GALANIS

AND THE BAY AREA COUNCIL ECONOMIC INSTITUTE

SFO San Francisco International Airport

TABLE OF CONTENTS

SFO San Francisco International Airport

TABLE OF FIGURES

SFO San Francisco International Airport

TABLE OF TABLES

SFO San Francisco International Airport

EXECUTIVE SUMMARY

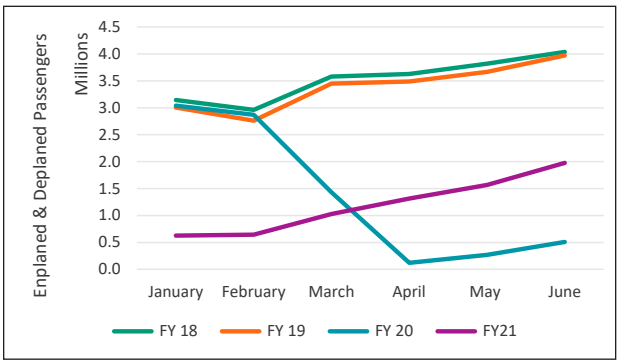
This study examines the economic impacts of San Francisco International Airport (SFO or "the Airport") in the nine-county Bay Area of Alameda, Contra Costa, Marin, Napa, San Mateo, San Francisco, Santa Clara, Solano, and Sonoma Counties. The previous study evaluated the economic impacts in Fiscal Year (FY) 2018, (the "2018 study"). While airport economic impact studies traditionally convey single-year snapshots, this study covers FY 2020 and FY 2021. The two-year focus of this study shows how the COVID-19 pandemic affected SFO's contribution to the Bay Area economy.

PANDEMIC EFFECT ON AVIATION ACTIVITY AT SFO

PASSENGER VOLUMES

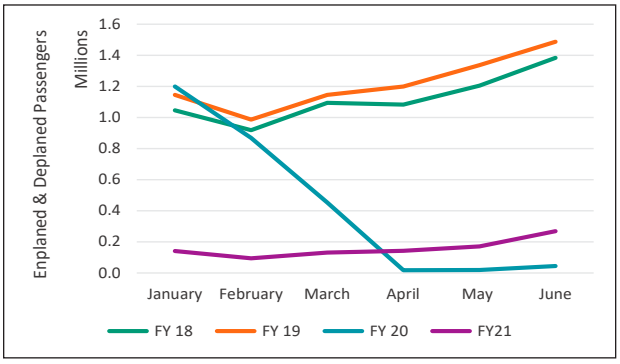
The economic impacts of airports are products of aviation activity. COVID-19 began depressing international air traffic moving through SFO in February 2020 and domestic traffic in the following month. Using the 2018 study as the baseline, by April of 2020, passenger volume stood at 3% of April 2018 levels. In aggregate, passenger volumes in the fourth quarter of FY 2020 (April 1, 2020 - June 30, 2020) accounted for 6% of FY 2018 volumes in the same period, including 2% of international and 8% of domestic passenger volumes. By the fourth quarter of FY 2021, passenger volumes had partially rebounded to 36% of FY 2018 levels. Passenger volumes began to rebound in FY 2021, showing fourth quarter levels at 16% of international and 42% of domestic passengers compared to the same period in 2018. Table 1 displays the number of passengers enplaning and deplaning at SFO from April through June during fiscal years 2018, 2019, 2020 and 2021.

FIGURE 1. DECLINE OF DOMESTIC PASSENGER VOLUME AT SFO IN THE PANDEMIC YEARS, FY 2020, AND FY 2021



Source: *https://www.flysfo.com/about/media/facts-statistics*

FIGURE 2. DECLINE OF INTERNATIONAL AIR TRAFFIC AT SFO IN PANDEMIC YEARS, FY 2020, AND FY 2021



Source: *https://www.flysfo.com/about/media/facts-statistics*

TABLE 1. APRIL – JUNE PASSENGER VOLUMES, FY 2018 - FY 2021

PASSENGER TYPE	FY 2018	FY 2019	FY 2020	FY 2021	PERCENT OF FY 2018	
					2020	2021
Domestic	11,486,588	11,124,423	900,991	4,859,380	8%	42%
International	3,670,669	4,024,241	79,515	580,948	2%	16%
Total	**15,157,257**	**15,148,664**	**980,506**	**5,440,328**	**6%**	**36%**

Source: *https://www.flysfo.com/about/media/facts-statistics*

Figures 1 and 2 illustrate steep traffic declines in January-June FY 2020 and a slight rebound in FY 2021 compared to FY 2018 and FY 2019.

Shutdowns and social distancing due to the pandemic, coupled with the sharp downturn in passenger volume, led to a severe reduction in the economic impacts of SFO by depressing demand for airport terminal concessions, car rentals, and ground transportation. As a result, on-airport direct jobs, off-airport indirect and induced spending, and visitor spending plummeted from FY 2018 levels.

AIR CARGO MOVEMENT

In both FYs 2020 and 2021, total cargo tonnage moved through SFO was 11% lower than in FY 2018. However, Table 2 shows that by FY 2021, domestic cargo grew by 16% over FY 2018 tonnage, while international tonnage fell by 24%.

In FY 2021, air cargo shipped through SFO directly supported over 43,000 jobs in the Bay Area.

TABLE 2. SFO METRIC TONS INCOMING AND OUTGOING, FY 2018 – FY 2022

METRIC TONS			
YEAR	DOMESTIC	INTERNATIONAL	TOTAL
FY 2018	164,166	324,360	488,526
FY 2019	161,928	335,545	497,473
FY 2020	157,079	278,808	435,887
FY 2021	190,376	245,294	435,670
Change 2020/2018	-4%	-14%	-11%
Change 2021/2018	16%	-24%	-11%
Change 2021/2020	21%	-12%	0%

Source: *https://www.flysfo.com/about/media/facts-statistics*

The overall cargo tonnage moved through SFO in FY 2021 matched that of FY 2020. A 21% rise in domestic cargo balanced a 12% reduction in international tonnage.[1]

ECONOMIC CONTRIBUTION OF SFO AIR CARGO SERVICES TO THE BAY AREA ECONOMY

Bay Area businesses rely on air cargo services at SFO.[2] Businesses may use imported commodities from outside the Bay Area as intermediate inputs, or households may consume them directly. Air cargo services at SFO allow regional businesses to shop nationally and globally for the best prices for products. Commodities produced in the region and flown out of the state and generate income for the region's economy from long-distance sales that otherwise might be inaccessible. Incoming commodities with destinations outside the Bay Area and outgoing commodities from SFO that originate outside the region are not part of this analysis.

By enabling Bay Area businesses to receive inputs to production and ship goods to market, air cargo services at SFO supported $16 billion and $20.5 billion of revenues for businesses in the nine-county Bay Area during FY 2020 and FY 2021, respectively. In FY 2021, air cargo shipped through SFO directly supported over 43,000 jobs in the Bay Area from which workers earned $6.66 billion in labor income.

TOTAL ECONOMIC CONTRIBUTION OF SFO TO THE BAY AREA

The total economic contribution of SFO to the Bay Area is the sum of the business revenues directly

1 *Despite the 12% decline in international tonnage from FY 2020 to FY 2021, the value of international cargo increased by 9% over the year in nominal terms and 6.5% in real terms. The source for the value of international goods movement is the U.S. Census Bureau Foreign Trade Division, assembled by WiserTrade (www.wisertrade.org).*

2 *The economic impacts of cargo movement through the Airport are represented in revenues and jobs generated from freight handling, freight airlines, trucking and other direct interactions with air cargo at SFO.*

generated by operations, spending by Airport users, additional business revenues associated with orders to business suppliers, and re-spending of worker income. At each of these levels (direct effects, supplier orders, and income re-spending), portions of business revenues are used for payrolls to support jobs.

During FY 2021, in the face of the COVID-19 pandemic, SFO was responsible for $51.5 billion in business revenue throughout the Bay Area, more than 186,000 jobs and $19 billion in labor income. In FY 2018, SFO contributed $72.7 billion in business

During FY 2021 SFO was responsible more than 186,000 jobs, $19 billion in labor income and $51.5 billion in business revenue throughout the Bay Area in the face of the pandemic.

TABLE 3. ECONOMIC IMPACTS OF SFO IN THE BAY AREA, FYS 2018, 2020 AND 2021

	IMPACT TYPE	EMPLOYMENT	LABOR INCOME	REVENUE
FY 2018	On-Airport Economic Activity	46,102	$3,871,000,000	$10,686,000,000
	Air Cargo (Air-Reliant Business Activity)	28,756	$5,079,000,000	$19,254,000,000
	Visitor Spending	113,253	$5,130,000,000	$12,568,000,000
	Direct Impact Total	188,111	$14,079,000,000	$42,508,000,000
	Suppliers of Goods and Services	56,130	$5,727,000,000	$14,395,000,000
	Re-spending of Income	85,974	$6,018,000,000	$15,802,000,000
	Total Impact	**330,215**	**$25,824,000,000**	**$72,706,000,000**
	IMPACT TYPE	EMPLOYMENT	LABOR INCOME	REVENUE
FY 2020	On-Airport Activity	43,435	$4,114,693,000	$10,879,836,000
	Air Cargo (Air-Reliant Business Activity)	34,142	$5,198,174,000	$15,977,374,000
	Visitor Spending	103,968	$6,090,281,000	$13,271,351,000
	Direct Impact total	181,545	$15,403,148,000	$40,128,561,000
	Suppliers of Goods and Services	59,459	$5,442,008,000	$14,091,714,000
	Re-spending of Income	72,283	$5,064,931,000	$14,672,479,000
	Total Impact	**313,287**	**$25,910,088,000**	**$68,892,754,000**
	IMPACT TYPE	EMPLOYMENT	LABOR INCOME	REVENUE
FY 2021	On-Airport Activity	28,459	$2,982,783,000	$6,079,614,000
	Air Cargo (Air-Reliant Business Activity)	43,798	$6,658,798,000	$20,474,256,000
	Visitor Spending	16,868	$940,489,000	$2,018,817,000
	Direct Impact total	89,125	$10,582,070,000	$28,572,687,000
	Suppliers of Goods and Services	42,969	$4,545,517,000	$11,287,699,000
	Re-spending of Income	54,238	$4,131,721,000	$11,626,340,000
	Total Impact	**186,332**	**$19,259,308,000**	**$51,486,726,000**

Note: *Dollar values are 2018 for the FY 2018 study, and 2021 for results of FY 2020 and FY 2021*

In FY 2020, including nine months before the impacts of COVID, SFO supported 313,000 jobs, $26 billion in labor income and $69 billion in in business revenue.

revenues, which in turn supported about 330,000 jobs in the Bay Area that paid workers almost $26 billion in labor income (wages and benefits). The total impacts of SFO on the Bay Area in fiscal years 2018, 2020 and 2021 are summarized in Table 3.

The economic activities generated by SFO also return significant tax revenues to the nine Bay Area counties, the State of California, and the nation (i.e., federal aviation taxes). State and local tax revenues linked to operations at SFO totaled $3.2 billion in FY 2020 and almost $1.9 billion in FY 2021. SFO also generated more than $1.3 billion in federal tax revenues in FY 2020 and $1.1 billion in FY 2021, which were largely driven by international air cargo customs revenues.

ECONOMIC IMPACTS ON SFO AND ACROSS THE BAY AREA

Business-related activities on the SFO grounds include the administration of the airport, airfield and building construction and maintenance, air transportation and supporting services, as well as passenger terminal concessions serving passengers to enable visitor arrivals and air cargo transport. The term "economic engine" applies because the operation of the airport, including administration and tenants, generates impacts that support the economies of each of the nine counties in the Bay Area. Business-related activities associated with SFO come from these three key sources:

1. Businesses and government agencies on-airport buy goods and services from businesses located throughout the Bay Area (indirect effects), providing sales and supporting additional employment in the region. Moreover, workers on-airport and the employees of these business suppliers spend the wages they earn as an after-effect of the airport creating more revenue and jobs in the region (induced effects).[3]
2. Visitor spending supports hospitality sectors across the Bay Area, including lodging, restaurants and drinking establishments, entertainment venues, retail and local transportation. All indirect and induced effects stimulated by visitor spending are "off-airport" as well.

Approximately 28,500 jobs were on-airport in FY 2021 and SFO generated almost 158,000 off-airport jobs across the Bay Area in FY 2021.

3 *Occasionally exceptions can be identified. For example, spending of airport-based employees may include eating lunch at terminal restaurants. Also, airport tenants may be in each other's supply chain. An example of this is an airplane cleaning service located on-airport. However, the indirect and induced effects generated by on-airport activities is overwhelmingly off-airport.*

TABLE 4. IMPACTS GENERATED BY SFO ON-AIRPORT GROUNDS AND OFF-AIRPORT IN THE BAY AREA

IMPACT	FY 2020		FY 2021	
	ON-SFO	OFF-AIRPORT	ON-SFO	OFF-AIRPORT
Revenue ($ billions)	$10.9	$58.0	$6.1	$45.4
Labor Income ($ billions)	$4.1	$21.8	$3.0	$16.3
Employment	43,435	269,853	28,479	157,873

Note: *Dollar values are billions of 2021 dollars.*

3. Air cargo services on-airport connect Bay Area manufacturers to national and global suppliers and customers. The industries that rely on cargo services are found off-airport, largely in Santa Clara and Alameda Counties. As with visitor spending, resulting indirect and induced impacts are also off-airport.

In total, more than 80% of impacts supporting businesses and industries were located off-airport across Bay Area communities in both FY 2020 and FY 2021 (Table 4). The proportions of total revenue, labor revenue and income impacts off-airport in FY 2021 are slightly higher than in FY 2020. In FY 2021, 88% of business revenue attributable to the Airport accrued off-airport. This change is primarily due to growth in the reliance of Bay Area businesses on the Airport's air cargo services balanced against the collapse in visitors and visitor spending caused by the pandemic. In general, ratios of business revenues and labor income per job in manufacturing industries that rely on air cargo are significantly higher than those in the regional hospitality sector.

APPROACH TO THE ECONOMIC ANALYSIS

Findings in this economic study were developed using multiple sources of data, which are summarized in Table 5.

See the main report and the technical appendix for more detailed information on data collection and modeling for this analysis.

In FY 2020, including nine months before the impacts of COVID, there were 43,000 jobs on-airport while 270,000 were elsewhere in the Bay Area.

TABLE 5. APPROACH AND SOURCES FOR ECONOMIC IMPACTS

ECONOMIC MEASURE	SOURCE
On-Airport	A rigorous airfield airport tenant survey was conducted by Corey, Canapary & Galanis Research (CCGR), and data were provided by SFO.
Visitor Spending	CCGR also developed and managed a visitor-intercept survey effort to establish trip purpose and determine levels and patterns of visitor spending at the Airport. The Bay Area Economic Institute worked with EBP to adjust those findings (and those of the previous study for FY 2018) to estimate spending levels in FY 2020 and FY 2021.
Business Dependence on Air Cargo	EBP applied data from SFO, in conjunction with international data from the U.S. Census Bureau's Foreign Trade Division (packaged by WISERTrade) and domestic freight data from the Federal Highway Administration's Freight Analysis Framework to evaluate the role of air cargo shipments in the Bay Area economy.
Direct, Indirect and Induced Effects Across all Measures	EBP adapted the IMPLAN modeling package to the nine-county Bay Area region to determine the Airport's direct, indirect (purchases of goods and services), and induced (business sales generated by workers spending their income on consumer purchases) impacts, using a blending of the calendar year 2019 and 2020 models (the latest model years available at the time of analysis).

01 INTRODUCTION

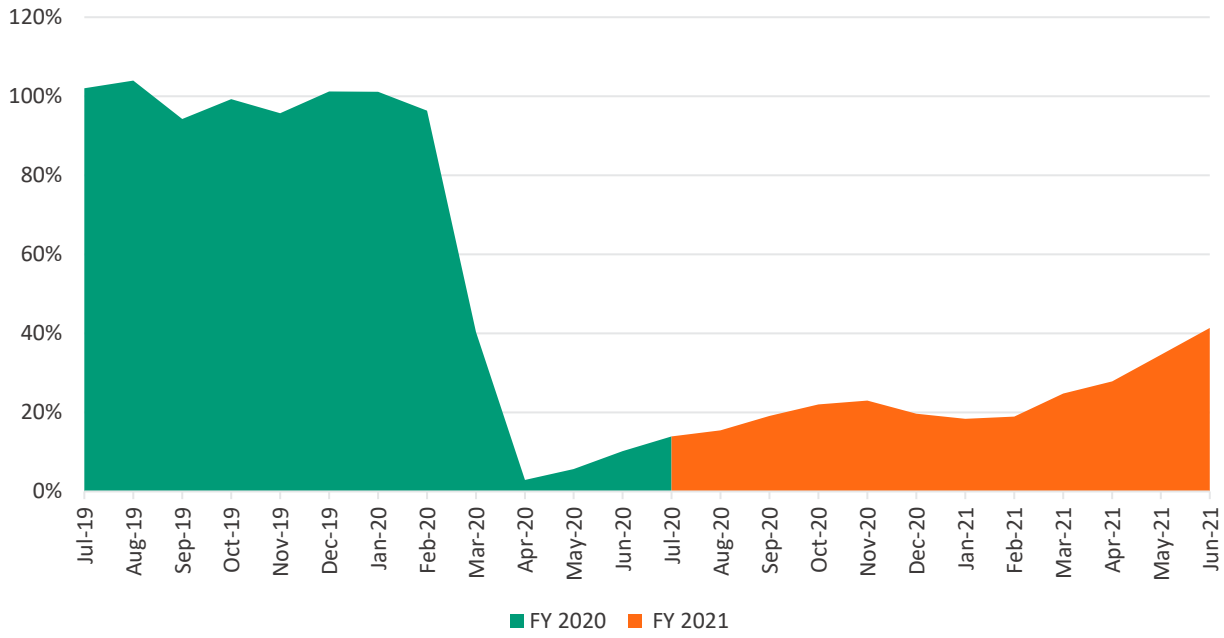
The examination of the FY 2020 and FY 2021 role of San Francisco International Airport (SFO) in the Bay Area economy is the first conducted since the onset of the COVID-19 pandemic. The previous study profiled Fiscal Year (FY) 2018, when SFO contributed more than $72.7 billion and more than 330,000 jobs to the economy of the nine-county Bay Area. During that year 57.7 million passengers enplaned and deplaned at the Airport.

The effects of the pandemic at SFO can be seen in monthly passenger counts that compare FYs 2020 and 2021 to levels in FY 2018. The COVID-19 pandemic began depressing air traffic in March 2020. Overall annual enplanement and deplanement counts at SFO fell to 40.5 million in FY 2020 and 13.7 million in FY 2021. As seen in Figure 3, from April-June of FY 2020, enplaned and deplaned passenger traffic equaled 3% to 10% of 2018 volumes over the same time of year. SFO experienced a moderate bounce back in FY 2021 as April-June passenger traffic represented 28%-41% of SFO volumes seen during those months in FY 2018.

In the 4th quarter of FY 2020 (April – June 2020, during the onset of the COVID-19 pandemic) the number of air passengers traveling through SFO was 6% of FY 2018 levels, which rebounded to 36% in the 4th quarter of FY 2021.

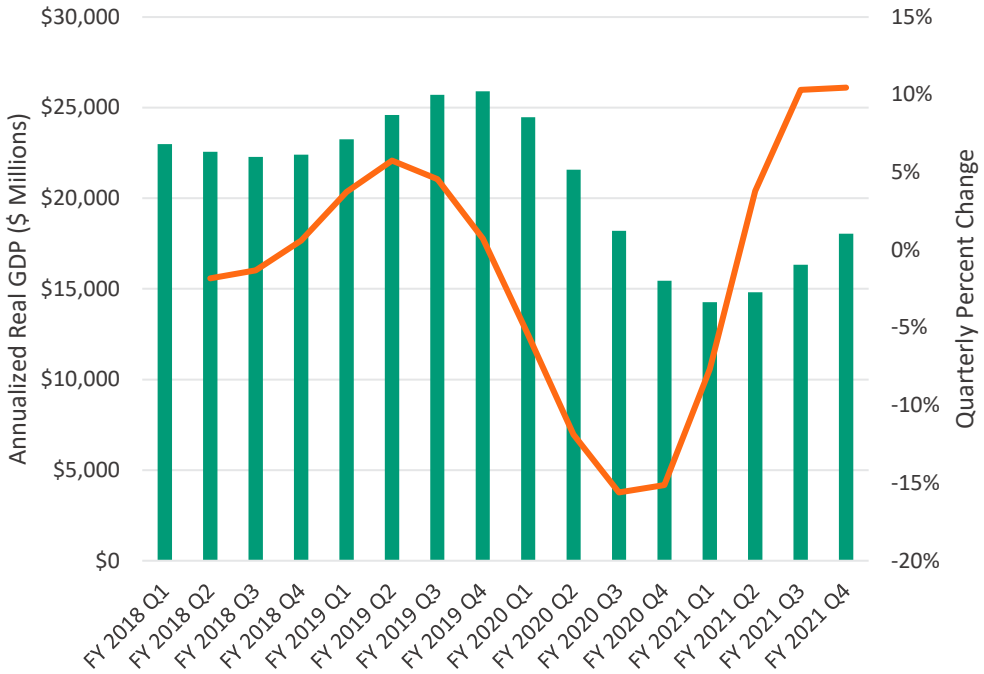
As passenger traffic fell and then rebounded, the same pattern is illustrated in Figure 4 for the hospitality sectors of the Bay Area economy (including lodging, food and beverage service, and entertainment sectors) using real value added

FIGURE 3. ENPLANED AND DEPLANED PASSENGER VOLUMES AT SFO COMPARED TO FY 2018 (2018 = 100%)



Source: *https://www.flysfo.com/media/facts-statistics/air-traffic-statistics*

FIGURE 4. CHANGES BY REAL GDP IN HOSPITALITY SECTOR FY 2018 – FY 2021, BY QUARTER



Source: *Moody's Analytics: Economy.com. Dollars are in chained 2012 value. Calculations by EBP*

(GDP) as a measure.[1] The hospitality sector, in particular, profiles the general decline of Bay Area tourism during the pandemic, which is linked to the visitor spending impacts generated by SFO.

Real GDP for hospitality industries fell five consecutive quarters from the preceding quarter, starting in FY 2020 Q1 and declining through FY 2021 Q1, amounting to an aggregate 45% drop in value added for the sector during that period, but rebounded to 10% growth over the last two quarters of FY 2021. Total value added in Q4 of FY 2021 represented 81% of the sector's value added in the same period in FY 2018, 70% of FY 2019 and 117% of FY 2020 represented as aviation activity began to rebound at SFO.

APPROACH TO THIS STUDY

The objective of this study is to profile the continuing contribution of SFO to the Bay Area economy through the operation of the airport, including administration by the San Francisco Airport Commission, construction, investment, airlines and aviation support activities and terminal concessions, spending of visitors to the region who arrive through the Airport and the contribution of air cargo to industries and economic development in the Bay Area.

The difference between this and previous economic impact studies is that previous studies profile economic impacts over a single year. The preceding study (published in 2019), for example, defined the economic impact of SFO in FY 2018. In this study, the effects of COVID-19 on SFO and the Bay Area economy are assessed. To account for the impacts of the pandemic, this study spans two years, FY 2020 and FY 2021. From time to time, this study compares FY 2020 and FY 2021 to FY 2018, which represents a "normal" year.

1 *"Value added" is a business and industry measure which cumulatively comprise U.S. GDP. Value added is described in Chapter 8 of this report.*

FIGURE 5. THE BAY AREA AND ITS THREE MAJOR AIRPORTS

SIGNIFICANCE OF THE BAY AREA

The nine-county Bay Area (Figure 5)[2] stretches over 6,900 square miles, is home to 7.7 million residents, and accounts for almost 20% of California's population.[3] If it were a state, the Bay Area would represent the nation's 13th most populous state, falling between Washington and Virginia; moreover, the region hosts three hub airports: San Jose International Airport (SJC) and Oakland International Airport (OAK), and SFO.

MEASURING ECONOMIC IMPACTS

The total economic contribution of SFO to the Bay Area is the sum of the business revenues directly generated by operating SFO, spending by Airport users (including visitors to the region and businesses in the Bay Area that rely on the airport for cargo movement), additional business revenues associated with supplier orders, and with workers who spend their income in the regional economy. At each level, direct effects, supplier orders (indirect effects) and income re-spending (induced effects), portions of business revenues are used for payrolls to support jobs. The economic activities generated by SFO also return significant tax revenues to the nine Bay Area counties and the State of California, and well as to the nation through federal aviation taxes.

SFO contributes to the Bay Area economy through its operation, including investment in its airfield and facilities, through airline operations and onsite aviation support services, as well as from terminal and related services for air travelers. However, SFO's on-site services account for only a portion of the Airport's economic contribution to the regional economy. Travelers use SFO to visit the Bay Area for leisure or business, and their spending supports additional business activity in the region. Companies in the SFO region that import and export manufactured and agricultural commodities by air also benefit from proximity to a major international airport.

2 *Alameda, Contra Costa, Marin, Napa, San Mateo, San Francisco, Santa Clara, Solano, and Sonoma Counties.*

3 *U.S. Census. American Community Survey. 2020 ACS 5-Year Estimates Detailed Tables.*

EBP developed findings in this economic study by:

- Undertaking a rigorous Airport Tenant Survey and mining data from the Airport to quantify on-Airport impacts;
- Developing and managing a visitor-intercept survey effort to establish trip purpose and determine levels and patterns of visitor spending in the Bay Area. Conducted by Corey, Canapary & Galanis Research, this survey included 1,900 passengers, which met an overall confidence level of 99%, with a 3% margin of error;
- Cargo impacts were estimated by assembling data from the U.S. Census Bureau Foreign Trade Division for international data (through WiserTrade), the U.S. Department of Transportation's Freight Analysis Framework for domestic flows, as well as SFO's cargo data (for an overall tonnage check) and by applying the vFreight economic model; and
- California state and national sources were collected to identify major state and local tax impacts in addition to aviation-specific tax impacts.

ECONOMIC TERMINOLOGY USED IN THIS STUDY

The following two tables outline the terms used to define the economic contribution of SFO in the economy of the Bay Area and their relationship to one another. Table 6 introduces the three indicators of economic impacts generated by SFO: employment, labor income earned by workers, and gross business revenue.[4] Each indicator is measured in terms of direct effects, indirect and induced effects, which are defined in Table 7. Together, the indirect and induced effects are often described as multiplier impacts.

4 *A fourth measure, value added to the Bay Area economy, is introduced in Chapter 8 of this report.*

TABLE 6. TYPES OF ECONOMIC IMPACTS ON THE BAY AREA ECONOMY

ECONOMIC MEASURES	MEANING
Employment	Total number of full-time and part-time jobs (also referred to as "headcount").
Labor Income	The sum of salaries, wages, proprietors' income and employer-paid benefits paid for labor.
Revenue	Business sales of products and services, or budget expenditures by non-profits and public sector agencies. Also called "Economic Output."

TABLE 7. MEASURES OF ECONOMIC IMPACT EFFECTS

ECONOMIC EFFECT	MEANING
Direct	Initial effects that occur (1) on-airport; (2) by spending from visitors off-airport; and (3) business revenues attributed to air cargo.
Indirect	Indirect impacts measure the effects of direct spending that are used to purchase supplies and support services from other firms and organizations in the Bay Area. They are derived based on the portions of direct revenues that are used to purchase goods and services from Bay Area businesses.
Induced	Induced impacts measure the effects of household spending in the Bay Area economy that are created from direct and indirect labor income. They are derived based on income earned by workers from direct and supplier sales transactions that are then re-spent in the Bay Area.
Total	The sum of direct, indirect and induced. Together, indirect and induced effects are the multiplier effects associated with direct impacts.

ORGANIZATION OF THIS STUDY

Beginning with Chapter 2, the following chapters review these topics:

2. The Role of SFO in the Bay Area
3. Impacts of COVID-19 on Passenger Travel and SFO's Market Share
4. On-Airport and Off-Airport Economic Impacts
5. On-Airport Profile
6. Visitor Spending Profile
7. Air Cargo Services at SFO and Reliance of Bay Area Industry
8. Value Added in the Bay Area Generated by SFO
9. Tax Impacts
10. County-specific Impacts in the Bay Area
11. San Mateo County City Impacts

An appendix that follows Chapter 11 reviews the role of SFO in both international passenger and cargo air service. A standalone technical appendix reviews the datasets and modeling methodologies EBP used to develop the economic analysis.

02 ROLE OF SFO IN THE BAY AREA

The economic importance of air transportation extends well beyond the aviation activities that happen at an airport. The air transportation industry is a major contributor to the U.S. economy and a vital component of the Bay Area's success as an innovation hub. SFO is the most-used airport in the Bay Area. In FY 2021, it ranked 15th in North America and 50th in the world in terms of total air passengers.[1] Prior to the onset of COVID in 2019, SFO's passenger volume ranked 7th in the U.S. and 23rd in the world.

OVERVIEW OF AIRPORT SUPPORT FOR INDUSTRY

Air travel stimulates global, national, and regional economies by facilitating international, national, and regional trade as well as the transport of passengers. More specifically, airports support businesses by enabling tourism, business travel, and the transport of cargo (Figure 6).

Air travel directly supports tourism by bringing in national and international travelers, who then patronize businesses in the hospitality sector, including hotels, restaurants, and entertainment. The role of SFO in supporting tourism is described in more detail in Chapter 6.

Beyond transporting leisure travelers, air service is critical for business travel, enabling face-to-face meetings that help to maintain connections across company locations and with customers, suppliers, and collaborators. Research shows that enhanced air service connectivity can make businesses more productive, allowing companies to generate greater profits with the same resources.

Air service connectivity improves business productivity through the following mechanisms:[2]

- **Enabling businesses to access the best inputs** in the world, ranging from materials to skills, ideas, and production techniques, which in turn facilitate efficiency improvements.
- **Widening the available market**, allowing for higher revenues and greater potential return on investment.

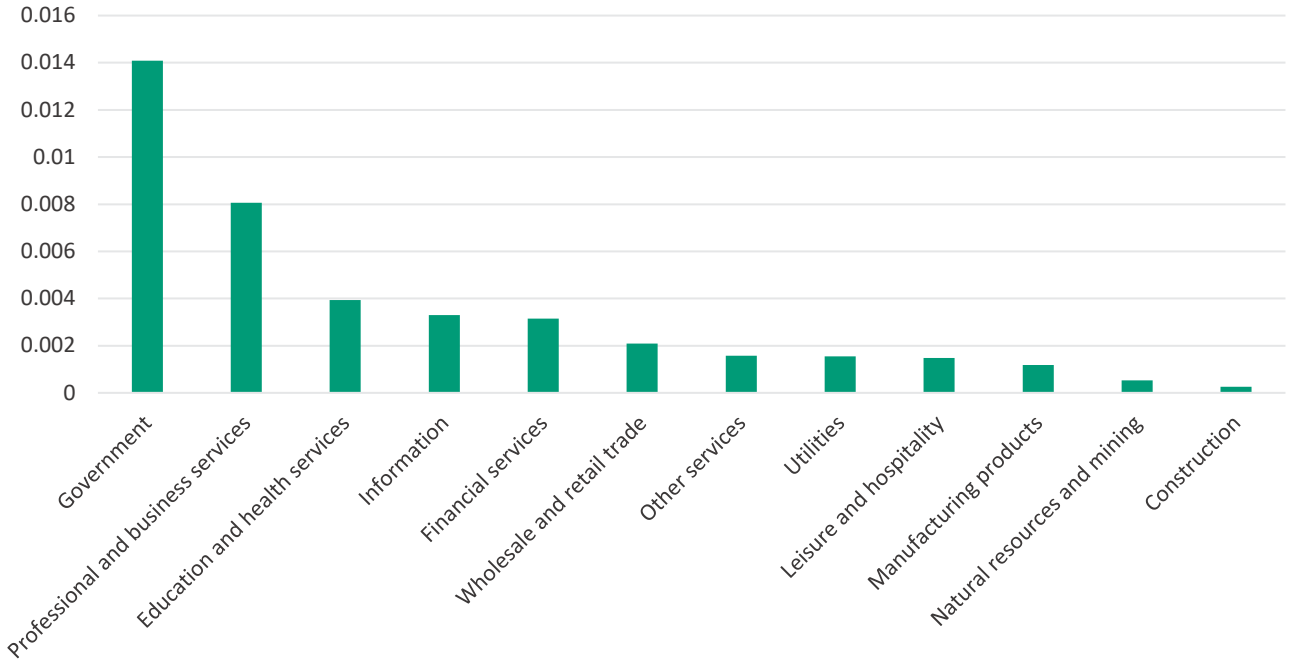
1 *Source: Airports Council International, NA*

2 *ACRP Report 132, "The Role of U.S. Airports in the National Economy"* https://www.trb.org/Main/Blurbs/172595.aspx

FIGURE 6. THE ROLE OF AIRPORTS IN SUPPORTING BUSINESSES

Source: *EBP, Based on Findings from Business Interviews Conducted for ACRP Report 132. The Role of U.S. Airports in the National Economy.* https://www.trb.org/Main/Blurbs/172595.aspx

FIGURE 7. AIR TRANSPORTATION REQUIRED PER DOLLAR OF OUTPUT BY INDUSTRY



Source: *Bureau of Transportation Statistics. Transportation Satellite Accounts. https://www.bts.gov/satellite-accounts ; Includes for-hire and in-house air transportation.*

- Enhancing company's ability to take advantage of **economies of scale**.
- **Fostering competitiveness** by facilitating investment nationally and globally.
- Allowing companies to take advantage of **global supply chain efficiencies**.

Business travel includes commercial scheduled service and general aviation operations. SFO provides both extensive airline connections and fixed-base operator services for private company aircraft that can provide further flexibility for business travel. A National Business Aviation Association study found that among the S&P 500 (representing the 500 large companies listed on stock exchanges in the United States), firms that used business aircraft outperformed non-users on a range of financial growth measures.[3]

Figure 7 uses data from the Bureau of Transportation Statistics to illustrate how air transportation is a necessary input for different industries. Reliance on air service is particularly high for government, along with professional and business services that often require longer-distance coordination among staff.

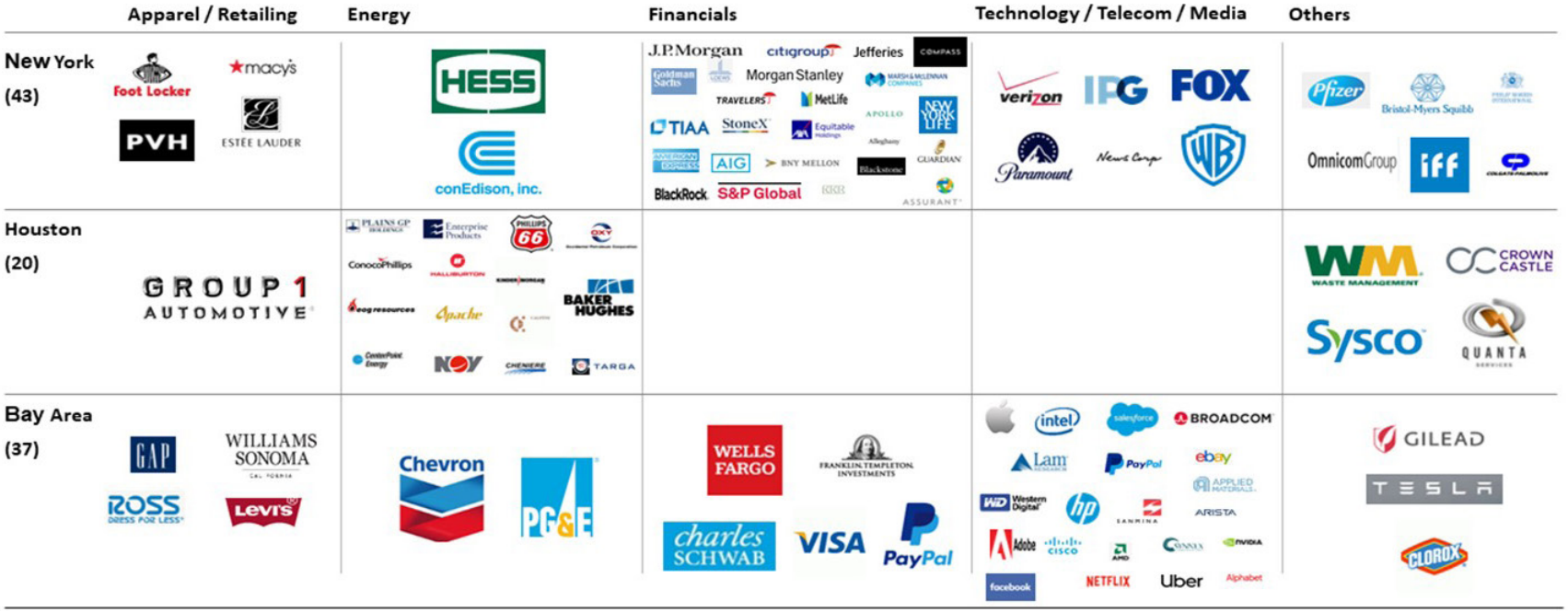
While Figure 7 illustrates how air transportation serves businesses across the economy, the broad industry categories conceal the ways in which airports can be particularly important for the transport of high-value cargo for specific industries, including the technology sector in the Bay Area. The economic significance of air cargo at SFO is discussed in more detail in Chapter 7.

THE BAY AREA INNOVATION ECONOMY

Some of the largest and fastest-growing companies in the country are headquartered in the region and fuel the Bay Area economy. As of 2020, the Bay Area had 39 Fortune 500 companies, the largest

3 *Nexa Advisor, LLC. Prepared for NBAA. Business Aviation: An Enterprise Value Perspective: The S&P 500 from 2003 – 2009.* https://nbaa.org/wp-content/uploads/2018/02/NEXA-Report-Part-1-2009.pdf

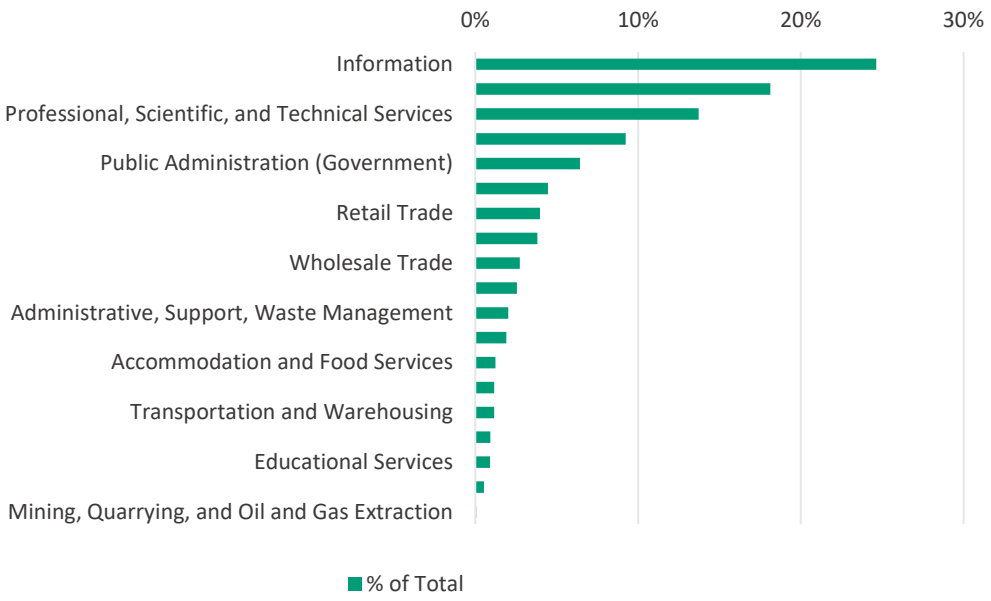
FIGURE 8. DIVERSIFICATION OF BAY AREA FORTUNE 500 COMPANIES, COMPARED TO PEERS



Source: *Bay Area Council Economic Institute, 2022 from Fortune.*

Note: *While HP is still located in the Bay Area, the company's headquarters has relocated to Texas since publication of the Economic Profile 2020. Also, Genentech is owned by Roche, so it's not included in the U.S. Fortune 500.*

FIGURE 9. SHARE OF SFO REGION GROSS REGIONAL PRODUCT (GRP) BY MAJOR INDUSTRY GROUPS IN 2021 (2-DIGIT NAICS)



Source: *EBP analysis of data from Moody's Economy.com; Data downloaded on January 21, 2022.*
Note: *GRP is the Bay Area's share of the U.S. GDP (Gross Domestic Project). The relationship of the Bay Area GRP, Gross State Product (GSP) of California, U.S. GDP and value added is discussed in Chapter 8.*

concentration in the U.S. apart from New York City.[4] These companies include technology giants, along with major players in sectors as diversified as energy, retail, finance, and pharmaceuticals (Figure 8).

The Bay Area's innovation ecosystem has been the driver of strong employment and wage growth in the region over the last decade. One of the region's most prominent innovation clusters is in life sciences, comprised of pharmaceutical, biotechnology, medical device, diagnostic companies, and health-related research and development. Together, these companies provide jobs across a range of occupations, including scientists, quality control technicians, and distribution workers. An impressive cluster of biotech companies has grown in the shadow of SFO in San Mateo County, between South San Francisco and Foster City, as well as the East Bay, with Berkeley and Emeryville being home to numerous biotech firms.[5]

Researchers have used data on corporate expenditures to map and study the network of global business travel and its influence on global economic growth. In their 2020 paper, Coscia, Neffke, and Hausmann found that business travel helps to diffuse knowledge, allowing for the sharing of skills across international boundaries and supporting gains in productivity.[6],[7] The SFO regional economy includes multinational companies that benefit from the airport's role in supporting knowledge transfer.

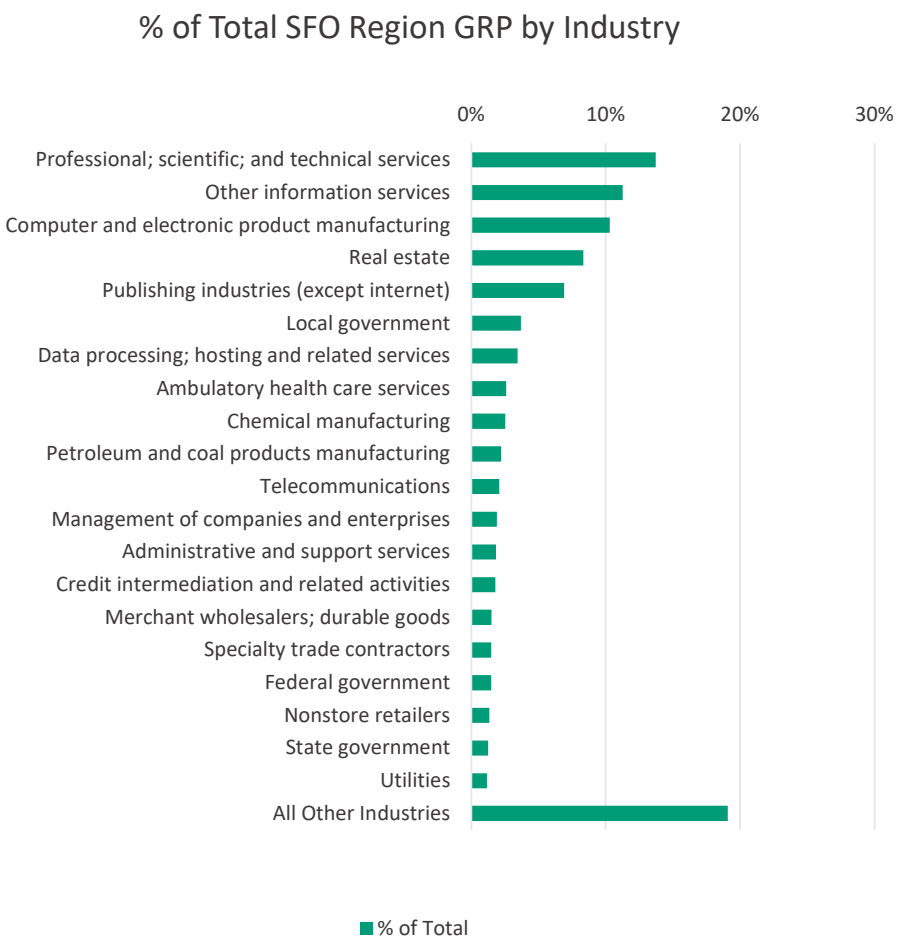
4 *Economic Profile 2020: The Future of the Bay Area's Innovation Ecosystem | Bay Area Council Economic Institute (*bayareaeconomy.org*)*

5 *Bay Area Economic Institute*

6 *Coscia, M., Neffke, F.M.H. & Hausmann, R. Knowledge diffusion in the network of international business travel. Nat Hum Behav 4, 1011–1020 (2020).* https://doi.org/10.1038/s41562-020-0922-x

7 *Hausmann, Ricardo. Why Zoom Can't Save the World. Project Syndicate. August 19, 2020.* https://www.project-syndicate.org/commentary/high-economic-cost-of-business-travel-shutdown-by-ricardo-hausmann-2020-08

FIGURE 10. SHARE OF SFO REGION GRP BY DETAILED INDUSTRY GROUP IN 2021 (3-DIGIT NAICS)



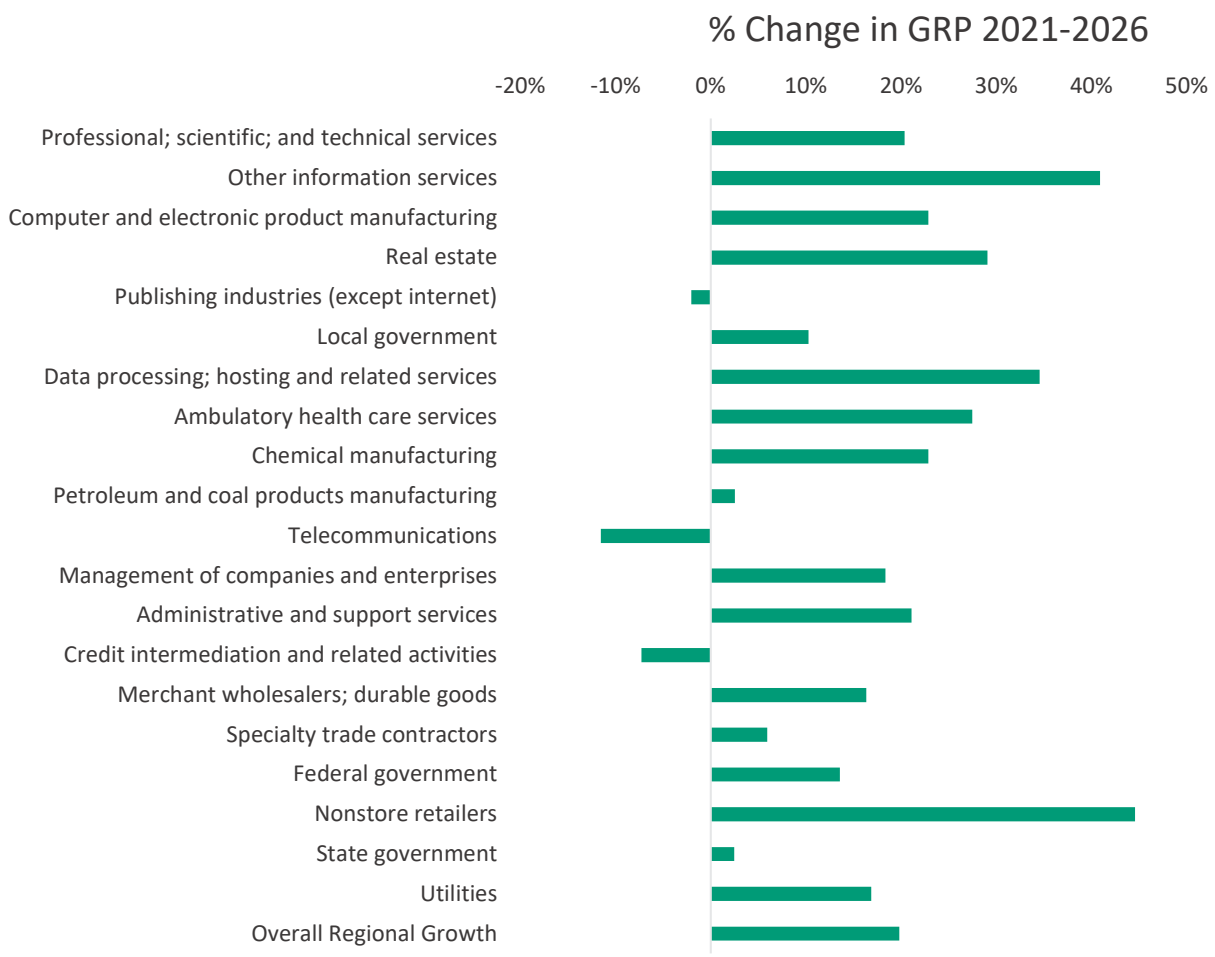
Source: *EBP analysis of data from Moody's Economy.com; Data downloaded on January 21, 2022.*

The three largest industries in the Bay Area are information technology, manufacturing, and professional, scientific, and technical services. Together these accounted for more than half (56%) of the region's GRP in 2021 (Figure 9).

The information sector includes companies operating web search portals and internet publishing and broadcasting businesses such as Google and YouTube. This specific subsector, referred to as "Other information services" in economic data, makes up 11% of the region's GRP (Figure 10). Additional major information subsectors in the region include non-Internet publishing (which includes software companies), data processing and hosting, and telecommunications.

Also reflecting the region's well-known prominence in technology (including Silicon Valley in Santa Clara County), the Bay Area manufacturing industry is highly concentrated in computer and electronic product manufacturing, which makes up another 10% of GRP. The next largest manufacturing subsector in the region is chemicals, which includes pharmaceuticals and comprises 3% of GRP.

FIGURE 11. FORECAST GROWTH FOR THE TOP 20 DETAILED INDUSTRY SECTORS (3-DIGIT NAICS) IN THE REGION



Source: *EBP analysis of data from Moody's Economy.com; Data downloaded on January 21, 2022.*

Together, the information technology; manufacturing; and professional, scientific, and technical services sectors form an ecosystem of innovation.

INDUSTRY DRIVERS OF FUTURE GROWTH

The technology ecosystem is also forecast to be a driver of future growth in the region. Figure 11 shows the forecast growth of GRP from 2021 to 2026 for each of the top twenty detailed industry sectors in the Bay Area.[8] The top three sectors (professional, scientific, and technical services; other information services; computer and electronic manufacturing), which together account for over one-third of the economy, are projected to grow as fast or faster than the economy overall. Additionally, two industry groups that are supported in part by tourism in the region — accommodation and food services and arts, entertainment, and recreation — are forecast to grow more than twice as fast as GRP overall, at 43% and 41%, respectively. While this growth is relative to a small share of the baseline economy (less than 2%), SFO plays an important part in enabling this future growth.

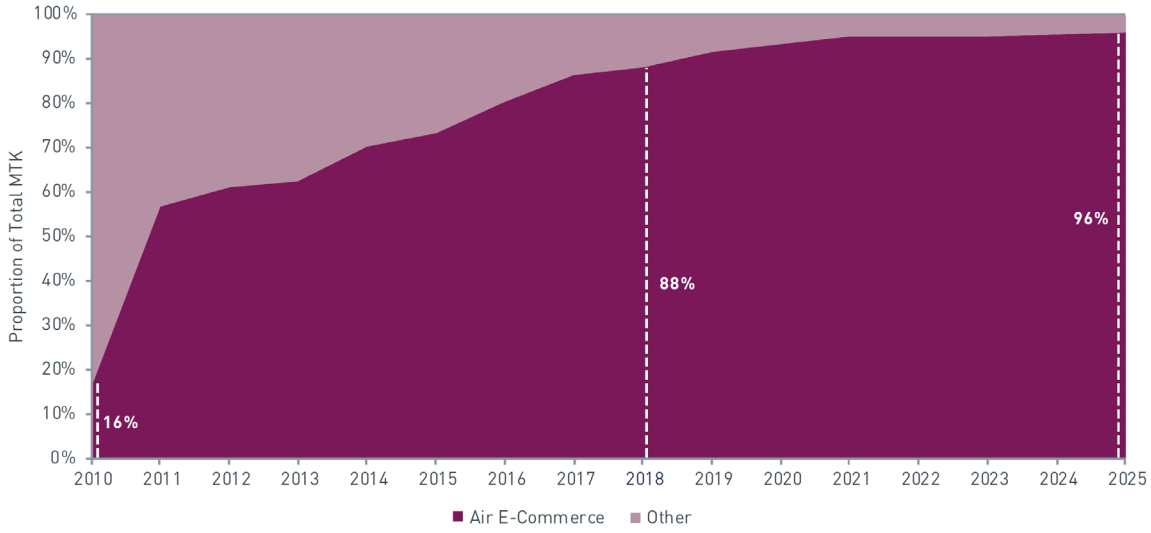
8 *As shown beneath Figure 11, data for these trends were pulled from Moody's Analytics and are based on the economy of January 2022.*

As the Bay Area recovers from the effects of COVID-19, technology industries have seen robust growth in the last two years. However, hiring is being scaled back as of this writing, as the sector braces for a slowdown. Long-term, however, regional technology industries are still likely to grow. Economic uncertainties are looming around international supply chain planning, the possibilities of a recession and reductions in the availability of venture capital could affect future growth. In addition, tourism in the region has contracted due to the pandemic.[9] Bay Area industries tend to rely heavily on passenger and cargo travel for the following reasons:

- **Products produced in the Bay Area tend to be expensive, delicate, and/or time-sensitive** — factors that are more likely to result in shipment by air. Typically, these are technology-related products whose values reflect high labor costs and precision manufacturing, although the Bay Area also produces and ships perishable agricultural products.
- **The City of South San Francisco's biotech web page touts the city's convenience (two minutes) to SFO** (https://www.ssf.net/our-city/biotech/biotech-in-ssf). As mentioned above, the Bay Area has one of the strongest biotech sectors in the U.S., and its center is South San Francisco. Despite some issues with funding and value of companies this year, the sector is still booming.
- **The Bay Area produces products that are heavy to ship but that are time sensitive and carry a large return on transportation costs**, including just-in-time manufacturing and equipment needed to maintain production.
- **Business and professional services often require travel to meet clients and make presentations.**

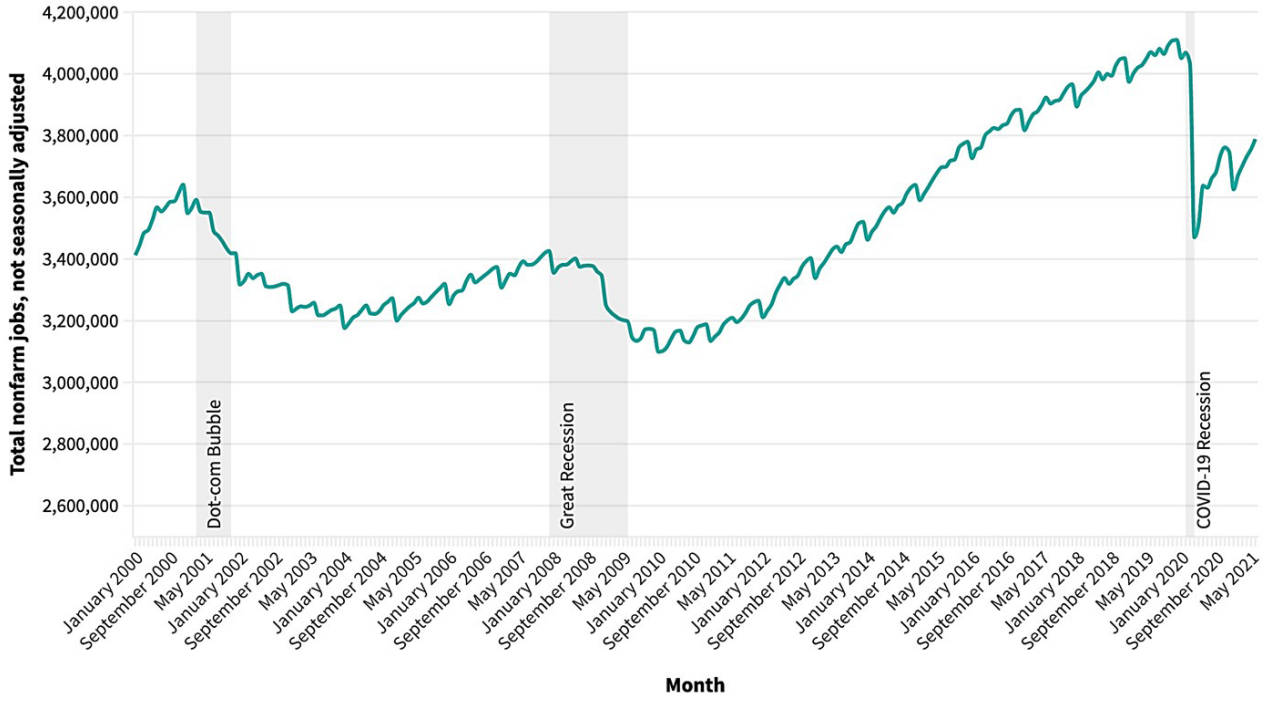
9 *Bay Area Economic Institute*

FIGURE 12. AIR E-COMMERCE SHARE OF INTERNATIONAL MAIL TON KILOMETERS (MTKS)



Source: *Global Aviation Industry High-level Group. Aviation Benefits Report. 2019.* https://www.icao.int/sustainability/Documents/AVIATION-BENEFITS-2019-web.pdf

FIGURE 13. EMPLOYMENT IMPACTS OF THE COVID-19 RECESSION COMPARED TO OTHER MAJOR RECESSIONS



Data: California EDD • Recessions defined by National Bureau of Economic Research Business Cycle Expansions and Contractions

Source: *Bay Area Council Economic Institute. Tracking Impacts of the COVID-19 Recession on the Bay Area Economy: Bay Area Economic Profile, 2020.* http://www.bayareaeconomy.org/files/pdf/BayAreaEconomicProfile2020.pdf

- **Companies with statewide, western, national, and even global business networks often require frequent and sometimes international travel between various offices.** These include companies headquartered in the Bay Area as well as those that locate important regional offices in the region.

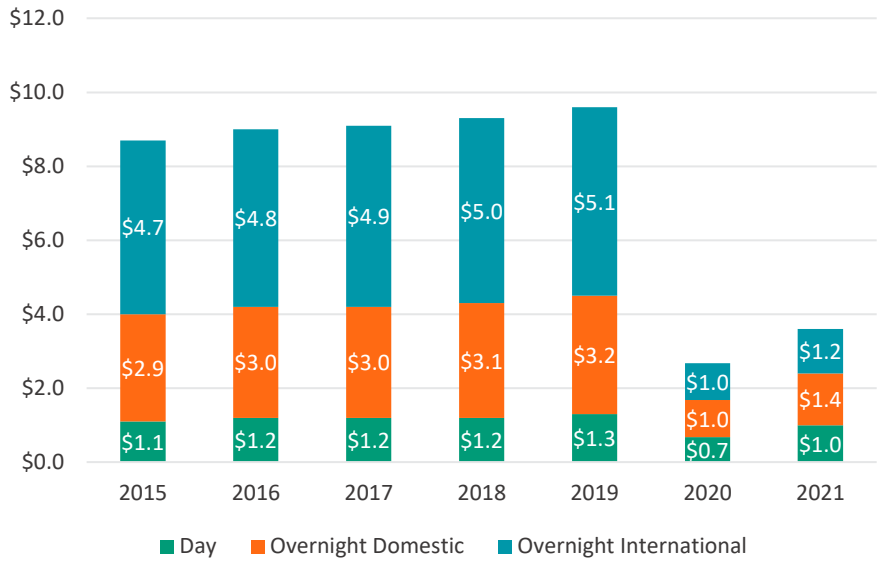
- **The Bay Area is a major resort and tourist destination.**

Not captured in the industry trends above is the outsized role of aviation in supporting the rapidly growing sector of e-commerce. Consumers increasingly expect rapid fulfillment of e-commerce orders, which has increased the reliance of e-commerce shipments on air transportation over time. A 2019 international study of the benefits of aviation found that "around 90 percent of business-to-consumer (B2C) e-commerce parcels are currently carried by air" globally and that the air e-commerce share of international mail when combining measures of tonnage and distance (ton-kilometers), grew from 16% in 2010 to 88% in 2018, with further growth expected (Figure 12).[10] The COVID-19 pandemic has further accelerated the growth in e-commerce, making the role of aviation in supporting rapid cargo transportation even more important now and into the future.

10 *Global Aviation Industry High-level Group. Aviation Benefits Report. 2019.* https://www.icao.int/sustainability/Documents/AVIATION-BENEFITS-2019-web.pdf

Net job loss due to COVID-19 in the Bay Area was significantly more acute than downturns from "the great recession" and the "dot-com bubble".

FIGURE 14. COVID-19 IMPACTS ON VISITOR SPENDING IN THE CITY OF SAN FRANCISCO IN $BILLIONS



Note: *These data represent all visitation to the City Of San Francisco. Dollars are in nominal values. Totals do not include conventions and meetings.*

Source: *San Francisco Travel Association. Visitor Volume and Direct Spending Estimates. 2020 and 2021. https://sftravel.ent.box.com/s/evn3hsrd6kub3w3sv61fjb5e5pyddtfo and https://sftravel.ent.box.com/s/9y0dy4mz6mweikjoll94ec277j3o055j*

IMPACTS OF COVID-19 ON THE BAY AREA ECONOMY

Figure 13 depicts the employment impacts of the recession triggered by the COVID-19 pandemic in the Bay Area compared to two prior major recessions. Net job loss due to COVID-19 was significantly more acute than in these other major downturns. Eleven months into the COVID-19 pandemic, the region experienced a net job loss of 10.5% (February 2020-January 2021), compared to 2% for the Great Recession (December 2007-November 2008) and 5% in the Dot-Com Bubble (December 2000-November 2021). However, the timing of the COVID-19 recession on the Bay Area economy has been quite different than in previous recessions, with faster downturns as well as more rapid recovery. By November 2020, the region recovered 50% of the jobs that were lost at the low point of the downturn in April 2020, and by May 2022 the Bay Area recovered 81% of the number of jobs lost at the low point. However, this still lagged behind the national recovery.[11]

Impacts on the regional economy have been far from uniform. Professional and business services and information industries (which include technology jobs) have been more resilient compared to other sectors in the region. Professional and business services, for example, shows a 7% loss of jobs in April 2020 compared to January 2020 levels but recovered 97% of those jobs by August 2020. These sectors generally have been able to adapt to working from home and to maintain, at least to some degree, their connections with customers and collaborators remotely.[12]

11 *Bay Area Council Economic Institute.* http://www.bayareaeconomy.org/bay-area-job-watch-65/ *and email from Jeff Bellisario, Executive Director of BAECI.*

12 *Bay Area Council Economic Institute. Tracking Impacts of the COVID-19 Recession on the Bay Area Economy: Bay Area Economic Profile, 2020.* http://www.bayareaeconomy.org/files/pdf/BayAreaEconomicProfile2020.pdf

In contrast, leisure and hospitality experienced a 50% decline in jobs between January and April of 2020 and only recovered 74% of those by August of the same year.[13] These industries are not typically compatible with remote work and were significantly impacted by consumers curtailing in-person activities. Additionally, the contraction of tourism, including that facilitated by SFO, immediately impacted these sectors through reduced visitor spending, as described in Chapter 2, above.

For example, Figure 14 illustrates the dramatic decrease in visitor spending in the City of San Francisco by both domestic and international travelers in 2020 relative to prior years. A study by the San Francisco Travel Association estimated that direct visitor spending increased to $3.6 billion in 2021 from $2.8 billion in 2020 but was still down more than 60% from 2018. The subset of tourism focused on conventions and meetings has fallen even more steeply, by 82% from 2018 to 2021.[14] These trends are reflected in the passenger volumes at SFO and recent declines in visitor spending impacts of the airport.

Joe D'Alessandro, president and CEO of San Francisco Travel Association stated, "While we saw some improvement in 2021 with domestic leisure travelers returning, overall arrivals were negatively impacted by global travel restrictions and the Delta variant. Our recovery is slower because we have a disproportionately large reliance on meetings, business travel, and international travelers. Pre-COVID, international visitors accounted for over 60% of all overnight visitor spending even though they represented just 28% of our visitors." [15]

Calendar year 2021 showed modest signs of recovery, with the San Francisco Travel Association reporting a 25% increase in visitors in 2021 relative to 2020 figures. The domestic pleasure travel market has recovered most quickly, with international travel as well as business and conference travel lagging.[16]

SFO AND GLOBAL CONNECTIVITY

One of the less immediately apparent impacts of COVID-19 on the Bay Area is the dampening effects on global connectivity. The region is "one of the world's most globally connected economies."[17] In 2022, it was home to over 300 international research and development (R&D) centers, international corporate venture firms, and accelerators, as well as many R&D centers operated by companies headquartered elsewhere in the U.S. Prior to the pandemic these centers maintained a connection with the rest of their corporate offices through a mix of digital communication and in-person travel, including by air.

13 *Bay Area Council Economic Institute. Tracking Impacts of the COVID-19 Recession on the Bay Area Economy: Bay Area Economic Profile, 2020.* http://www.bayareaeconomy.org/files/pdf/BayAreaEconomicProfile2020.pdf

14 *San Francisco Travel Association. Visitor Volume and Direct Spending Estimates. 2020.* https://sftravel.ent.box.com/s/evn3hsrd6kub3w3sv61fjb5e5pyddtfo

15 https://www.sftravel.com/article/san-francisco-tourism-beginning-long-road-recovery

16 *Where Have All the Tourists Gone? SF Travel Industry Lags (sfstandard.com)*

17 *Bay Area Council Economic Institute. Tracking Impacts of the COVID-19 Recession on the Bay Area Economy: Bay Area Economic Profile, 2020.* http://www.bayareaeconomy.org/files/pdf/BayAreaEconomicProfile2020.pdf

Similarly, institutions of higher education that help to anchor and support the innovation economy in the region typically benefit from significant international study enrollment. This includes thousands of international students at UC Berkeley and Stanford University. An analysis by the National Foundation for American Policy projected that new international student enrollment would decrease between 63% and 98% in 2020, relative to 2018-2019 levels. Beyond student enrollment, immigrants are also key players in the region's innovation economy. Approximately 42% of STEM workers in California were immigrants as of 2015, with a high concentration of highly skilled immigrant workers in the Bay Area.[18]

The impact of immigrants on the economy is significant, as nearly 45% of tech companies in the region have founders who were born outside the U.S., and immigrants fill research and senior executive positions in a wide array of industries. COVID-19 severely depressed immigration, impacting both business and education. In 2020 and 2021 California's population shrunk, due in part to the lack of immigrants available to replace (as they have done historically) Californians who were leaving.

In the post-COVID recovery, the ability to rebuild global connections will be important to the continued success of the innovation and technology economy of the region. SFO, by facilitating international travel, will play a role in rebuilding these connections.

18 *Bay Area Council Economic Institute. Tracking Impacts of the COVID-19 Recession on the Bay Area Economy: Bay Area Economic Profile, 2020.* http://www.bayareaeconomy.org/files/pdf/BayAreaEconomicProfile2020.pdf

03 IMPACTS OF COVID-19 ON PASSENGER TRAVEL AND SFO'S MARKET SHARE

This chapter presents data on the total number of passengers that traveled through SFO (both emplaned and deplaned) during Fiscal Years 2020 and 2021. COVID-19 began affecting the U.S. in February 2020 and significant impacts at SFO and the national aviation system began in March. April to June 2020 were among the worst travel months since 9/11/2001. As the pandemic took hold, vacationers canceled their travel plans, and in-person business travel was replaced by video conferencing technology. These behavior changes had the following effects on national and Bay Area passenger air travel.[1]

- Effects of COVID-19 were seen in U.S. airports in the first week of March 2020, when passenger traffic levels were 80% - 88% of the same dates in the previous year. By the time the World Health Organization declared COVID-19 a pandemic (March 11) and the United States declared a national emergency (March 13), national air passenger counts were in free fall at 60% of 2020 volume. On April 1, 2020, 5% of April 1, 2019, passenger counts were recorded, and counts fluctuated between 4% and 7% until early May, rising to 25% by the end of June.[2]

In FY 2018 about 84 million passengers traveled through the three Bay Area Airports (SFO, OAK and SJC), falling 55 million in FY 2020 and 22 million in FY 2021.

- Approximately 84.2 million passengers traveled through the three Bay Area airports of San Francisco International Airport (SFO), Oakland International Airport (OAK) and San Jose International Airport (SJC) in FY 2018 (July 2017 through June 2018). This amounts to an average of more than seven million passengers per month for the year.

- Passenger volume at the three Bay Area airports fell to 54.8 million and 22.2 million in Fiscal Years 2020 and 2021, respectively, amounting to a

1 *In this report, SFO data are used in tables and figures representing SFO alone, but US DOT data are used when comparing SFO to other airports to maintain a consistent data source among airports. US DOT and SFO data slightly vary.*

2 *TSA.* https://www.tsa.gov/coronavirus/passenger-throughput

TABLE 8. AIR PASSENGER TRAVEL THROUGH BAY AREA AIRPORTS: JULY 2019 THROUGH JUNE 2021

PERIOD	BAY AREA PASSENGER TOTALS	MONTHLY AVERAGE PER PERIOD
Reference: FY 2018	84,167,900	7,014,000
TOTAL FY 2020	54,841,300	4,570,000
FY 2020, Quarters 1-3	53,257,900	5,917,500
FY 2020, Quarter 4	1,583,400	527,800
FY 2021	22,235,000	1,852,900

Source: *U.S Department of Transportation's T-100 database. Bay Area Airports are SFO, OAK and SJC. Numbers are rounded to the nearest hundred. Calculations by EBP.*

TABLE 9. DOMESTIC AND INTERNATIONAL TRAVEL THROUGH SFO: FY 2018, FY 2020 AND FY 2021

PERIOD	PASSENGER COUNTS			PERCENT OF FY 2018		
	DOMESTIC	INTERNATIONAL	TOTAL	DOMESTIC	INTERNATIONAL	TOTAL
Reference: FY 2018	43,926,800	13,820,300	57,747,200			
FY 2018, Quarters 1-3	32,399,700	10,149,700	42,549,400			
FY 2018, Quarter 4	11,527,200	3,670,700	15,197,800			
FY 2020	30,007,100	10,535,900	40,542,900	68%	76%	70%
FY 2020, Quarters 1-3	29,106,100	10,456,400	39,562,400	90%	103%	93%
FY 2020, Quarter 4	901,000	79,600	980,500	8%	2%	6%
FY 2021	12,036,900	1,637,800	13,674,700	27%	12%	24%
FY 2021, Quarters 1-3	7,177,800	1,056,800	8,234,600	22%	10%	19%
FY 2021, Quarter 4	4,859,200	580,900	5,440,100	42%	16%	36%

Numbers are rounded to the nearest hundred. Columns and rows may not add due to rounding. ***Source:*** *https://www.flysfo.com/about/media/facts-statistics. Calculations by EBP.*

passenger decline of 74% for the region. During this timeframe, SFO passenger volume decreased 78%, compared to 61% at OAK and 31% at SJC.[3]

- Monthly averages are useful to recognize the decline and partial recovery of passenger demand in the Bay Area. Across the Bay Area, the average number of monthly passengers at SFO, OAK and SJC from April-June 2020 was 528,000, which was less than 8% of monthly air travel in FY 2018. As air travel rebounded during FY 2021, monthly travel averaged almost 1.9 million passengers. Monthly levels in FY 2021 represent 3.5 times the level of FY 2020 Q4, but just 26% of the FY 2018 average. Table 8 presents passenger volumes and monthly average rates of Bay Area airport travel (domestic and international) through the three time periods covered in this study.

PASSENGER TRAVEL THROUGH SFO

Domestic and international travel rebounded in FY 2021, but passenger volume continued to lag far behind pre-pandemic travel. Approximately 1,000,000 domestic passengers and 137,000 international passengers per month traveled through SFO during FY 2021 (Table 9). The domestic level represents a partial recovery of about 27% of pre-COVID travel but international travel remained less than 12% of the pre-pandemic reference case.

During the fourth quarter of FY 2020 (April 2020 – June 2020) enplaned and deplaned passengers represented 6% of totals in the fourth quarter of FY 2018. The fourth quarter of FY 2021 saw this level partially rebound to 36% of the reference case.

SFO international passenger counts fell from almost 14 million in FY 2018 to 10.5 million in FY 2020 and 1.6 million in FY 2021. But 3rd quarter counts of international passengers rose from 80,000 in FY 2020 to 581,000 in FY 2021.

3 *Source: U.S Department of Transportation's T-100 database. Bay Area Airports are SFO, OAK and SJC*

International travel restrictions imposed nationally carried a disproportionate downward effect on air traffic at SFO. In the fourth quarter of FY 2021, domestic traffic was 42% of the comparable time frame in FY 2018, while international traffic was 16%. This represented an increase from fourth quarter passenger traffic in FY 2020, which amounted to 8% of domestic and 2% of international counts recorded in FY 2018.

TOURISM AND VISITOR SPENDING

Citywide data shows that San Francisco hosted 14.8 million visitors in calendar year 2021, down 44% from the 26.2 million visitors in 2019. Total visitor spending was $3.1 billion, down 70% from $10.3 billion in 2019. The numbers include spending on meetings and conventions.[4]

COVID-19 and its variants, lockdowns and changing border entry regulations led to a major reduction in international travel to San Francisco. Approximately 481,000 international visitors arrived in San Francisco in 2021, down 84% from 2.9 million in 2019. International visitors comprised 11% of overnight visitor volume but 44% of all visitors spending in 2021. The $1 billion of 2021 international visitor spending was down 80% from $5.1 billion in 2019.[5]

BUSINESS TRAVEL

Prior to the arrival of COVID-19, the technology companies based in San Francisco, the Peninsula, and Santa Clara County relied on SFO for business travel. However, business travel diminished when COVID-19 arrived as many Silicon Valley firms replaced in-person business meetings with videoconferencing. Business travel has not returned to pre-pandemic levels, as public health concerns remain, and remote work has become entrenched in business operations.

Global financial services firm Deloitte surveyed 150 corporate travel managers and executives with travel budget oversight. Below are conclusions from the business survey with implications for SFO.[6]

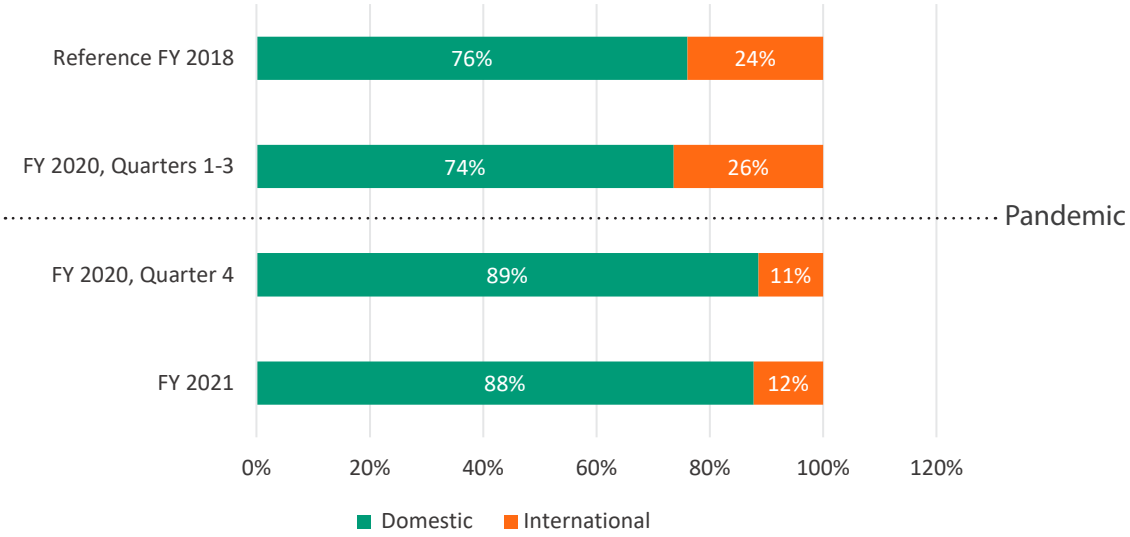
- Health risks and other pandemic-driven factors are reduced from 2021, but they still present barriers to corporate travel and travel to business conferences and events.
- The emergence of COVID variants slowed down all plans to resume business travel. Two-thirds of companies surveyed say variants and outbreaks in the second half of 2021 caused them to push back their timelines. Another 15% say variants triggered a significant rethink of their travel policies. Business travel is at least two years from reaching pre-COVID spending.
- Travel to business conferences and events should improve as large companies consider in-person events to be more valuable and less replaceable by technology than they did in 2021.
- Increased travel prices remain a concern.

4 https://www.sftravel.com/article/san-francisco-tourism-beginning-long-road-recovery

5 *Ibid*

6 *The survey was taken in early February 2022. See* https://www2.deloitte.com/us/en/insights/focus/transportation/business-travel-trends-outlook-2022.html

FIGURE 15. EVOLVING SHARES OF DOMESTIC AND INTERNATIONAL TRAVELERS AT SFO



Sources: *https://www.flysfo.com/about/media/facts-statistics. Economic Impact Study of San Francisco International Airport. Calculations by EBP.*

- Hotels have reduced jobs and services (e.g., guest amenities) because of weak occupancy rates (36% in 2021) and reduced room rates of $162 per night, which required some companies to modify their meetings contracts to ensure the availability of desired amenities for employees that travel. Hotel occupancy rates were down 57% from 2019 and room rates were down 41%.[7]
- Sustainability is a higher priority for some companies. Three in 10 companies expect sustainability to cause an 11%–25% reduction in travel budgets by 2025. Fewer business trips are expected over the long-term.
- Work from Home (WFH) means less travel overall. Companies that will be office-dominant are twice as likely to expand travel spending than WFH-dominant companies.

The declines of international and business travel through FY 2021 had shifted American airport passenger service to domestic personal travel, which accounted for 88% of SFO's passengers from July 2020 to June 2021. Prior to COVID-19, the proportion of domestic to international travelers was about 3:1. As illustrated by Figure 15, 24% of passenger travel through SFO was to and from international destinations in FY 2018. Moreover, during the first three quarters of FY 2020 the share of international travelers increased to 26%. During the last quarter of FY 2020 and through FY 2021, international travelers accounted for 8% and 12%, respectively, of SFO's passenger volumes.

7 *In April 2020, 70 of 215 hotels in San Francisco were closed due to COVID 19 (ABC7news, 4/23/2020) rising to 90 by August 2020 (San Francisco Business Times, 8/3/2020). The San Francisco Hilton in Union Square, the city's largest hotel, did not begin to partially reopen until May 2021, a month from the end of SFO's FY 2021 (ABC7news, 5/24/2021).*

DOMESTIC TRAVEL DESTINATIONS FROM SFO

In the first nine months of 2020, travel linking SFO to Pacific Coast states (including Hawaii, Alaska and California) accounted for almost 40% of SFO domestic passenger traffic (Figure 16):

- Pacific Coast States, other than Hawaii – 31%
- Hawaii – 6%
- Mountain West States – 16%
- Midwest States – 11%
- Northeast States – 16%
- Southern States – 21%

Pacific Coast States: AK, CA, OR, WA,

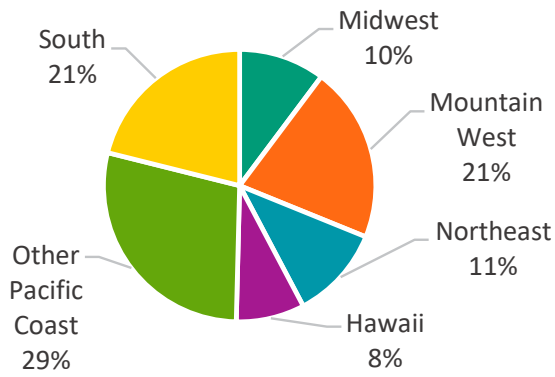
Mountain West States: AZ, CO, ID, MT, NM, NV, UT, WY

Midwest States: IA, IL, IN, KS, MI, MN, MO, NE, OH, SD, WI

Northeast States: CT, MA, ME, NH, NJ, NY, PA, RI

Southern States: AL, AR, FL, GA, KY, LA, MD, NC, OK, SC, TN, TX, VA

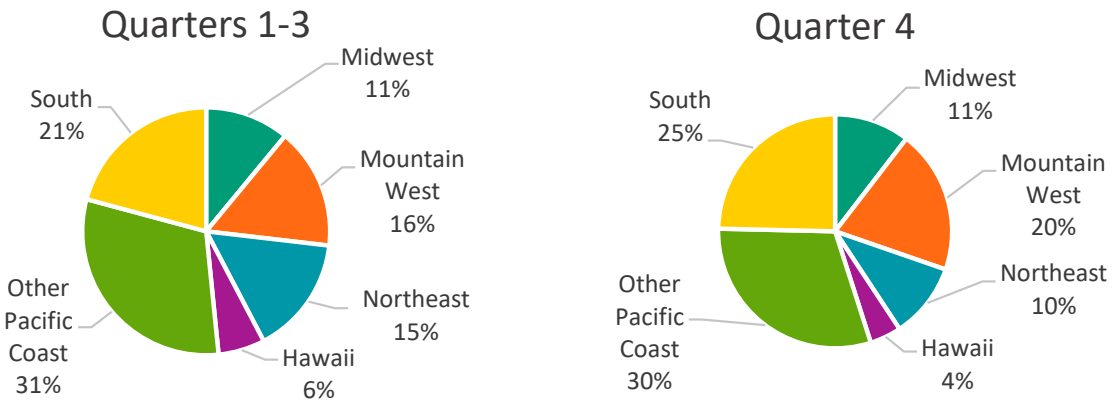
FIGURE 17. DOMESTIC CONNECTIONS FOR SFO PASSENGERS DURING FY 2021



Sources: *U.S Department of Transportation's T-100 database, 2019 Economic Impact Study of San Francisco International Airport. Calculations by EBP.*

As the COVID-19 pandemic progressed, the locations of where passengers traveled to and from SFO shifted. A higher percentage of domestic passengers traveled between SFO, the Mountain West states and Hawaii in FY 2021, compared to the first three quarters of FY 2020. Conversely, a lower percentage of domestic passengers traveled between SFO and the Northeast and the other Pacific Coast states. SFO's shifts in domestic travel markets are illustrated in Figure 16 for FY 2020 and Figure 17 for FY 2021.

FIGURE 16. DOMESTIC CONNECTIONS FOR SFO PASSENGERS DURING FY 2020



Sources: *U.S Department of Transportation's T-100 database, 2019 Economic Impact Study of San Francisco International Airport. Calculations by EBP.*

INTERNATIONAL TRAVEL CONNECTIONS FOR SFO PASSENGERS

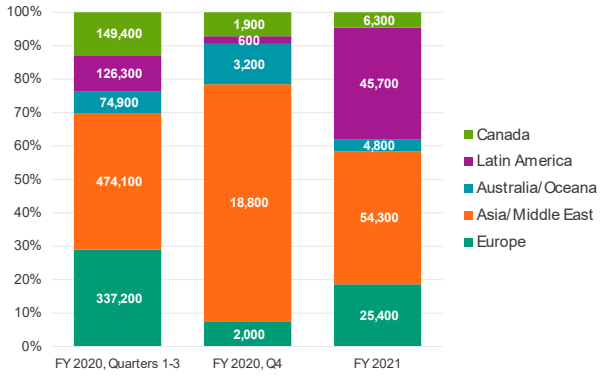
As shown previously in Table 9, approximately 10.1 million international passengers traveled through SFO FY 2020 Quarters 1-3 (between July 2019 and March 2020), or an average of 1.1 million international travelers each month.

Over the course of FY 2020 and FY 2021, the mix of international passenger origins and destinations traveling through SFO fundamentally shifted, even as an extreme drop in the number of passengers was felt across all markets. Following the arrival of the pandemic, and in the context of drastically reduced travel volumes, the proportion of European and Canadian traffic through SFO decreased and shifted toward Latin America, as Mexico became a major destination of the reduced international passenger flows. The changing proportions of travel markets are illustrated in Figure 18.

International passenger volume through SFO decreased by 8.9 million travelers from FY 2020 to FY 2021. Of these, almost 3.7 million were from the Asia/Middle East markets, 2.7 million passengers were lost from European destinations and 1.3 million of the decline was accounted for by reduced Canadian travel, as seen in Table 10. The decrease in Asia/Middle East represented SFO's largest market impact in both percent of decline and passenger volume.

The recovery of international travel through SFO has been uneven. In FY 2021, SFO has recovered approximately 36% of monthly travel to and from Latin American destinations for the first nine months of FY 2020. Asian destinations have recovered 11%. Other markets that have recovered by less than 10% of travel from SFO include Europe (8%), Australia (6%) and Canada (4%). Total volumes of international travel through SFO by period are shown in Table 11.

FIGURE 18. INTERNATIONAL MARKETS OF SFO PASSENGERS FOR FY 2020 AND FY 2021, MONTHLY PASSENGER MOVEMENT



Numbers are shown in the nearest hundred.
Sources: *https://www.flysfo.com/about/media/facts-statistics. Calculations by EBP.*

BAY AREA PASSENGER TRAVEL PATTERNS BY AIRPORT (SFO, OAK AND SJC)

The COVID-19 pandemic led to a change in travel patterns among San Francisco, Oakland and San Jose international airports. As shown in Table 12, the Bay Area lost almost 62 million air passengers from FY 2018 (84.2 million) to FY 2021 (22.2 million), representing a 74% drop in passenger volume. In FY 2018, SFO captured 69% of the passengers traveling through the Bay Area airports, while OAK and SJC each captured less than 16% of air travel. By FY 2021, SFO accounted for 58% of the total passenger traffic of the three commercial airports in the Bay Area. As a share of total air traffic, notwithstanding the decline in passenger volume, domestic air traffic through SFO was 51% of all passenger enplanements and deplanements in the Bay Area airports. However, international passengers at SFO represented 16% of total regional air traffic in FY 2018 and fell to 7% in FY 2021.

TABLE 10. CHANGES BY INTERNATIONAL MARKET FROM FY 2020 TO FY 2021 BY MILLIONS AND PERCENT

MARKET:	ASIA/ MIDDLE EAST	AUSTRALIA/ OCEANIA	CANADA	EUROPE	LATIN AMERICA	TOTAL
Decline (millions)	3.7	0.6	1.3	2.7	0.6	8.9
Decline (percent)	41.3%	7.0%	14.3%	30.8%	6.6%	100%

Source: *https://www.flysfo.com/about/media/facts-statistics. Calculations by EBP.*

TABLE 11. AVERAGE MONTHLY INTERNATIONAL PASSENGER VOLUMES AT SFO BY MARKET, FY 2020 AND FY 2021

PERIOD	ASIA/MIDDLE EAST	AUSTRALIA/ OCEANIA	CANADA	EUROPE	LATIN AMERICA	TOTALS
FY 2020, Quarters 1-3	474,100	74,900	149,400	337,200	126,300	1,161,900
FY 2020 Quarter 4	18,800	3,200	1,900	2,000	600	26,500
Total FY 2020	360,300	57,000	12,500	253,400	94,800	878.000
FY 2021	54,300	4,800	6,300	25,400	45,700	136,500

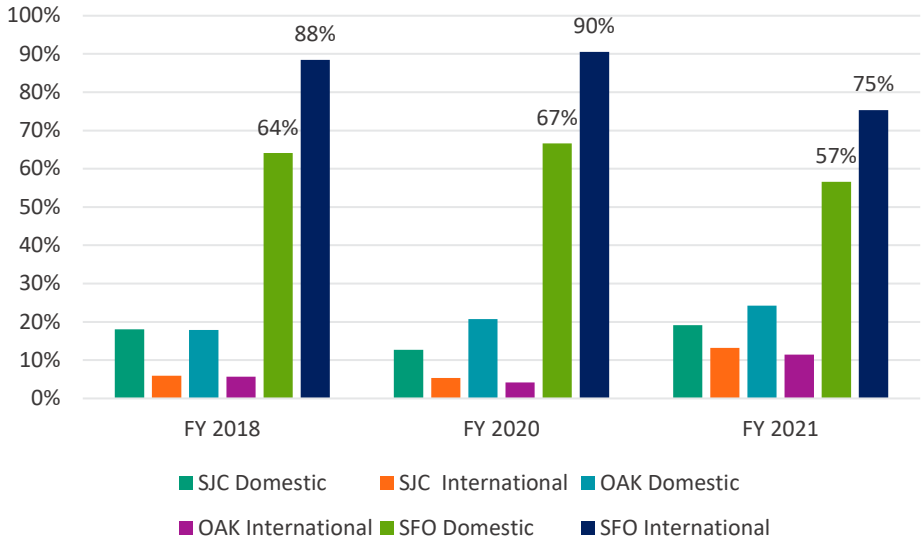
Numbers are rounded to the nearest hundred. Rows may not add due to rounding. Columns represent the averages of each period shown over 9 months (FY 2020, Quarters 1-3, 3 months (FY 2020, Quarter 4) and 12 months (total FY 2020 and FY 2021), so the numbers are not additive. ***Source:*** *https://www.flysfo.com/about/media/facts-statistics. Calculations by EBP.*

TABLE 12. DOMESTIC AND INTERNATIONAL PASSENGERS AT THE THREE BAY AREA'S INTERNATIONAL AIRPORTS

AIRPORT	PASSENGER SEGMENTS	REFERENCE: FY 2018	TOTAL FY 2020	FY 2021
SFO	Domestic	43,926,800	29,010,400	11,389,900
	International	13,820,300	10,204,800	1,591,500
	Total	57,747,100	39,215,200	12,981,400
OAK	Domestic	12,242,600	9,018,700	4,883,900
	International	889,200	472,100	241,200
	Total	13,131,800	9,490,800	5,125,100
SJC	Domestic	12,365,600	5,535,000	3,849,100
	International	923,300	600,300	279,400
	Total	13,288,900	6,135,300	4,128,500
TOTALS for BAY AREA	**Domestic**	**68,535,000**	**43,564,100**	**20,122,900**
	International	**15,632,800**	**11,277,200**	**2,112,100**
	Total	**84,167,800**	**54,841,300**	**22,235,000**

Rows may not add due to rounding. ***Source:*** *U.S Department of Transportation's T-100 database, 2019 Economic Impact Study of San Francisco International Airport. Calculations by EBP.*

FIGURE 19. DOMESTIC AND INTERNATIONAL AIRPORT MARKET SHARES IN THE BAY AREA OVER TIME



Sources: *U.S Department of Transportation's T-100 database, 2019 Economic Impact Study of San Francisco International Airport. Calculations by EBP.*

In FY 2018, SFO captured 88% of international travel and 64% of domestic travel passing through the Bay Area's three airports. In FY 2021, these shares fell to 75% of international and 57% of domestic travel (Figure 19). COVID-19 induced a significant shift in the decline of international travel and in spreading the distribution of international travel away from SFO during FY 2020 and FY 2021. Data show that SFO is experiencing stronger regional competition for international travel; this partially explains why SFO's international travel has decreased to less than 12% of its pre-COVID international travel level. The entire Bay Area lost 1.06 million international passengers between FY 2020 and FY 2021. SFO lost 990,000; OAK lost 30,000 and SJC lost 42,800 international passengers.

Through the pandemic and recovery, SFO's challenges are related to its unique geography, the reliance on business travel among Silicon Valley firms, Asian-facing air markets and the airport's role in serving San Francisco's important tourism industry. At SFO, monthly international travel demand during FY 2021 was about 11.5% of the FY 2018 average and almost 12% of the FY 2020 average of quarters 1-3. At SFO, monthly international and domestic average passenger demand in FY 2021 had increased almost four-fold from April – June 2020 (without consideration of seasonal variations). In addition, the average monthly FY 2021 demand for domestic travel through SFO was 26% of FY 2018 and 40% of the July 2019 – March 2020 period.

These trends indicate that demand for air travel to and from the Bay Area is increasing as the worst of the pandemic fades and that SFO air traffic is increasing to service the resurgent demand.

During FY 2021 SFO was responsible for more than 186,000 jobs, $19 billion in labor income and $51.5 billion in business revenue throughout the Bay Area in the face of the pandemic.

04 ON-AIRPORT AND OFF-AIRPORT ECONOMIC IMPACTS

In FY 2020 and FY 2021, SFO accounted for $68.9 billion and $51.5 billion, respectively, in business revenues of which $26 billion and $19.3 billion was labor income that supported about 330,000 and 186,000 jobs. The total economic impacts of SFO in the Bay Area are summarized in Table 13.

The "economic footprint" of SFO starts at the Airport and stretches across the Bay Area. On SFO, economic contributions to the Bay Area economy include the administration of the Airport, airfield, building construction and maintenance, air transportation and supporting services, as well as passenger terminal concessions serving passengers to enable visitor arrivals and air cargo transport.

Economic activity associated with SFO comes from three key sources:

1. Businesses and government agencies on-airport buy goods and services from businesses located throughout the Bay Area (indirect effects), providing business sales and supporting additional employment in the region. Moreover, workers on-airport and the employees of these business suppliers spend the wages they earn as an after-effect of the Airport creating more business sales and jobs in the region (induced effects).[1]

1 *The induced effects may not be 100%. For example, spending of airport-based employees may include eating lunch at terminal restaurants. Also, airport tenants may be in each other's supply chain. An example of this is an airplane cleaning service located on-airport. However, the indirect and induced effects generated by on-airport activities is overwhelmingly off-airport.*

TABLE 13. SUMMARY OF ECONOMIC IMPACTS IN FY 2020 AND 2021

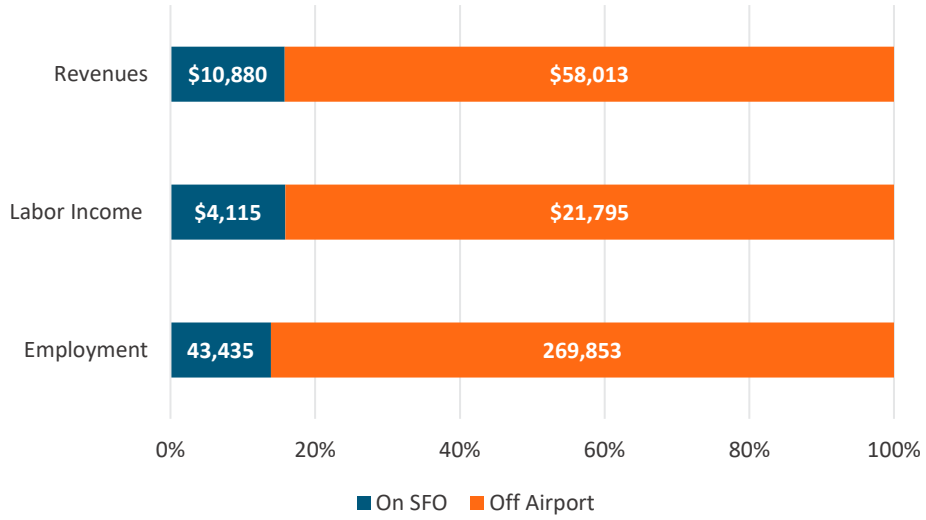
FY 2020	EMPLOYMENT	LABOR INCOME	REVENUES
On-SFO*	74,522	$6,778,722,000	$18,005,127,000
Visitor Spending	141,083	$9,211,184,000	$21,384,569,000
Air Cargo (Air-Reliant)	97,683	$9,920,182,000	$29,503,057,000
TOTAL	**313,288**	**$25,910,088,000**	**$68,892,753,000**
FY 2021	**EMPLOYMENT**	**LABOR INCOME**	**REVENUES**
On-SFO*	47,739	$4,640,691,000	$10,413,933,000
Visitor Spending	22,594	$1,426,378,000	$3,265,518,000
Air Cargo (Air-Reliant)	115,998	$13,192,239,000	$37,807,276,000
TOTAL	**186,332**	**$19,259,308,000**	**$51,486,727,000**

**Includes indirect and induced multiplier impacts.*
All dollars are in 2021 value and rounded to the nearest thousand.
On-Airport includes airport administration, airport tenants, construction and commercial ground transportation that transports passengers and employees to/from the airport.
***Sources:** SFO, SFO Visitor Spending Survey and Tenant Survey, Bay Area Economic Institute. Calculations by EBP.*

2. Visitor spending off-airport supports hospitality sectors across the Bay Area, including lodging, restaurants and drinking establishments, entertainment venues, retailing and local transportation. All indirect and induced effects are "off-airport" as well.
3. Air cargo services on-airport connect Bay Area manufacturers to national and global suppliers and customers. The industries that rely on cargo services are found off-airport and particularly in Santa Clara and Alameda Counties. As with visitor spending, resulting indirect and induced impacts are off-airport.

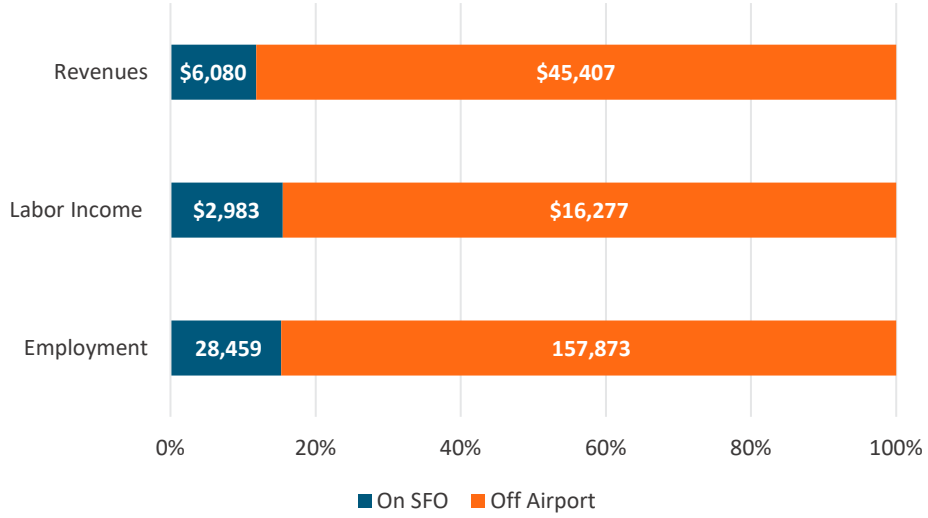
As shown by Figure 20 and Figure 21, roughly 85% of impacts generated by SFO supported businesses and industries that were located off-airport across Bay Area communities in both FY 2020 and FY 2021. The proportion of total revenue and labor revenue and income impacts off-airport in FY 2021 are slightly higher than in FY 2020. These changes are primarily due to growth in Bay Area businesses' reliance on the Airport's high-value air cargo services, balanced against the decline in visitors and visitor spending in the relatively lower values of revenues and labor income per job in hospitality industries. The ratio of on-airport to off-airport employment was slightly higher in 2021 than

FIGURE 20. SFO'S ECONOMIC FOOTPRINT ON-SFO AND OFF-AIRPORT, FY 2020



All dollars are in 2021 millions.
On-SFO includes airport administration, airport tenants, construction and commercial ground transportation that transports passengers and employees to/from the airport.
Sources: *SFO, SFO Visitor Spending Survey and Tenant Survey, Bay Area Economic Institute. Calculations by EBP.*

FIGURE 21. SFO'S ECONOMIC FOOTPRINT ON-SFO AND OFF-AIRPORT, FY 2021



All dollars are in 2021 millions. On-SFO includes airport administration, airport tenants, construction and commercial ground transportation that transports passengers and employees to/from the airport.
***Sources:** SFO, SFO Visitor Spending Survey and Tenant Survey, Bay Area Economic Institute. Calculations by EBP.*

2020 as many aviation and Airport Commission jobs were preserved by federal, state and local programs and policies.

Table 14 and Table 15 define industry-level off-airport economic activity supported by SFO in terms of employment, labor income and revenue to the community and county economies of the Bay Area. While overall, as shown in Figure 20 and Figure 21, economic impacts generated off-airport by SFO declined by 41% in employment and 22% in revenues across the region, SFO still contributed more than $45 billion to the regional economy in FY 2021. A major reason for these declines were the drops in air passengers, visitors and visitor spending. The primary pillars of hospitality industries, lodging, restaurants and drinking establishments, sustained drop-offs of 71% in employment and 74% in business revenue. SFO, however, supported more jobs and revenue in the wholesale trade and computer and electronics manufacturing sectors in FY 2021 than in FY 2020.

TABLE 14. OFF-SFO IMPACTS BY INDUSTRY, FY 2020

SECTOR	EMPLOYMENT	LABOR INCOME	REVENUE
Restaurants & Drinking Establishments	41,752	$1,685,122,000	$3,914,432,000
Lodging	39,061	$2,726,285,000	$5,929,854,000
Arts, Entertainment & Recreation	23,268	$1,151,538,000	$2,156,153,000
Retail Trade	19,554	$1,004,383,000	$2,320,217,000
Health Care and Social Assistance	16,237	$1,226,260,000	$2,065,811,000
Transit and Ground Transportation	13,800	$866,371,000	$1,768,838,000
Business Services (Admin, Support, Waste)	13,188	$783,716,000	$1,469,717,000
Other Services	11,615	$689,434,000	$1,239,870,000
Professional, Scientific & Technical	11,614	$1,432,419,000	$2,515,900,000
Wholesale Trade	10,390	$1,402,926,000	$4,139,821,000
Real Estate, Rental & Leasing	8,770	$574,413,000	$5,052,071,000
Finance & Insurance	8,423	$1,029,154,000	$2,815,104,000
Computer and Electronic Manufacturing	8,217	$2,141,427,000	$7,210,325,000
Scenic & Sightseeing Transport Support	7,443	$704,150,000	$1,325,040,000
Management Services	5,522	$924,193,000	$1,561,443,000
All Other Sectors	30,995	$3,453,603,000	$12,528,322,000
Total	**269,852**	**$21,795,395,000**	**$58,012,918,000**

All dollars are in 2021 value and rounded to the nearest thousand. Columns may not add due to rounding.
***Sources:** SFO, SFO Visitor Spending Survey and Tenant Survey, Bay Area Economic Institute. Calculations by EBP using the IMPLAN model calibrated for the Bay Area.*

TABLE 15. OFF-SFO IMPACTS BY INDUSTRY, FY 2021

SECTOR	EMPLOYMENT	LABOR INCOME	REVENUE
Restaurants & Drinking Establishments	17,547	$711,273,000	$1,613,226,000
Health Care and Social Assistance	13,110	$1,069,847,000	$1,762,836,000
Wholesale Trade	11,299	$1,659,007,000	$4,692,793,000
Retail Trade	10,634	$585,773,000	$1,351,570,000
Computer and Electronic Manufacturing	10,462	$2,740,862,000	$9,208,126,000
Professional, Scientific & Technical	10,196	$1,418,227,000	$2,385,068,000
Business Services (Admin, Support, Waste)	9,888	$665,505,000	$1,201,792,000
Other Services	8,828	$567,742,000	$1,089,104,000
Arts, Entertainment & Recreation	6,328	$283,694,000	$539,639,000
Lodging	5,928	$409,763,000	$898,269,000
Finance & Insurance	5,874	$789,963,000	$2,107,250,000
Real Estate, Rental & Leasing	5,716	$403,727,000	$3,680,902,000
Management Services	4,494	$914,465,000	$1,457,744,000
Construction & Buildings	3,819	$367,569,000	$808,040,000
Media & Information	3,355	$832,912,000	$2,833,633,000
All Other Sectors	30,394	$2,856,197,000	$9,777,119,000
Total	**157,873**	**$16,276,526,000**	**$45,407,112,000**

All dollars are in 2021 value and rounded to the nearest thousand.
Columns may not add due to rounding.
Sources: *SFO, SFO Visitor Spending Survey and Tenant Survey. Calculations by EBP using the IMPLAN model calibrated for the Bay Area.*

05 ON-AIRPORT PROFILE

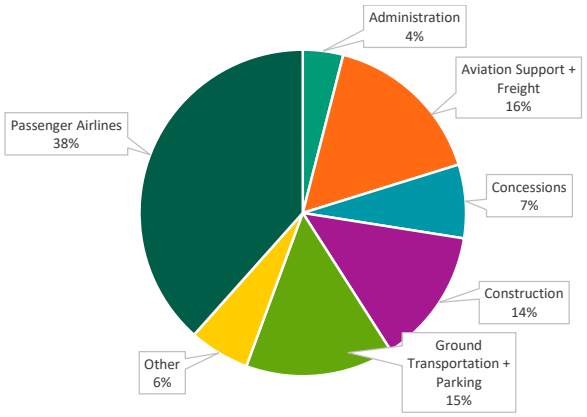
DIRECT EMPLOYMENT

SFO hosts a variety of jobs that require multiple sets of skills and education, from pilots to laborers to computer professionals and administrators. Across the Airport facility, these jobs involve:

- Passenger airline operations
- Freight services, including dedicated cargo aviation, courier, delivery, custom broker, and trucking
- Air terminal operations, including security, building maintenance, and facility management
- Airline support services, including catering, in-flight entertainment, and aircraft handling, fueling, and maintenance
- Concessionaire services, including restaurants and retail stores
- Ground transportation, including rental cars, taxis, and limousines
- Temporary construction jobs

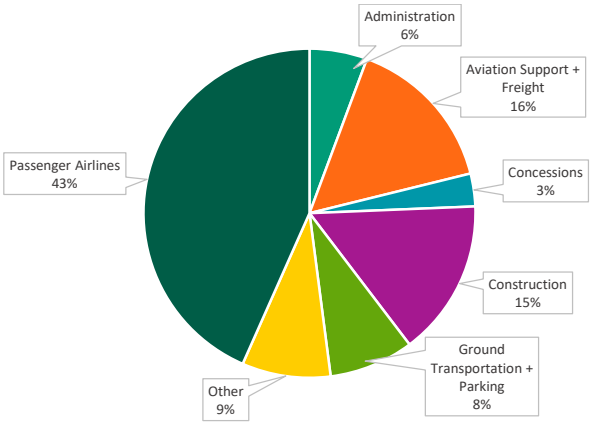
In FY 2020, more than 43,000 people were employed at SFO (excluding employment generated by temporary construction expenditures), according to data derived from the Airport Tenant Survey and provided by SFO management. In the face of the ongoing impacts of COVID-19, annual employment at the Airport fell to roughly 28,500 in FY 2021, an overall decline of 34%. The largest fall in jobs, by percentage, was in terminal concessions (71%, mostly retail and restaurant as well as other services) and passenger ground transportation (69%). While employment in all functions contracted from 2020 to 2021, the combined share of pas-

FIGURE 22. DISTRIBUTION OF ON-AIRPORT DIRECT EMPLOYMENT, FY 2020



"Other" includes non-profits, the federal government, the Grand Hyatt hotel, security and janitorial and maintenance building services. ***Sources:*** *Airport Tenant Survey; interviews with Airport administration; and U.S. Department of Commerce data provided by IMPLAN. Calculations by EBP.*

FIGURE 23. DISTRIBUTION OF ON-AIRPORT DIRECT EMPLOYMENT, FY 2021



"Other" includes non-profits, the federal government, the Grand Hyatt hotel, security and janitorial and maintenance building services. ***Sources:*** *Airport Tenant Survey; interviews with Airport administration; and U.S. Department of Commerce data provided by IMPLAN. Calculations by EBP.*

senger airlines, aviation support and freight services increased from 54% of total SFO employment in FY 2020 to 59% in FY 2021. Below, Figure 22 and Figure 23 illustrate the distribution of jobs at SFO by major function.

Table 16 and Table 17 report direct employment, labor income and revenue on-airport in FY 2020 and FY 2021 by detailed sector. SFO hosts a variety of jobs that require multiple sets of skills and education, from pilots to laborers to computer professionals and administrators. In FY 2020, business establishments and airport administration on SFO generated almost $10.9 billion in revenues (business sales and government budget expenditures),

Direct jobs at SFO totaled to nearly 28,500 jobs in FY 2021 and almost 43,500 in FY 2020.

TABLE 16. ON-AIRPORT DIRECT EMPLOYMENT, LABOR INCOME AND BUSINESS REVENUE, FY 2020

CLASSIFICATION OF ACTIVITY BY SECTOR EMPLOYMENT	EMPLOYMENT	LABOR INCOME	REVENUE
PASSENGER SERVICES AND AIRPORT ADMINISTRATION			
Passenger Airlines	16,681	$1,816,798,000	$6,594,240,000
Fixed-Base Operators, General Aviation, and Aviation Services	6,026	$488,787,000	$890,497,000
Airport Retail, Concessions, and Services	3,163	$160,568,000	$405,600,000
Airport Administration (City of SF Airport Commission)	1,737	$376,097,000	$636,225,000
Security Firms	1,239	$75,484,000	$97,084,000
Parking Services	1,134	$60,241,000	$89,348,000
Federal Government	898	$82,219,000	$130,809,000
Other/Nonprofit	228	$23,370,000	$73,049,000
Grand Hyatt SFO	180	$10,967,000	$23,817,000
Management, Maintenance/Cleaning, and Facilities Services	51	$2,163,000	$4,525,000
Freight Airlines and Cargo Handling	1,016	$64,709,000	$124,316,000
Subtotal	32,354	$3,161,403,000	$9,069,510,000
PASSENGER GROUND TRANSPORTATION SERVICES			
Transportation Network Companies	3,018	$196,277,000	$368,680,000
Rental Cars	1,198	$102,782,000	$355,302,000
Limousines, Buses, Vans, and Shuttles	628	$40,847,000	$76,651,000
Taxicabs	278	$18,101,000	$34,051,000
Public Bus or BART	118	$7,683,000	$14,345,000
Subtotal	5,241	$365,690,000	$849,030,000
Construction and Related Expenditures	5,840	$587,600,000	$961,296,000
Total Airport-Based Employment, Labor Income, and Business Revenue	**43,435**	**$4,114,693,000**	**$10,879,836,000**

Notes: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*

TABLE 17. ON-AIRPORT DIRECT EMPLOYMENT, LABOR INCOME AND BUSINESS REVENUE, FY 2021

CLASSIFICATION OF ACTIVITY BY SECTOR EMPLOYMENT	EMPLOYMENT	LABOR INCOME	REVENUE
PASSENGER SERVICES AND AIRPORT ADMINISTRATION			
Passenger Airlines	12,352	$1,385,051,000	$3,514,983,000
Fixed-Base Operators, General Aviation, and Aviation Services	3,725	$339,711,000	$472,757,000
Airport Retail, Concessions, and Services	917	$48,242,000	$114,860,000
Airport Administration (City of SF Airport Commission)	1,604	$378,472,000	$592,363,000
Security Firms	1,223	$73,738,000	$93,317,000
Parking Services	723	$36,188,000	$51,547,000
Federal Government	884	$81,309,000	$129,540,000
Other/Nonprofit	226	$22,801,000	$72,927,000
Grand Hyatt SFO	90	$5,407,000	$11,961,000
Management, Maintenance/Cleaning, and Facilities Services	35	$1,514,000	$3,137,000
Freight Airlines and Cargo Handling	681	$43,499,000	$61,082,000
Subtotal	22,461	$2,415,933,000	$5,118,473,000
PASSENGER GROUND TRANSPORTATION SERVICES			
Transportation Network Companies	783	$48,697,000	$81,237,000
Rental Cars	567	$57,866,000	$157,488,000
Limousines, Buses, Vans, and Shuttles	187	$11,660,000	$19,452,000
Taxicabs	53	$3,313,000	$5,527,000
Public Bus or BART	36	$2,224,000	$3,711,000
Subtotal	1,626	$123,761,000	$267,414,000
Construction and Related Expenditures	4,372	$443,089,000	$693,726,000
Total Airport-Based Employment, Labor Income, and Business Revenue	**28,459**	**$2,982,783,000**	**$6,079,614,000**

Notes: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*
In previous studies, employee compensation for Airport Commission staff was estimated from the employee headcount using regional economic data. For this study, in both FY 2020 and FY 2021, data were collected directly to more accurately reflect income and benefits.
Sources: *Airport Tenant Survey; interviews with Airport administration; and U.S. Department of Commerce data provided by IMPLAN. Calculations by EBP.*

which included more than $4.1 billion in payroll for more than 43,000 workers at the Airport, as shown in Table 16.[1] In FY 2021, the total revenue produced on SFO was $6.1 billion, including almost $3 billion in labor income earned by more than 28,000 workers (Table 17). In FY 2020, the direct impacts of passenger airlines and other aviation services accounted for 69% of all airport business revenue, 56% of labor income and 52% of jobs. In comparison, the shares of these aviation sectors of all direct airport impacts held steady in FY 2021 at 66% of revenues, 58% of labor income and 56% of employment.

As discussed in Chapter 1 and in Chapter 4, direct economic activities at the Airport lead to downstream indirect and induced impacts, almost all of which are off-airport within Bay Area communities. To determine these downstream effects, multipliers were applied to calculate the indirect and induced economic effects for each of the categories listed in Table 18 and Table 19.[2] The technical appendix describes these multipliers and their use in determining indirect and induced impacts.

1 *Labor income (payroll) was calculated based on responses to the Airport Tenant Survey and data provided by SFO for San Francisco Airport Commission joined with IMPLAN data on average revenues and wages per worker by economic sector in the Bay Area.*

2 *These multiplier impacts are a subtotal of off-airport impacts presented above in Chapter 4. Off-airport impacts in Chapter 4 includes visitor spending and business air reliance on SFO air cargo services, as well as indirect and induced effects from on-SFO activities.*

TABLE 18. ON-AIRPORT DIRECT EMPLOYMENT, LABOR INCOME AND BUSINESS REVENUE, FY 2021

ECONOMIC IMPACTS	EMPLOYMENT	LABOR INCOME	REVENUE
Direct Impact: Airport-Driven Activity	43,435	$4,114,693,000	$10,879,836,000
Off-Airport Effect due to Purchases of Goods and Services	15,667	$1,452,766,000	$3,798,003,000
Off-Airport Effects due to Re-spending of Worker Income	15,420	$1,211,263,000	$3,327,289,000
Total Regional Impact	**74,521**	**$6,778,722,000**	**$18,005,128,000**

Notes: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*
Sources: *Airport Tenant Survey; interviews with Airport administration; and U.S. Department of Commerce data provided by IMPLAN and IMPLAN modeling package. Calculations by EBP.*

TABLE 19. ON-AIRPORT EMPLOYMENT, LABOR INCOME, AND BUSINESS REVENUE, FY 2021

ECONOMIC IMPACTS	EMPLOYMENT	LABOR INCOME	REVENUE
Direct Impact: Airport-Driven Activity	28,459	$2,982,783,000	$6,079,614,000
Off-Airport Effect due to Purchases of Goods and Services	8,463	$818,451,000	$2,043,264,000
Off-Airport Effects due to Re-spending of Worker Income	10,818	$839,457,000	$2,291,054,000
Total Regional Impact	**47,740**	**$4,640,691,000**	**$10,413,932,000**

Notes: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*
Sources: *Airport Tenant Survey; interviews with Airport administration; and U.S. Department of Commerce data provided by IMPLAN and IMPLAN modeling package. Calculations by EBP.*

In FY 2020, the $10.9 billion of direct economic activities at the Airport generated an additional $7.1 billion in business revenues in the Bay Area (indirect and induced effects), supporting over 31,000 additional jobs and almost $2.7 billion in labor income. In FY 2020, the total economic contribution of on-Airport activity to the Bay Area was more than $18 billion in revenues, yielding almost 75,000 jobs and $6.8 billion in labor income for workers (see Table 18). Suppliers of goods and services generated approximately $3.8 billion in revenues, created nearly 16,000 jobs and expended almost $1.5 billion on labor income. In turn, the subsequent re-spending of labor income by Airport workers and suppliers supported over 15,000 additional Bay Area jobs, with more than $1.2 billion in payroll and more than $3.3 billion in off-airport business sales.

The pandemic impacts on the economic performance of SFO are plainly presented in FY 2021 (Table 19). During that year, the $6.1 billion of direct economic activities at the Airport generated an additional $4.3 billion in business revenues in the Bay Area (indirect and induced effects). These expenditures supported more than 19,000 additional jobs and almost $1.7 billion in labor income. In FY 2021, the total economic contribution of on-Airport activity to the Bay Area was more than $10.4 billion in revenue, of which $4.6 billion was labor income for almost 48,000 workers. Suppliers of goods and services generated approximately $2 billion in revenues, created nearly 8,500 jobs and disbursed about $818.5 million for labor income. In turn, the subsequent re-spending of labor income by Airport workers and suppliers amounted to almost $2.3 billion, supporting almost 11,000 additional Bay Area jobs, with $839.5 million in labor income.

In both FY 2020 and FY 2021 goods and services purchased by airport-based establishments were highly concentrated in transportation support services, food and beverage (primarily, restaurants and bars), business services, real estate, finance and insurance, and professional, scientific and technical services. The employees of these establishments and their suppliers spend their wages primarily on health and social services, retail trade, food and beverage, miscellaneous services and finance and insurance. In both years, these industry concentrations account for about 75% of off-airport impacts from Airport-based establishments and almost 70% of jobs generated by re-spending of wages in communities across the region (see Table 20 and Table 21). Note, the data presented in these tables are portions of the total off-airport impacts presented in Chapter 4.

TABLE 20. EMPLOYMENT IMPACTS GENERATED FROM SFO-BASED ESTABLISHMENTS FOR PURCHASES OF GOODS AND SERVICES AND RE-SPENDING OF INCOME IN THE BAY AREA, FY 2020

SUPPLIER AND SERVICES PURCHASES BY BUSINESSES			INCOME RE-SPENDING BY WORKERS		
INDUSTRY	EMPLOYMENT	PERCENT OF TOTAL	INDUSTRY	EMPLOYMENT	PERCENT OF TOTAL
Transportation Support	3,694	23.6%	Health Care and Social Assistance	3,151	20.4%
Food and Beverage	3,161	20.2%	Retail Trade	2,209	14.3%
Business Services (Admin, Support, Waste)	2,036	13.0%	Food and Beverage	2,100	13.6%
Real Estate	1,090	7.0%	Other Services	1,751	11.4%
Finance & Insurance	979	6.3%	Finance & Insurance	1,210	7.8%
Professional, Scientific & Technical Services	835	5.3%	Education Services	712	4.6%
Other Services	715	4.6%	Business Services (Admin, Support, Waste)	639	4.1%
Truck Transportation	412	2.6%	Arts, Entertainment & Recreation	630	4.1%
Wholesale Trade	398	2.5%	Real Estate, Rental & Leasing	597	3.9%
Management Services	377	2.4%	Professional, Scientific & Technical	562	3.6%
All Other Sectors	1,969	12.6%	All Other Sectors	1,858	12.0%
Total	**15,667**	**100.0%**	**Total**	**15,420**	**100.0%**

Notes: *Columns may not add due to rounding.*

Sources: *Airport Tenant Survey; interviews with Airport administration; and U.S. Department of Commerce data provided by IMPLAN and IMPLAN modeling package. Calculations by EBP.*

TABLE 21. EMPLOYMENT IMPACTS GENERATED FROM SFO-BASED ESTABLISHMENTS FOR PURCHASES OF GOODS AND SERVICES AND RE-SPENDING OF INCOME IN THE BAY AREA, FY 2021

SUPPLIER AND SERVICES PURCHASES BY BUSINESSES			INCOME RE-SPENDING BY WORKERS		
INDUSTRY	EMPLOYMENT	PERCENT OF TOTAL	INDUSTRY	EMPLOYMENT	PERCENT OF TOTAL
Transportation Support Services	1,895	22.4%	Health Care and Social Assistance	2,184	20.2%
Food and Beverage	1,747	20.6%	Retail Trade	1,549	14.3%
Business Services (Admin, Support, Waste)	1,078	12.7%	Food and Beverage	1,505	13.9%
Real Estate, Rental & Leasing	596	7.0%	Other Services	1,201	11.1%
Professional, Scientific & Technical	506	6.0%	Finance & Insurance	836	7.7%
Finance & Insurance	489	5.8%	Education Services	498	4.6%
Other Services	325	3.8%	Arts, Entertainment & Recreation	452	4.2%
Wholesale Trade	243	2.9%	Real Estate, Rental & Leasing	450	4.2%
Truck Transportation	220	2.6%	Business Services (Admin, Support, Waste)	449	4.1%
Management Services	189	2.2%	Professional, Scientific & Technical	396	3.7%
All Other Sectors	1,177	13.9%	All Other Sectors	1,298	12.0%
Total	**8,463**	**100.0%**	**Total**	**10,818**	**100.00%**

Notes: *Columns may not add due to rounding.*

Sources: *Airport Tenant Survey; interviews with Airport administration; and U.S. Department of Commerce data provided by IMPLAN and IMPLAN modeling package. Calculations by EBP.*

06 VISITOR SPENDING PROFILE

The COVID-19 pandemic and subsequent response imposed significant impacts on the number of visitors arriving in the Bay Area through SFO. In FY 2020, 10.4 million or 48% of SFO's origin and destination enplaned passengers were non-residents visiting the region. With the onset of the pandemic, these levels were slightly lower than the benchmark of 2018 showing 11.2 million visitors and 21.9 million O&D enplanements. However, across FY 2021, visitor totals fell to less than 2.3 million of 5.2 million O&D enplanements. The label "visitors" excludes passengers who board connecting flights and do not leave SFO (an example is an east coast traveler who connects through SFO for a flight to Hawaii), and Bay Area residents who are traveling through SFO but are not bringing money from outside the region to support Bay Area hospitality industries.[1]

The total share of visitors from international destinations declined from 30% in FY 2018 to 29% in FY 2020 and 14% in FY 2021. In terms of economic impacts, the drop in international visitors is significant because they generally stay longer and spend more dollars in the hospitality sectors of the Bay Area than domestic visitors. The comparative breakdown of visitors in fiscal years 2018, 2020 and 2021 are shown in Table 22.

1 *Visitor data supplied by Airport Data, Inc.*

Total visitors arriving in the Bay Area through SFO declined from 11 million in FY 2018 to 10 million in FY 2020 and 2 million in FY 2021.

Data in Table 22 indicates a steady increase of short distance intra-California visitation to the Bay Area via SFO, as well as a decrease in international visitors. This study and past studies indicate that visitors from elsewhere in California on average are in the Bay Area for less time than other domestic visitors and therefore spend fewer dollars. In the survey conducted for this study, visitors arriving from other California locations spent an average of $568 per trip compared to $894 for all visitors. On the other hand, international visitors spend more time in the region and tend to spend significantly more on lodging, food, entertainment and retail purchases than domestic travelers.

VARIATION IN VISITOR SPENDING BY TRIP

Estimates of visitor spending for this study are bookended by two visitor spending surveys administered to determine spending in FY 2018 and FY 2021. The FY 2018 survey predates the pandemic, and the survey for the current FY 2021 study was administered in December 2021 and January 2022. Both surveys were conducted

TABLE 22. VISITOR BREAKDOWNS, FY 2018 (REFERENCE CASE), FY 2020 AND FY 2021

PASSENGERS AND VISITORS	FY 2018	FY 2020	FY 2021
Total O&D Enplanements (millions)	21.9	21.5	5.1
Total Visitors (millions)	11.2	10.4	2.2
Percentages			
Visitors of O&D Enplanements	51.1%	48.4%	43.7%
Percent of Visitors From CA	12.5%	21.7%	33.6%
Percent of Visitors from Other Domestic Origins	57.1%	49.4%	52.9%
Percent of Visitors from International Origins	30.4%	28.9%	13.5%

Sources: *FAA data aggregated by ICF and Airline Data, Inc.*

by CCG, analyzed by EBP, and include detailed passenger spending data across five hospitality sectors: entertainment, local transportation, lodging, restaurant, and retail.

EBP asked the Bay Area Council Economic Institute (BACEI) to infer visitor spending patterns of SFO passengers during the three different periods, FY 2020 Q 1-3, FY 2020 Q4, and FY 2021. BACEI is a leading research and policy advisory body focused on economic issues in the nine-county Bay Area. BACEI was given results of surveys administered for the FY 2018 and FY 2021 economic impact studies for SFO, and estimated spending based on changes in the Bay Area economy in FY 2020 and FY 2021.

Given that the December 2021/January 2022 survey took place in the middle of the Omicron wave, BACEI believes the spending reported in that period to be depressed because of a higher level of reluctance to gather indoors on the part of potential travelers. BACEI believes this survey to be a good proxy for spending across FY 2021, during which many sectors remained closed and visitor spending was likely to be significantly depressed from July 2019-March 2020 levels but higher than April 2020-June 2020 levels at the height of COVID-19 restrictions. For the other two periods, BACEI based its estimates largely on average daily hotel rates (ADR), one of the only publicly available sources of information that help track visitor spending over time. Annual hotel ADR for San Francisco/San Mateo Counties is shown in Table 23 as reported by data tracking firm STR.

For the first three quarters of FY 2020 (July 2019 through March 2020), the ratio of 2019-to-2018 ADR is applied to the 2018 survey responses. Given that period had eight relatively normal months, and a single month when travel and spending were disrupted, the numbers were scaled down slightly to reflect the early days of the pandemic. For the fourth quarter of FY 2020 (April 2020 through June 2020), when the pandemic was raging, ADR is used. Ratios are applied based on April 2020 to April 2019 spending to make estimates for spending at the height of the pandemic. These relative rates are shown in Table 24.

Using the April 2020-to-April 2019 ratio reflects a nearly 50% decrease in spending during the first three quarters of FY 2020 compared to the final quarter of that year. Further adjustments are applied in certain sectors given the on-the-ground experience in the region during these months. For example, spending in the entertainment category was scaled down by a further 50%, as few entertainment options were open during the April – June 2020 period. For restaurants, the estimate is scaled up by 50%, as visitors would still need to make food purchases – likely from restaurants via carryout or delivery – though their spending would still be lower given that fewer high-end restaurants were operating during Quarter 4. The rates across timeframes and sources are shown in Table 25.

TABLE 23. AVERAGE HOTEL RATES

CALENDAR YEAR	ADR HOTELS SF/SAN MATEO
2018	$263
2019	$274
2020	$208

Note: *Data for San Mateo are limited to hotels near the airport.*

Source: *STR; Calculations by Bay Area Council Economic Institute*

TABLE 24. HOTEL RATES FOR SELECTED MONTHS

MONTH/YEAR	ADR HOTELS SF/ SAN MATEO	MONTH/YEAR	ADR HOTELS SF/ SAN MATEO
Mar-19	$305	Apr-19	$251
Mar-20	$212	Apr-20	$128

Source: *STR; Calculations by Bay Area Council Economic Institute*

TABLE 25. ESTIMATED PER TRIP SPENDING BY VISITORS DURING THE THREE PERIODS OF THIS STUDY

SECTOR	FY 2018 SURVEY FOR REFERENCE	BACEI JULY 2019-MAR 2020 ESTIMATE	BACEI APRIL 2020-JUNE 2020 ESTIMATE	2021/22 SURVEY CONFIRMED BY BACEI FOR FY 2021
Entertainment	$149	$151	$38	$108
Local Transportation	$234	$237	$118	$110
Lodging	$509	$516	$256	$329
Restaurant	$209	$212	$158	$206
Retail	$169	$171	$85	$140
TOTAL	**$1,270**	**$1,287**	**$654**	**$894**

Source: *2018 and 2021/2022 visitor spending surveys conducted for SFO, STR, adjustments and calculations by Bay Area Council Economic Institute*

SPENDING BY TRIP ORIGIN

The following step adjusts the average spending by sector noted in Table 25 of all visitors to reflect the separate spending rates of domestic and international visitors. Estimating visitor spending separately for those traveling within the United States and for visitors originating in other countries is important because comparative spending levels are significantly higher for international visitors than for domestic travelers. This has been shown in multiple studies at SFO and other large hub airports across the U.S. Moreover, COVID-19 significantly reduced the percentage of international travelers across U.S. airports.

EBP used the estimates developed by BACEI for the three periods covered in this study (FY 2020 Qs 1-3, FY 2020 Q4 and FY 2021) and the 2018 and current study's visitor spending surveys to calculate approximate spending splits between domestic and international visitors for each of the three periods as noted below:

Visitors arriving via SFO spent more than $2 billion in California within and outside the Bay Area in FY 2021 and $13 billion in FY 2020.

- FY 2020 (July 2019 – March 2020): Ratios of spending by domestic and internationals for each category of spending from the 2018 visitor survey were used;
- FY 2020 (April 2020 – June 2020): Ratios of spending by domestic and internationals for each category of spending from the 2021/22 visitor survey were used;
- FY 2021 (July 2020 – June 2021): Spending by domestic and internationals from the 2021/22 visitor survey were used.

The results for each of the five hospitality sectors are included in the visitor spending analysis and are presented in Table 26, on the next page.

JOBS AND INCOME GENERATED BY OFF-AIRPORT VISITOR SPENDING

The IMPLAN modeling package was applied to calculate direct jobs and wages resulting from off-Airport visitor spending in FY 2020 and FY 2021 in the nine-county Bay Area to capture spending. In the first step of the analysis, spending profiles were developed for the six sectors shown in Table 26. The second step was to drive the IMPLAN model as follows:

TABLE 26. ESTIMATED PER-TRIP VISITOR SPENDING FOR DOMESTIC AND INTERNATIONAL VISITORS TO THE BAY AREA THROUGH SFO

HOSPITALITY SECTOR	FY 2018 REFERENCE		FY 20 Q1-3		FY 20 Q4		FY 2021	
	DOM.	INT.	DOM.	INT.	DOM.	INT.	DOM.	INT.
Entertainment	$137	$171	$141	$176	$34	$58	$99	$165
Local Transportation	$233	$347	$208	$309	$104	$204	$99	$195
Lodging	$421	$627	$451	$673	$241	$349	$312	$451
Restaurant	$180	$285	$181	$287	$146	$233	$192	$308
Retail	$138	$216	$147	$231	$70	$177	$115	$290
Total	**$1,109**	**$1,647**	**$1,128**	**$1,675**	**$595**	**$1,025**	**$818**	**$1,409**

Source: *Visitor spending surveys administered in 2018 and in December 2021/January 2022. Calculations by Bay Area Council Economic Institute and EBP.*

1. Revenues represent direct visitor spending (after spending per visitor was multiplied by total visitors).
2. Labor income is calculated through the model as the ratios of labor income to revenue by the hospitality sector.
3. Employment is calculated using the model as the ratios of jobs to revenue by the hospitality sector.

Visitor spending during FY 2020, which largely predated the impacts of COVID-19, supported about 141,000 jobs (Table 27). In FY 2021 direct spending within and outside of the Bay Area by visitors arriving through SFO was $3.3 billion, as shown in Table 28. Coupled with indirect supplier purchases and spending of earned income by workers in visitor-serving industries, overall visitor spending supported nearly 23,000 jobs in the face of the pandemic.

DIRECT VISITOR SPENDING

As the visitor survey conducted for this study is only applicable to FY 2021, the remainder of this chapter reports findings from the survey for FY 2021. Table 29 reports the levels of off-airport visitor spending by the hospitality sector within the Bay Area and elsewhere in California. As shown, 97% of visitor spending facilitated through SFO supported the Bay Area economy.

Workers in these sectors earned on average between $40,000 and $75,000 during FY 2021. Earnings by employee and average business sales per employee are displayed in Figure 24. Note that labor income represents earnings and employer-paid benefits. Also, jobs are by headcount; therefore, part-time jobs are included, and the ranges shown do not necessarily account for labor income based on full-time employment.

TABLE 27. VISITOR SPENDING OFF-AIRPORT GENERATED BY SFO WITHIN AND OUTSIDE THE BAY AREA IN FY 2020

EFFECTS	EMPLOYMENT	LABOR INCOME	REVENUE
Direct	103,968	$6,090,281,000	$13,271,351,000
Induced	15,601	$1,452,738,000	$3,499,969,000
Indirect	21,513	$1,668,165,000	$4,613,249,000
Total	**141,083**	**$9,211,184,000**	**$21,384,569,000**

Note: *Dollars are in 2021 value and rounded to the nearest thousand. Columns may not add due to rounding.*
Sources: *2018 and 2021/2022 visitor spending surveys conducted for SFO, Airline Data, Inc. Adjustments to FY 2020 by Bay Area Council Economic Institute. Calculations by EBP using the IMPLAN modeling package.*

TABLE 28. OFF-AIRPORT VISITOR SPENDING GENERATED BY SFO WITHIN AND OUTSIDE THE BAY AREA IN FY 2021

EFFECTS	EMPLOYMENT	LABOR INCOME	REVENUE
Direct	16,868	$940,489,000	$2,018,817,000
Induced	2,377	$226,019,000	$537,827,000
Indirect	3,349	$259,870,000	$708,874,000
Total	**22,594**	**$1,426,378,000**	**$3,265,518,000**

Note: *Dollars are in 2021 value and rounded to the nearest thousand. Columns may not add due to rounding.*
Sources: *2021/2022 visitor spending surveys conducted for SFO, Airline Data, Inc. Calculations by EBP using the IMPLAN modeling package.*

TABLE 29. OFF-AIRPORT VISITOR SPENDING WITHIN AND OUTSIDE OF THE BAY AREA, FY 2021

SECTOR	TOTAL WITHIN BAY AREA	TOTAL OUTSIDE OF BAY AREA	TOTAL
Accommodations	$723,507,000	$21,418,000	$744,926,000
Food and Beverage	$456,023,000	$11,133,000	$467,155,000
Retail Spending	$302,150,000	$10,128,000	$312,279,000
Entertainment	$234,161,000	$7,772,000	$241,933,000
Ground Transportation	$242,216,000	$10,308,000	$252,524,000
Total	**$1,958,057,000**	**$60,760,000**	**$2,018,817,000**

Note: *Dollars are in 2021 value and rounded to the nearest thousand. Columns may not add due to rounding.*
Sources: *2021/2022 visitor spending surveys conducted for SFO, Airline Data, Inc. Calculations by EBP using the IMPLAN modeling package.*

FIGURE 24. LABOR INCOME AND SALES PER WORKER, FY 2021

Note: *Dollars are in 2021 value and rounded to the nearest thousand. Columns may not add due to rounding.*
Sources: *2021/2022 visitor spending surveys conducted for SFO, Airline Data, Inc. Calculations by EBP using the IMPLAN modeling package.*

Off-Airport businesses that serve visitors use a portion of dollars spent by visitors to purchase goods and services from suppliers, including, for example:

- Fuel and maintenance services by off-airport taxis, rental cars, tour buses, and public transportation
- Legal services and security services retained by entertainment venues
- Accounting services paid for by businesses in hospitality industries
- Beverages from craft breweries for off-airport restaurants
- Wholesale merchandise to be sold by off-airport stores
- Furniture and electronic equipment for off-airport hotels, restaurants, and stores

These purchases in turn supported additional employment and wages in the Bay Area. Supplier orders from off-airport businesses that serve Bay Area visitors, along with direct visitor spending, provided more than $1.2 billion in labor income in FY 2021 to workers in the Bay Area. Workers then spent this income on goods and services, such as:

- Food, clothing, home furnishings, and cars
- Health care and childcare services
- Rent and mortgage payments and other housing costs
- Entertainment

The FY 2021 breakout of direct, indirect and induced effects of the hospitality sector in the Bay Area and elsewhere in California are shown in Table 30. The sums of indirect and induced effects from the spending of visitors generated an additional $1.2 billion in business revenues in the Bay Area, supporting nearly 6,000 additional jobs and providing almost $471.5 million in labor income

TABLE 30. BREAKDOWN OF TOTAL VISITOR SPENDING IMPACTS IN THE BAY AREA, FY 2021

IMPACT TYPE	EMPLOYMENT	LABOR INCOME	REVENUE (NET)
TOTAL VISITOR SPENDING IMPACTS WITHIN THE BAY AREA			
Direct	16,371	$912,086,000	$1,958,057,000
Indirect Impact: Suppliers of Goods and Services	2,307	$219,408,000	$522,117,000
Induced Impact: Re-spending of Worker Income	3,248	$252,066,000	$687,588,000
Total	**21,926**	**$1,383,560,000**	**$3,167,761,000**
TOTAL VISITOR SPENDING IMPACTS OUTSIDE THE BAY AREA			
Direct	497	$28,403,000	$60,760,000
Indirect Impact: Suppliers of Goods and Services	70	$6,611,000	$15,710,000
Induced Impact: Re-spending of Worker Income	101	$7,804,000	$21,286,000
Total	**668**	**$42,818,000**	**$97,757,000**
TOTAL VISITOR SPENDING IMPACTS			
Direct	16,868	$940,489,000	$2,018,817,000
Indirect Impact: Suppliers of Goods and Services	2,377	$226,019,000	$537,827,000
Induced Impact: Re-spending of Worker Income	3,349	$259,870,000	$708,874,000
Total	**22,594**	**$1,426,378,000**	**$3,265,518,000**

Note: *Dollars are in 2021 value and rounded to the nearest thousand. Columns may not add due to rounding.*
Sources: *2021/2022 visitor spending surveys conducted for SFO, Airline Data, Inc. Calculations by EBP using the IMPLAN modeling package.*

to Bay Area workers. Moreover, multiplier effects generated an additional $37 million of business revenue outside of the region.

Multiplier impacts generated by visitor spending are significantly less concentrated than the indirect and induced effects from on-airport activities noted above in Chapter 5. In both FY 2020 and FY 2021, the leading five sectors in terms of employment accounted for 62% of total jobs generated by suppliers to hospitality establishments and about 67% of all jobs from income re-spending. (See Table 31 and Table 32.) The sectors most affected by indirect employment changed from FY 2020 to FY 2021. In FY 2020 goods and services purchased by hospitality establishments provided additional support to the Bay Area's additional hospitality sectors (restaurants and drinking establishments and arts, entertainment and recreation), as well as business services, real estate and professional, scientific and technical services. In contrast, the indirect effects in FY 2021 were less prevalent in the hospitality sectors heavily affected by the pandemic and were more impactful among business services, real estate and professional, scientific and technical services than in the previous year. In both years, however, the impacts from how workers spent their wages were constant in health and social services, retail trade, and restaurant and drinking establishments.

TABLE 31. EMPLOYMENT IMPACTS GENERATED FROM VISITOR SPENDING FOR PURCHASES OF GOODS AND SERVICES AND RE-SPENDING OF INCOME IN THE BAY AREA, FY 2020

INDIRECT EFFECTS			INDUCED EFFECTS		
INDUSTRY	EMPLOYMENT	PERCENT OF TOTAL	INDUSTRY	EMPLOYMENT	PERCENT OF TOTAL
Restaurants & Drinking Establishments	2,313	14.8%	Health Care and Social Assistance	4,353	20.2%
Business Services	2,312	14.8%	Retail Trade	3,082	14.3%
Arts, Entertainment & Recreation	1,876	12.0%	Restaurants & Drinking Establishments	3,000	13.9%
Real Estate, Rental & Leasing	1,697	10.9%	Other Services	2,469	11.5%
Professional, Scientific & Technical	1,489	9.5%	Finance & Insurance	1,650	7.7%
Management Services	974	6.2%	Education Services	997	4.6%
Other Services	810	5.2%	Arts, Entertainment & Recreation	908	4.2%
Finance & Insurance	749	4.8%	Business Services	892	4.1%
Media & Information	473	3.0%	Real Estate, Rental & Leasing	815	3.8%
Couriers, Messengers & Postal Service	432	2.8%	Professional, Scientific & Technical	780	3.6%
Scenic & Sightseeing Transport Support	417	2.7%	Wholesale Trade	486	2.3%
Wholesale Trade	415	2.7%	Media & Information	371	1.7%
All Other Sectors	1,642	10.5%	All Other Sectors	1,710	7.9%
Total	**15,601**	**100.0%**	**Total**	**21,513**	**100.0%**

Note: *Columns may not add due to rounding.*

Sources: *FY 2018 and 2021 Airport Passenger Surveys; Estimates of 2020 visitor spending provided by Bay Area Council Economic Institute, U.S. Department of Commerce data provided by IMPLAN and IMPLAN modeling package. Calculations by EBP.*

TABLE 32. EMPLOYMENT IMPACTS GENERATED FROM VISITOR SPENDING FOR PURCHASES OF GOODS AND SERVICES AND RE-SPENDING OF INCOME IN THE BAY AREA, FY 2021

INDIRECT EFFECTS			INDUCED EFFECTS		
INDUSTRY	EMPLOYMENT	PERCENT OF TOTAL	INDUSTRY	EMPLOYMENT	PERCENT OF TOTAL
Business Services	354	14.9%	Health Care and Social Assistance	676	20.2%
Restaurants & Drinking Establishments	340	14.3%	Retail Trade	479	14.3%
Real Estate, Rental & Leasing	312	13.1%	Restaurants & Drinking Establishments	466	13.9%
Professional, Scientific & Technical	239	10.0%	Other Services	372	11.1%
Arts, Entertainment & Recreation	232	9.7%	Finance & Insurance	259	7.7%
Management Services	165	6.9%	Education Services	155	4.6%
Other Services	118	4.9%	Arts, Entertainment & Recreation	140	4.2%
Finance & Insurance	116	4.9%	Business Services	139	4.2%
Media & Information	73	3.1%	Real Estate, Rental & Leasing	139	4.1%
Wholesale Trade	68	2.9%	Professional, Scientific & Technical	123	3.7%
Couriers, Messengers & Postal Service	66	2.8%	Wholesale Trade	76	2.3%
Retail Trade	58	2.4%	Media & Information	58	1.7%
All Other Sectors	238	10.0%	All Other Sectors	268	8.0%
Total	**2,377**	**100.0%**	**Total**	**3,349**	**100.0%**

Note: *Columns may not add due to rounding.*

Sources: *FY 2021 Airport Passenger Surveys; U.S. Department of Commerce data provided by IMPLAN and IMPLAN modeling package. Calculations by EBP.*

07 AIR CARGO SERVICES AT SFO AND RELIANCE OF BAY AREA INDUSTRY

This section describes the economic reliance of the Bay Area on air cargo shipped through SFO. The economic reliance analysis considers inbound flows (air cargo deplaned or offloaded at SFO) and outbound flows (air cargo enplaned or loaded into planes at SFO) to provide a complete picture of the dependence of the Bay Area economy on SFO air cargo services. Commodities produced outside the region and flown into the Bay Area may be used as intermediate inputs by businesses in the Bay Area or consumed by households directly (known as "final demand"), driving the economy. Commodities produced in the region and flown out of the state represent income accumulating to the region's economy. This outbound air cargo can also serve as intermediate inputs to production for businesses elsewhere in the US or the globe or may be consumed by people worldwide.

The analysis is based on Bay Area regional economic data about the relationship between industries and commodities (which does not consider how commodities are moved) and mode-specific trade data about the type of transport used for different commodities. These data are combined with air cargo data at SFO to evaluate the specific roles of freight moving through SFO in supporting Bay Area businesses, relative to other airports in the region. The methodology to determine industry reliance on air cargo services provided at SFO is explained in the Technical Appendix.

In FY 2021, over $26 billion worth of air cargo was shipped between businesses in the nine-county Bay Area through SFO to and from domestic and international markets and suppliers.

An example of an intermediate input may be an electric car battery produced in Santa Clara flown to Michigan where the vehicle is completed.

An example of a product shipped for final demand is a pharmaceutical product manufactured in San Francisco and flown to Florida (the product itself may be handled by wholesalers and retailers, but it is purchased directly by consumers at drug stores without further processing).

The level of Bay Area industry reliance on air cargo services at SFO is first traced by the scale of economic activity within each individual industry that is reliant on a particular commodity flown through the Airport and then this dependence is adjusted by the level of reliance on air transport relative to other modes.[1] The analysis process is repeated for many commodities, each of which is consumed and produced by many industries. Additional details on the data and methodology are included in the technical appendix.

AIR CARGO MOVEMENTS

In FY 2021, over $26.8 billion worth of air cargo was shipped between businesses in the nine-county Bay Area through SFO to and from domestic and international markets and suppliers. This includes nearly $12 billion in exports to international markets and $4.2 billion in outbound cargo to domestic markets. SFO also supports international imports of $8.9 billion and $1.7 billion of inbound domestic freight movement.

1 *Alternative freight modes to air cargo include truck, rail, or barge movements. The economy also depends on those modes. This analysis focuses only on-air cargo's role.*

TABLE 33. TOP 10 INTERNATIONAL IMPORTS AND EXPORTS THROUGH SFO (FY 2021 IN 2021 $M)

IMPORT	VALUE ($M)	PERCENT	EXPORT	VALUE ($M)	PERCENT
Electronics	$ 6,654.48	74.9%	Electronics	$ 5,952.30	49.6%
Precision instruments	$ 523.77	5.9%	Machinery	$ 2,736.13	22.8%
Machinery	$ 481.52	5.4%	Precision instruments	$ 1,595.43	13.3%
Mixed freight	$ 330.36	3.7%	Pharmaceuticals	$ 1,053.45	8.8%
Chemical products	$ 204.05	2.3%	Chemical products	$ 145.84	1.2%
Pharmaceuticals	$ 191.65	2.2%	Misc. Manufactured products	$ 145.12	1.2%
Nonmetal mineral products	$ 81.36	0.9%	Nonmetal mineral products	$ 104.77	0.9%
Textiles/leather	$ 78.50	0.9%	Basic chemicals	$ 73.26	0.6%
Misc. manufactured. products	$ 75.60	0.9%	Plastics/rubber	$ 39.17	0.3%
Plastics/rubber	$ 35.99	0.4%	Transportation equipment	$ 35.44	0.3%
All Imports	**$8,879.46**	**100%**	**All Exports**	**$11,999.99**	**100%**

Sources: *EBP Analysis with vFreight.*

Table 33 shows the top ten commodities imported from or exported to international locations through SFO. Table 34 shows the top ten commodities shipped inbound from or outbound to domestic locations in the United States through SFO. Domestic and international trade are both driven by electronics, precision instruments, pharmaceutical and machinery commodities that support the industrial sectors of the Bay Area.

Electronics, machinery, precision instruments and pharmaceuticals are the most important commodities to the Bay Area economy that are transported in and out of SFO to/from domestic and international markets.

ECONOMIC CONTRIBUTION TO BAY AREA INDUSTRIES

In FY 2021, air cargo shipped through SFO directly supported over 43,000 jobs in the Bay Area from which workers earned $6.66 billion in labor income. By supporting Bay Area businesses in their ability to receive inputs to production and ship goods to market, SFO contributed $20.5 million in revenue to the Bay Area economy. With multiplier effects, the total economic contribution of air cargo to the region reaches nearly 116,000 jobs, $13.2 billion

TABLE 34. TOP 10 DOMESTIC INBOUND/OUTBOUND COMMODITIES THROUGH SFO (FY 2021, IN 2021 $M)

IMPORT	VALUE ($M)	PERCENT	EXPORT	VALUE ($M)	PERCENT
Electronics	$ 892.25	51.6%	Electronics	$ 2,615.89	61.9%
Precision instruments	$ 318.73	18.4%	Precision instruments	$ 564.28	13.3%
Pharmaceuticals	$ 93.75	5.4%	Pharmaceuticals	$ 396.84	9.4%
Misc. Manufactured products.	$ 71.52	4.1%	Misc. manufactured products.	$ 167.23	4.0%
Transport equip.	$ 58.19	3.4%	Motorized vehicles	$ 131.44	3.1%
Machinery	$ 56.81	3.3%	Basic chemicals	$ 125.56	3.0%
Motorized vehicles	$ 54.13	3.1%	Chemical products	$ 53.77	1.3%
Meat/seafood	$ 36.80	2.1%	Machinery	$ 46.81	1.1%
Textiles/leather	$ 28.37	1.6%	Base metals	$ 41.85	1.0%
Plastics/rubber	$ 27.08	1.6%	Articles-base metal	$ 22.81	0.5%
All Inbound Domestic	**$1,727.80**	**100%**	**All Outbound Domestic**	**$4,227.73**	**100%**

Sources: *EBP Analysis with vFreight.*

TABLE 35. ECONOMIC CONTRIBUTION OF AIR CARGO TRANSPORTED THOUGH SFO (FY 2021)

EFFECT	EMPLOYMENT	LABOR INCOME	REVENUE
Direct	43,798	$6,658,798,000	$20,474,256,000
Indirect	32,129	$3,501,047,000	$8,706,608,000
Induced	40,071	$3,032,394,000	$8,626,412,000
Total	**115,998**	**$13,192,239,000**	**$37,807,276,000**

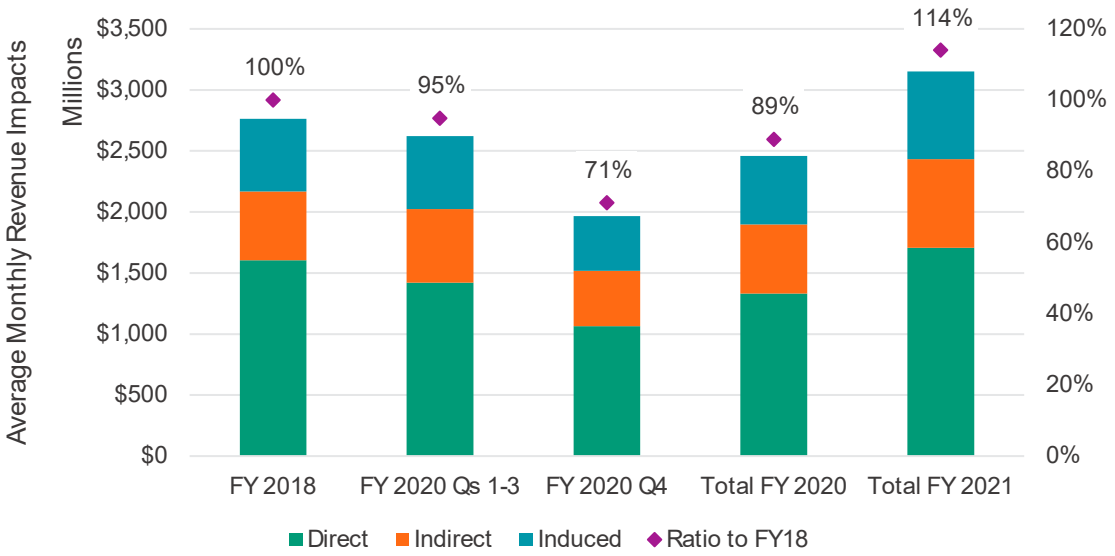
Sources: *EBP Analysis with vFreight.*

in labor income, and $37.8 billion in business sales (Table 35). Compared to FY 2018, total job impacts from air cargo at SFO have grown 30%, labor income impacts for Bay Area residents grew by 25%, and total business revenue increased 14%.

Since FY 2018, the economic contribution of air cargo at SFO was temporarily negatively affected by the COVID-19 pandemic, but since then has rebounded to above pre-pandemic levels. Figure 25 illustrates trends in the monthly economic contribution of SFO air cargo, expressed in millions of dollars of average monthly revenue. In the fourth quarter of FY 2020, during the height of the pandemic, economic impacts of freight dropped to 71% of FY 2018 levels. By FY 2021, however, air cargo impacts have more than rebounded, now reaching approximately 114% of the scale seen in FY 2018. This illustrates how air cargo has become a bright spot in the pandemic recovery trajectory of the airport's market.

In FY 2021, air cargo services at SFO supported more than 115,000 jobs in the Bay Area economy.

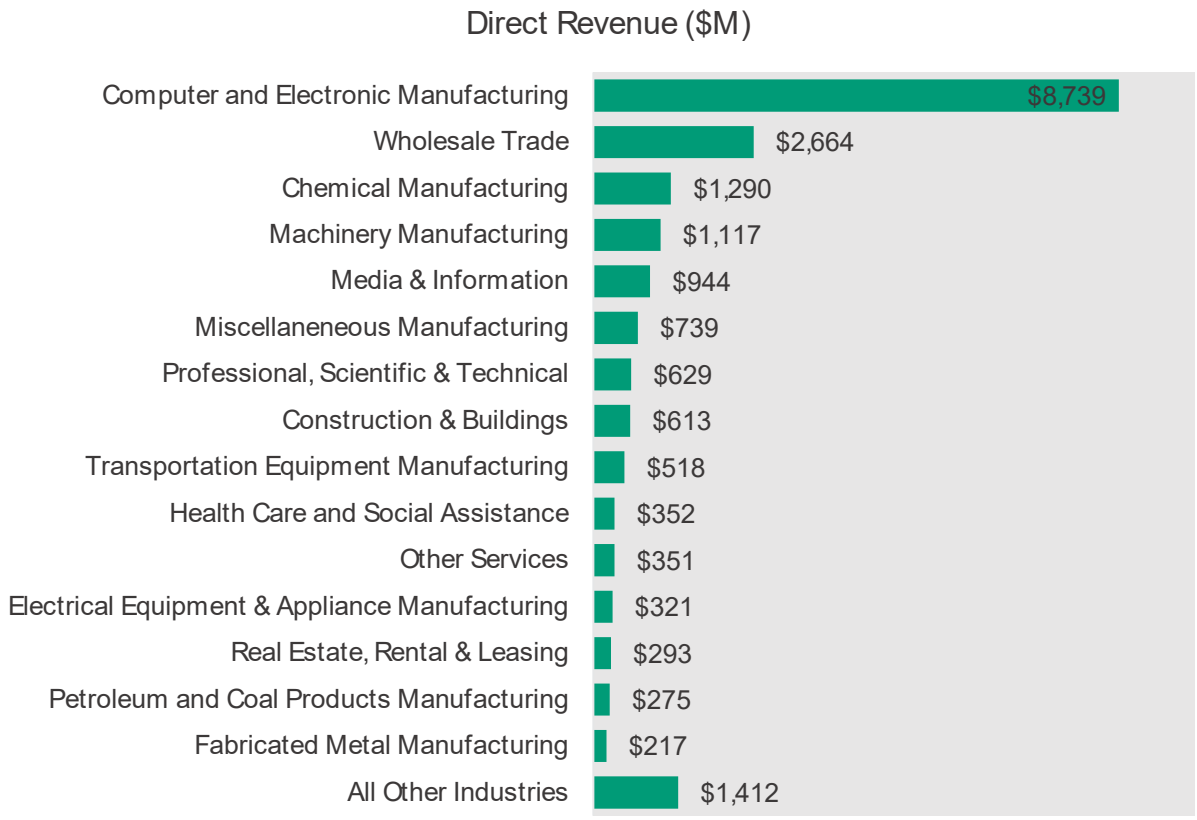
FIGURE 25. TRENDS IN THE MONTHLY ECONOMIC CONTRIBUTION OF SFO AIR CARGO TO THE BAY AREA ECONOMY (FY 2018-2021)



Source: *EBP Analysis with vFreight.*

Figure 26 illustrates the top 15 industries in the Bay Area that are directly supported by air cargo moving through SFO. Consistent with the outsize importance of the technology industry in the region, computer and electronic manufacturing is by far the industry that relies most heavily on air cargo. Over $8.7 billion in revenue (sales) in that industry was supported by shipments through SFO in FY 2021. Other heavily air cargo-reliant industries include wholesale trade, chemical manufacturing, machinery manufacturing, and media and information.

FIGURE 26. TOP 15 INDUSTRIES DIRECTLY SUPPORTED BY AIR CARGO AT SFO (FY 2021)



Source: *EBP Analysis with vFreight.*

08 VALUE ADDED IN THE BAY AREA GENERATED BY SFO

Measures used in previous studies of the economic impacts of SFO include two related dollar measures, business revenue (output) and earned labor income, which is paid as labor compensation from business revenues. To better illuminate the economic importance of SFO to the Bay Area, this study introduces the concept of "value added" as a third dollar measure.[1]

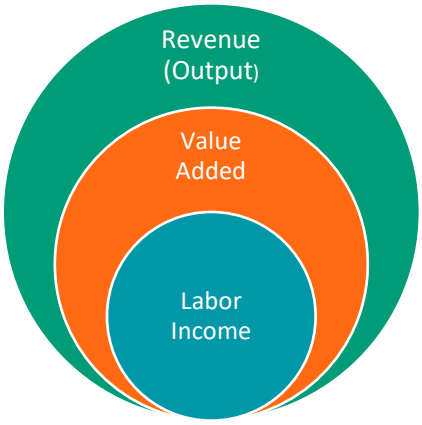
Value added is the difference between the cost of inputs need to produce a manufactured article or provide a service, and the sales price of those products and services (revenue).[2] This measure is the difference between the sales prices of products and services, minus the materials and services purchased that were used in its production. While business revenues provide a general sense of an economy's size, the measure cannot be used to directly describe the productivity of an economy since gross revenues effectively double count some exchanges between firms.

Value added measures the economic productivity of each aviation-related business establishment on SFO, as well as the productivity generated from visitor spending and reliance on the airport's air cargo services. The concept represents revenue earned by businesses after suppliers of goods and services are paid off. Generally, value added includes all labor compensation, profits, and business taxes paid. In aggregate, value added is SFO's contribution to the gross product of the Bay Area economy and California's Gross State Product (GSP), which is a local concept synonymous with U.S. GDP. Value added or "GDP" is the closest economists have to a true comparative measure of economic health and productivity.

As shown by total value added, in SFO contributed over $42 billion to the California Gross State Product in FY 2020 and $31 billion in FY 2021.

Thus, value added is a proportion of business revenue and labor income in turn is included in value added. Figure 27 illustrates the relationship between the three different dollar measures and how value added relates to both gross revenue and labor income. The illustration also displays that each of the dollar measures is a subset of business revenue and therefore cannot be added.

FIGURE 27. RELATIONSHIP OF VALUE ADDED TO BUSINESS REVENUE AND LABOR INCOME



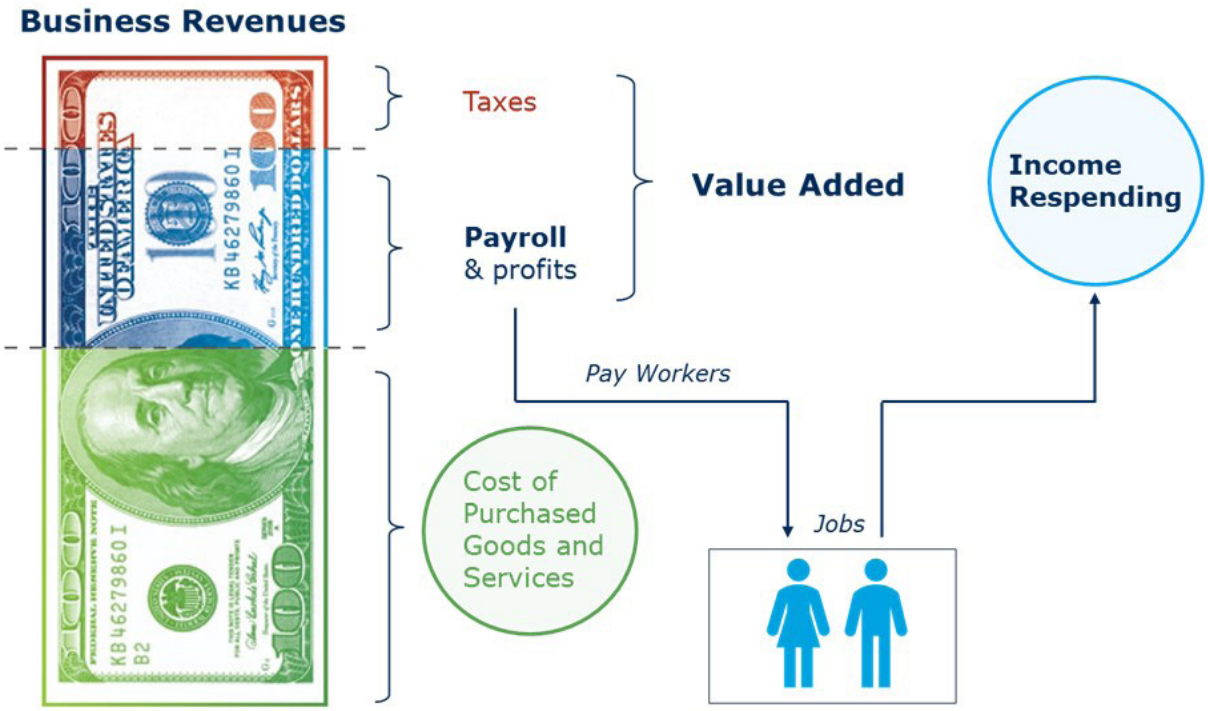
Source: *EBP*

1 *Value added was not requested nor reported by survey respondents given the information is not readily available and complex to assemble. This measure is more commonly used in economic impact analysis (and other macroeconomic analysis) than in day-to-day business operations. Value added impacts are calculated based on business revenue and/or payroll using the IMPLAN model.*

2 *For a public agency or nonprofit business, budget outlays are used in lieu of "business sales".*

Below, Figure 28 shows the relationships between value added and the economic measures used in previous studies and earlier chapters of the 2020-2021 study.

FIGURE 28. RELATIONSHIP OF ECONOMIC IMPACT MEASURES



Source: EBP

THE CONTRIBUTION OF SFO TO THE BAY AREA GROSS REGIONAL PRODUCT

Value added generated by SFO for the Bay Area totaled $42.4 billion in FY 2020 and $31.3 billion in FY 2021 (both years reported in 2021 dollars). The breakdown of value added by component of this study is presented in Table 36.

As presented above, value added is part of total revenue and labor income is part of value added. In both FY 2020 and FY 2021, value added for the Bay Area comprises about 61% of the total business revenue generated by SFO. In turn, labor income amounts to about 61% value added across industries.

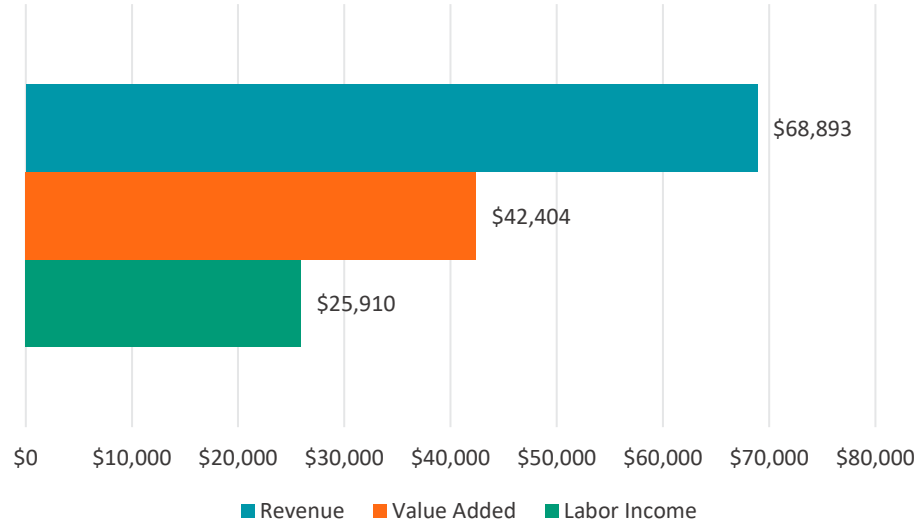
The relative levels of the dollar measures are demonstrated in Figure 29 (page 58) and Figure 30 (page 59). Moreover, value added in the context of the total economic contribution of SFO to the Bay Area economy is displayed in Table 37 (page 59) and Table 38 (page 60).

TABLE 36. VALUE ADDED BY ECONOMIC IMPACT COMPONENT IN FY 2020 AND FY 2021

IMPACT TYPE	VALUE ADDED – FY 2020	VALUE ADDED – FY 2021
Direct On-Airport Activity	$6,861,715,000	$3,860,068,000
Direct Air Cargo (Air-Reliant Business Activity)	$9,004,145,000	$11,534,275,000
Direct Visitor Spending	$8,677,439,000	$1,285,796,000
Direct Impact total	$24,543,299,000	$16,680,139,000
Indirect - Suppliers of Goods and Services	$8,265,141,000	$6,904,420,000
Induced - Re-spending of Income	$9,595,660,000	$7,762,215,000
Total Impact	**$42,404,100,000**	**$31,346,774,000**

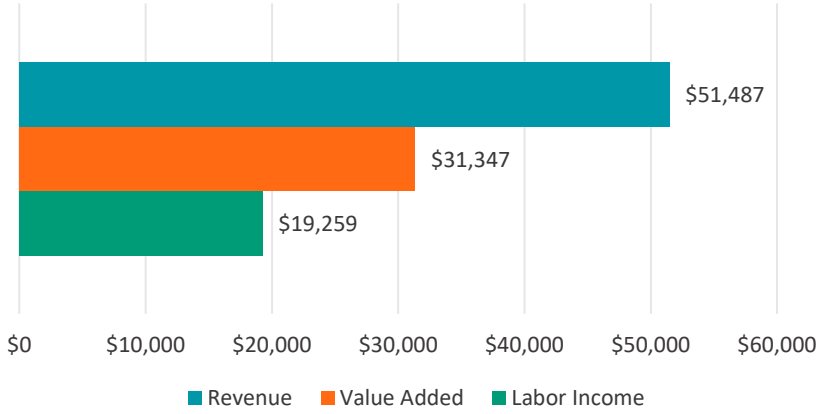
All dollars are in 2021 value and rounded to the nearest thousand.
On-Airport includes airport administration, airport tenants, construction and commercial ground transportation that transports passengers and employees to/from the airport.
Sources: *SFO, SFO Visitor Spending Survey and Tenant Survey, Bay Area Economic Institute. Calculations by EBP using the IMPLAN econometric model calibrated for the Bay Area.*

FIGURE 29. BUSINESS REVENUES, VALUE ADDED AND LABOR INCOME GENERATED BY SFO IN FY 2020



All dollars are in millions of 2021 dollars.
Sources: *SFO, SFO Visitor Spending Survey and Tenant Survey, Bay Area Economic Institute. Calculations by EBP using the IMPLAN econometric model calibrated for the Bay Area.*

FIGURE 30. BUSINESS REVENUES, VALUE ADDED AND LABOR INCOME GENERATED BY SFO IN FY 2021



All dollars are in millions of 2021 dollars.
Sources: *SFO, SFO Visitor Spending Survey and Tenant Survey. Calculations by EBP using the IMPLAN econometric model calibrated for the Bay Area.*

TABLE 37. FY 2020 TOTAL ECONOMIC IMPACT OF SFO, INCLUDING VALUE-ADDED

IMPACT TYPE	EMPLOYMENT	LABOR INCOME	VALUE ADDED	REVENUE
On-Airport Activity	43,435	$4,114,693,000	$6,861,715,000	$10,879,836,000
Air Cargo (Air-Reliant Business Activity)	34,142	$5,198,174,000	$9,004,145,000	$15,977,374,000
Visitor Spending	103,968	$6,090,281,000	$8,677,439,000	$13,271,351,000
Direct Impact total	181,545	$15,403,148,000	$24,543,299,000	$40,128,561,000
Suppliers of Goods and Services	59,459	$5,442,008,000	$8,265,141,000	$14,091,714,000
Re-spending of Income	72,283	$5,064,931,000	$9,595,660,000	$14,672,479,000
Total Impact	**313,287**	**$25,910,088,000**	**$42,404,100,000**	**$68,892,754,000**

All dollars are in 2021 value and rounded to the nearest thousand.
Sources: *SFO, SFO Visitor Spending Survey and Tenant Survey, Bay Area Economic Institute. Calculations by EBP using IMPLAN and vFreight.*

TABLE 38. FY 2021 TOTAL ECONOMIC IMPACT OF SFO, INCLUDING VALUE-ADDED

IMPACT TYPE	EMPLOYMENT	LABOR INCOME	VALUE ADDED	REVENUE
On-Airport Activity	28,459	$2,982,783,000	$3,860,068,000	$6,079,614,000
Air Cargo (Air-Reliant Business Activity)	43,798	$6,658,798,000	$11,534,275,000	$20,474,256,000
Visitor Spending	16,868	$940,489,000	$1,285,796,000	$2,018,817,000
Direct Impact total	89,125	$10,582,070,000	$16,680,139,000	$28,572,687,000
Suppliers of Goods and Services	42,969	$4,545,517,000	$6,904,420,000	$11,287,699,000
Re-spending of Income	54,238	$4,131,721,000	$7,762,215,000	$11,626,340,000
Total Impact	**186,332**	**$19,259,308,000**	**$31,346,774,000**	**$51,486,726,000**

All dollars are in 2021 value and rounded to the nearest thousand.

Sources: *SFO, SFO Visitor Spending Survey and Tenant Survey, Bay Area Economic Institute. Calculations by EBP using IMPLAN and vFreight.*

SFO San Francisco International Airport

09 TAX IMPACTS

The labor income and business revenue produced by economic activities at SFO are the sources of federal, state, county, and municipal tax revenues. This chapter presents estimates of FY 2020 and FY 2021 state and local tax impacts resulting from Airport activities as well as federal tax impacts related to aviation services.[1]

Total state and Bay Area local and County tax revenues generated by SFO totaled more than $1.9 billion in FY 2021 and almost $3.3 billion in FY 2020.

STATE AND LOCAL TAX IMPACTS

As reported in Table 39 and Table 40, state and local tax revenues linked to operations at SFO totaled more than $3.2 billion in FY 2020 (roughly equivalent to revenues generated in FY 2018) and

1 *The data presented in this chapter should be considered order-of-magnitude estimates. As in previous economic impact studies for SFO, tax impacts are derived from per-capita measurements.*

TABLE 39. ESTIMATED STATE AND LOCAL TAX IMPACTS, FY 2020

IMPACT CATEGORY	DIRECT ACTIVITIES	INDIRECT/INDUCED ACTIVITIES	TOTAL ACTIVITIES
On-Airport Administration and Tenants	$708,000,000	$402,000,000	$1,110,000,000
Construction	$16,000,000	$39,000,000	$55,000,000
Visitor Spending	$702,000,000	$431,000,000	$1,133,000,000
Air-Cargo (Air- Reliant Businesses)	$348,000,000	$604,000,000	$952,000,000
Total Taxes	**$1,775,000,000**	**$1,476,000,000**	**$3,250,000,000**

Note: *All figures are 2021 dollars rounded to the nearest million. Columns and rows may not add due to rounding.*
Sources: *Based on information from Regional Economic Accounts and National Income and Product Accounts from the U.S. Bureau of Economic Analysis; Consumer Expenditure Survey, the Annual Survey of State and Local Government Finances from the U.S. Census Bureau, and the San Mateo County Assessor's Office.*

TABLE 40. ESTIMATED STATE AND LOCAL TAX IMPACTS, FY 2021

IMPACT CATEGORY	DIRECT ACTIVITIES	INDIRECT/INDUCED ACTIVITIES	TOTAL ACTIVITIES
On-Airport Administration and Tenants	$189,000,000	$241,000,000	$431,000,000
Construction	$19,000,000	$27,000,000	$46,000,000
Visitor Spending	$113,000,000	$66,000,000	$179,000,000
Air-Cargo (Air- Reliant Businesses)	$446,000,000	$827,000,000	$1,273,000,000
Total Taxes	**$767,000,000**	**$1,162,000,000**	**$1,928,000,000**

Note: *All figures are 2021 dollars rounded to the nearest million. Columns and rows may not add due to rounding.*
Sources: *Based on information from Regional Economic Accounts and National Income and Product Accounts from the U.S. Bureau of Economic Analysis; Consumer Expenditure Survey; and the Annual Survey of State and Local Government Finances from the U.S. Census Bureau, California Franchise Tax Board Open Data Portal and California Department of Tax and Fee Administration.*

$1.9 billion in FY 2021. The FY 2020 and FY 2021 totals include $1.7 billion and $732 million from direct activities, respectively, and $1.5 billion and $1.2 billion in FY 2020 and FY 2021 generated from purchases of supplier goods and services (i.e., indirect impacts) and re-spending of worker income (i.e., induced impacts). Tax revenues were estimated using effective tax rates calculated based on data from the U.S. Bureau of Economic Analysis and U.S. Census Bureau (as organized through IMPLAN) as well as information provided in California publications. Note that impacts from indirect and induced effects are those from industries spread out among the Bay Area economy and do not represent the specific activities listed under the impact categories (examples of indirect and induced impacts by industry are noted in Table 20, Table 21, Table 31 and Table 32, above). In addition, direct on-airport totals include about $43 million paid from companies doing business on SFO to San Mateo County for a variety of business and property related taxes in FY 2020 and $34 million in FY 2021.[2]

2 *The Assessor's Office provided total valuation for 20 types of property taxes totaling almost $3.9 billion ($4.0 billion adjusted to 2021 value) for airport business in FY 2020 and $3.1 billion in 2021 and advised that 1.1% of the valuation approximates revenues. Using this estimation results in about $42.9 million in 2020 and $34.3 million in 2021.*

FEDERAL AVIATION TAXES

In addition to the state and local tax impacts described above, aviation operations at SFO generated nearly $1.3 billion in federal taxes in FY 2020 and more than $1.1 billion in FY 2021. In FY 2020, Federal tax revenues generated through SFO included $424 million from taxes on international and domestic passengers and $847 million from customs duties on international air cargo shipments. In FY 2021, Federal Tax Revenues included $76 million in passenger rekated taxes and almost $1.1 billion from customs duties (see Table 41). These tax revenues are remitted to the U.S. Department of the Treasury and may not directly benefit the Bay Area or the State of California. In FY 2018, taxes on international cargo amounted to 69% of total federal tax revenues collected. In FY 2020, the proportion of cargo duties was equivalent to 67% of the total. However, in FY 2021, customs duties rose to 93% of federal taxes collected.

TABLE 41. ESTIMATED FEDERAL AVIATION TAX REVENUES, FY 2020 AND FY 2021

TYPE OF TAX	CHARGES/FEES	REVENUES FY 2020	REVENUES FY 2021
Customs and Immigration	$6.52 and $7.00 per passenger, respectively	$40,000,000	$4,000,000
International Arrival and Departure Taxes	$19.70 per passenger	$117,000,000	$12,000,000
Domestic Passenger tax	$4.50 per passenger and 7.5% of airfare	$209,000,000	$48,000,000
September 11th Security Fee	$5.60 per passenger	$57,000,000	$13,000,000
Subtotal – Passenger Related Taxes		**$424,000,000**	**$76,000,000**
U.S. Customs Revenue (International Cargo)		**$847,000,000**	**$1,061,000,000**
TOTAL		**$1,271,000,000**	**$1,138,000,000**

Note: *All figures are 2021 dollars rounded to the nearest million. Columns may not add due to rounding.*
Sources: *Federal Aviation Administration, St. Louis Federal Reserve Bank and www.WiserTrade.com.*

10 COUNTY IMPACTS

This chapter presents FY 2021 employment, labor income, and tax revenue impacts generated by on-Airport activity and visitor spending for each Bay Area county during FY 2021. Calculations of county impacts were based on the Airport Tenant Survey as well as information provided by the Airport administration.

Table 42 and Table 43 provide estimates of employment, labor income, and business revenues generated by on-Airport economic activity for each Bay Area county. In these tables, direct and induced jobs and wages are allocated to the county of residence for Airport Commission staff, SFO contract workers, Airport tenant employees, and those employed in ground transportation to and from SFO. In both tables, indirect economic impacts (employment, labor income, and revenues) associated with supplier purchases were applied proportionally to each county based on employment levels in the Bay Area. Because SFO is located in San Mateo County, all direct business revenues were generated in that county, as shown in Table 43.

VISITOR SPENDING BY COUNTY

The Airport Visitor Survey conducted at SFO in December 2021/January 2022 documented the destinations of visitors who arrived in California through SFO, and these results are used to represent FY 2021. Table 44 presents the economic impacts associated with visitor spending for each Bay Area County.

TAX IMPACTS BY BAY AREA COUNTY

Tax revenues generated on SFO—including sales, property (business and labor), corporate, and income taxes—are collected from Airport tenants and the workers they employ. Table 45 presents these tax revenues by county for direct and indirect/induced impacts. Direct tax revenues paid by individuals and households are apportioned according to the county of residence of Airport Commission staff, SFO contract workers, and Airport tenant employees. Because SFO is in San Mateo County, direct taxes paid by businesses are allocated to that county, and San Mateo revenues include estimates of taxes paid by on-airport businesses to the county.

Table 46 shows the visitor-generated tax revenues by county. These revenues are derived from the lodging, restaurant, transportation, entertainment, and retail industries (direct) and the businesses that support these industries (suppler sales), as well as from taxes generated by the re-spending of income earned by employees of these businesses.

TABLE 42. EMPLOYMENT AND LABOR INCOME IMPACTS BY BAY AREA COUNTY OF TENANTS, ADMINISTRATION, AND GROUND TRANSPORTATION, FY 2021

COUNTY	IMPACT TYPE	EMPLOYMENT	LABOR INCOME	COUNTY	IMPACT TYPE	EMPLOYMENT	LABOR INCOME
Alameda	Direct	3,501	$369,131,000	**San Mateo**	Direct	8,669	$914,046,000
	Indirect	1,243	$119,654,000		Indirect	1,004	$96,688,000
	Induced	1,363	$105,796,000		Induced	3,376	$261,974,000
	Total	6,107	$594,582,000		Total	13,049	$1,272,708,000
Contra Costa	Direct	2,320	$244,655,000	**Santa Clara**	Direct	1,156	$121,857,000
	Indirect	727	$69,971,000		Indirect	2,596	$249,876,000
	Induced	904	$70,120,000		Induced	450	$34,925,000
	Total	3,951	$384,747,000		Total	4,202	$406,658,000
Marin	Direct	246	$25,938,000	**Solano**	Direct	773	$81,516,000
	Indirect	205	$19,760,000		Indirect	212	$20,417,000
	Induced	96	$7,434,000		Induced	301	$23,363,000
	Total	547	$53,131,000		Total	1,286	$125,296,000
Napa	Direct	57	$6,055,000	**Sonoma**	Direct	156	$16,432,000
	Indirect	97	$9,383,000		Indirect	273	$26,307,000
	Induced	22	$1,736,000		Induced	61	$4,709,000
	Total	177	$17,174,000		Total	490	$47,449,000
San Francisco	Direct	5,542	$584,283,000	**Outside Bay Area**	Direct	1,667	$175,781,000
	Indirect	1,512	$145,563,000		Indirect[1]		
	Induced	2,158	$167,461,000		Induced	649	$50,380,000
	Total	9,212	$897,306,000		Total	2,316	$226,161,000
				Total	**Direct**	**24,087**	**$2,539,694,000**
					Indirect	**7,871**	**$757,617,000**
					Induced	**9,380**	**$727,900,000**
					Total	**41,338**	**$4,025,211,000**

Note: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*

1 *Cell left blank because indirect impacts from the Bay Area are only allocated to each of the nine counties.*

Sources: *Airport Tenant Survey; data provided by SFO; and U.S. Department of Commerce data provided by IMPLAN. Calculations by EBP.*

TABLE 43. BUSINESS REVENUE IMPACTS BY BAY AREA COUNTY OF TENANTS, ADMINISTRATION, AND GROUND TRANSPORTATION, FY 2021

COUNTY	IMPACT TYPE	BUSINESS REVENUES	COUNTY	IMPACT TYPE	BUSINESS REVENUES
Alameda	Direct	$0	**San Mateo**	Direct	$5,385,888,000
	Indirect	$297,528,000		Indirect	$240,422,000
	Induced	$288,797,000		Induced	$715,121,000
	Total	$586,325,000		Total	$6,341,430,000
Contra Costa	Direct	$0	**Santa Clara**	Direct	$0
	Indirect	$173,987,000		Indirect	$621,335,000
	Induced	$191,411,000		Induced	$95,337,000
	Total	$365,398,000		Total	$716,671,000
Marin	Direct	$0	**Solano**	Direct	$0
	Indirect	$49,134,000		Indirect	$50,768,000
	Induced	$20,293,000		Induced	$63,776,000
	Total	$69,427,000		Total	$114,543,000
Napa	Direct	$0	**Sonoma**	Direct	$0
	Indirect	$23,330,000		Indirect	$65,415,000
	Induced	$4,738,000		Induced	$12,856,000
	Total	$28,068,000		Total	$78,271,000
San Francisco	Direct	$0	**Outside Bay Area**	Direct	$0
	Indirect	$361,953,000		Indirect[1]	$0
	Induced	$457,124,000		Induced	$137,525,000
	Total	$819,077,000		Total	$137,525,000
			Total	**Direct**	**$5,385,888,000**
				Indirect	**$1,883,872,000**
				Induced	**$1,986,975,000**
				Total	**$9,256,736,000**

Note: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*

1 *Cell left blank because indirect impacts from the Bay Area are only allocated to each of the nine counties.*

Sources: *Airport Tenant Survey; data provided by SFO; and U.S. Department of Commerce data provided by IMPLAN. Calculations by EBP.*

TABLE 44. ECONOMIC IMPACTS OF VISITOR SPENDING BY BAY AREA COUNTY, FY 2021

COUNTY	IMPACT TYPE	EMPLOYMENT	LABOR INCOME	REVENUE
Alameda	Direct	1,214	$67,483,000	$146,009,000
	Indirect	171	$16,195,000	$38,495,000
	Induced	240	$18,648,000	$50,866,000
	Total	1,625	$102,326,000	$235,371,000
Contra Costa	Direct	525	$27,738,000	$64,245,000
	Indirect	71	$6,874,000	$16,498,000
	Induced	99	$7,710,000	$21,028,000
	Total	696	$42,321,000	$101,772,000
Marin	Direct	403	$23,422,000	$50,776,000
	Indirect	55	$5,367,000	$12,886,000
	Induced	83	$6,408,000	$17,483,000
	Total	541	$35,198,000	$81,145,000
Napa	Direct	1,463	$81,852,000	$170,548,000
	Indirect	209	$19,946,000	$47,407,000
	Induced	292	$22,665,000	$61,834,000
	Total	1,964	$124,463,000	$279,788,000
San Francisco	Direct	8,690	$484,457,000	$1,026,190,000
	Indirect	1,235	$116,679,000	$276,770,000
	Induced	1,726	$133,951,000	$365,381,000
	Total	11,652	$735,087,000	$1,668,340,000
San Mateo	Direct	1,507	$82,043,000	$178,796,000
	Indirect	207	$19,912,000	$47,586,000
	Induced	293	$22,702,000	$61,925,000
	Total	2,007	$124,657,000	$288,307,000
Santa Clara	Direct	1,673	$95,435,000	$214,848,000
	Indirect	233	$22,478,000	$53,965,000
	Induced	338	$26,261,000	$71,643,000
	Total	2,244	$144,174,000	$340,455,000
Solano	Direct	89	$4,860,000	$11,325,000
	Indirect	12	$1,184,000	$2,850,000
	Induced	17	$1,346,000	$3,672,000
	Total	119	$7,390,000	$17,847,000

TABLE 44. ECONOMIC IMPACTS OF VISITOR SPENDING BY BAY AREA COUNTY, FY 2021 (CONT.)

COUNTY	IMPACT TYPE	EMPLOYMENT	LABOR INCOME	REVENUE
Sonoma	Direct	806	$44,796,000	$95,319,000
	Indirect	113	$10,773,000	$25,659,000
	Induced	159	$12,375,000	$33,757,000
	Total	1,078	$67,944,000	$154,735,000
Not Bay Area	Direct	497	$28,403,000	$60,760,000
	Indirect	70	$6,611,000	$15,710,000
	Induced	101	$7,804,000	$21,286,000
	Total	668	$42,818,000	$97,757,000
Total	**Direct**	**16,868**	**$940,489,000**	**$2,018,817,000**
	Indirect	**2,377**	**$226,019,000**	**$537,827,000**
	Induced	**3,349**	**$259,870,000**	**$708,874,000**
	Total	**22,594**	**$1,426,378,000**	**$3,265,518,000**

Note: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*

Sources: *Airport Visitor Survey; data provided by SFO; and U.S. Department of Commerce data provided by IMPLAN. Calculations by EBP.*

TABLE 45. TAX IMPACT BY COUNTY GENERATED FROM ON-AIRPORT ACTIVITIES, FY 2021

COUNTY	DIRECT	INDIRECT / INDUCED	TOTAL
Alameda	$19,628,000	$35,648,000	$55,276,000
Contra Costa	$12,701,000	$23,067,000	$35,768,000
Marin	$1,754,000	$3,185,000	$4,939,000
Napa	$567,000	$1,030,000	$1,597,000
San Francisco	$29,622,000	$53,798,000	$83,420,000
San Mateo	$98,432,000	$76,305,000	$174,737,000
Santa Clara	$13,424,000	$24,381,000	$37,805,000
Solano	$4,136,000	$7,512,000	$11,648,000
Sonoma	$1,566,000	$2,845,000	$4,411,000
Outside Bay Area	$7,466,000	$13,559,000	$21,025,000
Total	**$189,296,000**	**$241,330,000**	**$430,626,000**

Notes: *Direct tax revenues shown in San Mateo County include $33 million in Possessory Interest Tax revenues. Dollars rounded to the nearest thousand. Columns may not add due to rounding.*

Sources: *Governor's Budget Summary; State Controller's Office; Bureau of Economic Analysis; National Income and Product Accounts; U.S. Census Bureau (Consumer Expenditure Survey, Annual Survey of State and Local Government Finances); U.S. Department of Commerce data provided by IMPLAN; Airport Tenant Survey; and information provided by SFO. Calculations by EBP.*

TABLE 46. ALLOCATION OF TAX IMPACTS BY COUNTY GENERATED BY VISITOR SPENDING, FY 2021

COUNTY	DIRECT	INDIRECT / INDUCED	TOTAL
Alameda	$8,078,000	$4,744,000	$12,822,000
Contra Costa	$3,341,000	$1,962,000	$5,303,000
Marin	$2,779,000	$1,632,000	$4,410,000
Napa	$9,826,000	$5,770,000	$15,596,000
San Francisco	$58,034,000	$34,077,000	$92,111,000
San Mateo	$9,842,000	$5,779,000	$15,620,000
Santa Clara	$11,382,000	$6,684,000	$18,066,000
Solano	$583,000	$343,000	$926,000
Sonoma	$5,364,000	$3,150,000	$8,514,000
Not Bay Area	$3,380,000	$1,985,000	$5,365,000
Total	**$112,610,000**	**$66,124,000**	**$178,734,000**

Note: *All dollars are in 2021 value and rounded to the nearest thousand. Columns may not add due to rounding.*
Sources: *Governor's Budget Summary; State Controller's Office; Bureau of Economic Analysis' National Income and Product Accounts; U.S. Census Bureau (Consumer Expenditure Survey, Annual Survey of State and Local Government Finances); U.S. Department of Commerce data provided by IMPLAN; and SFO Airport Visitor Survey. Calculations by EBP.*

11 SAN MATEO COUNTY CITY IMPACTS

In Table 47 and Table 48, the FY 2021 economic impacts described in Chapter 10 for San Mateo County are further disaggregated to show employment and labor income impacts by each incorporated municipality ("city") within the county.

SFO, in its role as an employment center, generates jobs for residents of San Mateo County municipalities. Direct on-airport employment represents jobs held by residents of specific cities of the County. The Airport supports individual city economies by facilitating visitor travel as well as through indirect supplier sales and induced spending.

Regarding on-airport employment, direct impacts refer to residents of each municipality that work at SFO, while multiplier impacts and visitor spending impacts refer to jobs supported in these cities that may be held by residents or nonresidents. From the airport and visitor spending, SFO is responsible for nearly 4,000 jobs in Daly City, 2,500 jobs in South San Francisco, almost 1,900 jobs in San Mateo and 1,600 in San Bruno. Overall, the jobs paid over $920 million in labor income.

Below, Table 47 summarizes total contribution of SFO to cities in San Mateo County, while Table 48 presents the split between the on-airport and visitor spending effects. Again, please note that these totals account for jobs at the Airport that are held by residents of these communities and jobs that support the community economies of San Mateo County through multiplier effects and visitor spending.

TABLE 47. ALLOCATION OF IMPACTS AMONG CITIES IN SAN MATEO COUNTY FROM DIRECT AND MULTIPLIER IMPACTS FROM BOTH ON-AIRPORT (NO CONSTRUCTION) AND VISITOR SPENDING SOURCES, FY 2021

CITY	EMPLOYMENT			LABOR INCOME		
	DIRECT	MULTIPLIER	TOTAL	DIRECT	MULTIPLIER	TOTAL
Atherton	10	10	20	$877,000	$886,000	$1,762,000
Belmont	170	86	256	$16,031,000	$7,160,000	$23,191,000
Brisbane	78	56	134	$7,819,000	$4,831,000	$12,650,000
Burlingame	697	216	913	$50,897,000	$18,706,000	$69,602,000
Colma	16	20	36	$1,567,000	$1,775,000	$3,342,000
Daly City	2,732	1,160	3,892	$287,324,000	$91,109,000	$378,434,000
East Palo Alto	116	41	157	$7,915,000	$3,509,000	$11,423,000
Foster City	97	113	210	$8,394,000	$10,149,000	$18,543,000
Half Moon Bay	194	46	240	$13,798,000	$3,885,000	$17,684,000
Hillsborough	107	47	154	$10,709,000	$3,709,000	$14,419,000
Menlo Park	184	153	337	$12,565,000	$14,124,000	$26,690,000
Millbrae	450	178	628	$44,399,000	$14,161,000	$58,559,000
Pacifica	535	232	767	$55,106,000	$18,346,000	$73,452,000
Portola Valley	1	6	7	$95,000	$562,000	$657,000
Redwood City	361	335	696	$34,380,000	$29,523,000	$63,903,000
San Bruno	1,119	479	1,598	$116,025,000	$37,983,000	$154,008,000
San Carlos	137	120	258	$13,247,000	$10,555,000	$23,802,000
San Mateo	1,191	659	1,850	$119,095,000	$54,965,000	$174,060,000
South San Francisco	1,750	753	2,502	$174,251,000	$60,693,000	$234,944,000
Woodside	6	9	15	$556,000	$802,000	$1,359,000
Other cities or Unincorporated	225	161	386	$21,038,000	$13,844,000	$34,882,000
Total	**10,176**	**4,880**	**15,056**	**$996,089,000**	**$401,276,000**	**$1,397,366,000**

Note: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*

Sources: *Airport Tenant and Visitor Surveys; U.S. Census Bureau; and SFO Airport Commission. Calculations by EBP using the IMPLAN modeling package.*

TABLE 48. ALLOCATION OF IMPACTS AMONG CITIES IN SAN MATEO COUNTY FROM ON-AIRPORT (NO CONSTRUCTION) AND VISITOR SPENDING SOURCES, FY 2021

CITY	ON-AIRPORT		VISITOR SPENDING		TOTAL	
	EMPLOYMENT	LABOR INCOME	EMPLOYMENT	LABOR INCOME	EMPLOYMENT	LABOR INCOME
Atherton	13	$1,292,000	7	$471,000	20	$1,762,000
Belmont	205	$19,989,000	51	$3,202,000	256	$23,191,000
Brisbane	119	$11,622,000	15	$1,028,000	134	$12,650,000
Burlingame	440	$42,846,000	473	$26,757,000	913	$69,602,000
Colma	30	$2,906,000	6	$436,000	36	$3,342,000
Daly City	3,826	$373,466,000	66	$4,967,000	3,892	$378,434,000
East Palo Alto	58	$5,639,000	99	$5,784,000	157	$11,423,000
Foster City	147	$14,304,000	62	$4,238,000	210	$18,543,000
Half Moon Bay	102	$9,904,000	139	$7,780,000	240	$17,684,000
Hillsborough	137	$13,358,000	17	$1,060,000	154	$14,419,000
Menlo Park	169	$16,396,000	168	$10,294,000	337	$26,690,000
Millbrae	557	$54,376,000	71	$4,183,000	628	$58,559,000
Pacifica	723	$70,570,000	44	$2,882,000	767	$73,452,000
Portola Valley	5	$451,000	2	$206,000	7	$657,000
Redwood City	558	$54,293,000	138	$9,610,000	696	$63,903,000
San Bruno	1,536	$149,961,000	62	$4,047,000	1,598	$154,008,000
San Carlos	211	$20,524,000	47	$3,278,000	258	$23,802,000
San Mateo	1,648	$160,671,000	202	$13,388,000	1,850	$174,060,000
South San Francisco	2,255	$219,987,000	248	$14,958,000	2,502	$234,944,000
Woodside	10	$1,012,000	5	$347,000	15	$1,359,000
Other cities or Unincorporated	299	$29,141,000	87	$5,741,000	386	$34,882,000
Total	**13,049**	**$1,272,708,000**	**2,007**	**$124,657,000**	**15,056**	**$1,397,366,000**

Note: *Dollars rounded to the nearest thousand. Columns may not add due to rounding.*

Sources: *Airport Tenant and Visitor Surveys; U.S. Census Bureau; and SFO Airport Commission. Calculations by EBP using the IMPLAN modeling package.*

APPENDIX I: ROLE OF SFO INTERNATIONAL AIR SERVICE

SFO
San Francisco International Airport

APPENDIX I: ROLE OF SFO INTERNATIONAL AIR SERVICE

INTERNATIONAL PASSENGERS

International passengers at SFO hit an all-time high of 14.8 million in FY 2019, followed by a decline in FY 2020 and 2021 (see Figure 31). Between FY 2016 and FY 2019, the number of international passengers had a compound annual growth rate of 8%. Passenger numbers dropped by 31% between 2019 and 2020, and then another 84% between 2020 and 2021, reflecting the impact of the COVID-19 pandemic. These decreases gave the period of 2019-2021 an average annual percent change of -58%, and a compound annual growth rate of -67%.

The decline in international passengers was evident across the top 10 US airports in FY 2020 and 2021. As a group, the top 10 airports by

TABLE 49. SFO AIR PASSENGERS BY MARKET SEGMENT AND SHARE, FY 2012, 2015, 2018, 2021

PASSENGER MARKET	FY 2012	FY 2015	FY 2018	FY 2021
Domestic	33,655,000	37,596,100	43,936,900	12,037,700
International	9,307,400	10,632,200	13,826,800	1,637,800
Asia/Middle East	4,264,700	4,679,400	5,906,700	651,300
Australia/Oceania	383,600	389,700	680,200	57,500
Canada	1,254,100	1,480,700	1,733,800	76,100
Europe	2,466,000	2,972,500	3,759,200	304,300
Latin America	939,000	1,109,900	1,746,900	548,600
Total	**42,962,400**	**48,228,400**	**57,763,700**	**13,675,500**

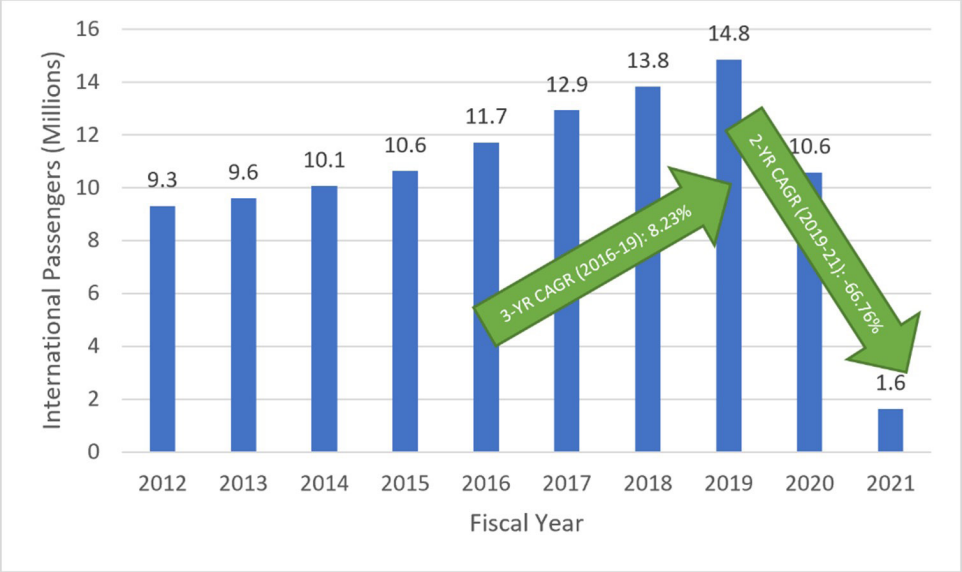
Note: *Numbers may not add up due to rounding*
Source: *Data SFO Air Traffic Passenger Statistics and U.S DOT T-100 via Airline Data, Inc.*

TABLE 50. SFO AIR PASSENGERS BY PERCENT OF MARKET SEGMENT, FY 2012, 2015, 2018, 2021

PASSENGER MARKET	FY 2012	FY 2015	FY 2018	FY 2021
Domestic	78.3%	78.0%	76.1%	88.0%
International	21.7%	22.0%	23.9%	12.0%
Asia/Middle East	9.9%	9.7%	10.2%	4.8%
Australia/Oceania	0.9%	0.8%	1.2%	0.4%
Canada	2.9%	3.1%	3.0%	0.6%
Europe	5.7%	6.2%	6.5%	2.2%
Latin America	2.2%	2.3%	3.0%	4.0%
Total	**100%**	**100%**	**100%**	**100%**

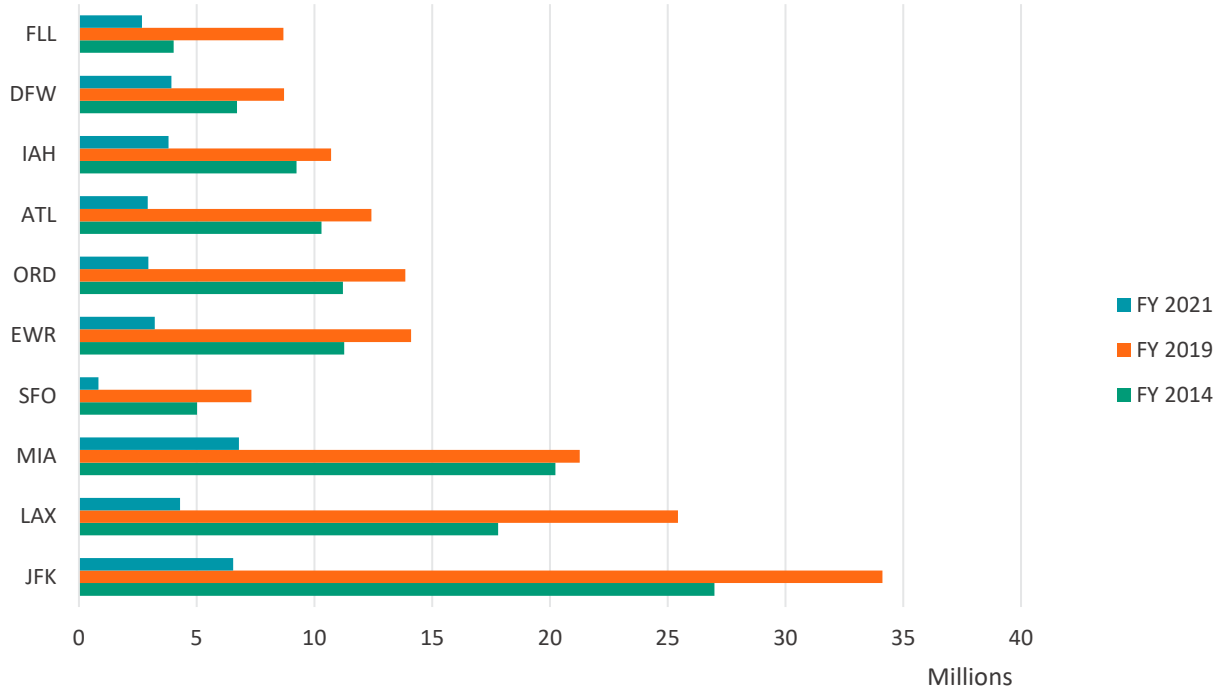
Note: *Numbers may not add up due to rounding*
Source: *Data SFO Air Traffic Passenger Statistics and U.S DOT T-100 via Airline Data, Inc.*

FIGURE 31. HISTORICAL INTERNATIONAL PASSENGER TRAFFIC AT SFO 2012-2021



Note: *CAGR = compound annual growth rate*
Source: *SFO Air Traffic Passenger Statistics*

FIGURE 32. TOP US GATEWAYS FOR INTERNATIONAL PASSENGERS (IN MILLIONS), FY 2014, 2019, AND 2021



Data Represent enplaned passengers.
Source: *Data SF, Air Traffic Passenger Statistics and U.S. DOT T-100 via Airline Data, Inc.*

arriving international passengers saw a 47% annual average downturn in passenger volume over those two years.

SFO saw the largest annual average percent decrease between FY 2019 and 2021, dropping from 4th to 10th in terms of enplaned international passengers (see Figure 32).

The distribution of the passenger market also adjusted in FY 2020 and FY 2021. Previously, international passengers tended to make up 21-23% of all traffic at SFO, but this dropped to 12% in FY 2021 (see Table 49 and Table 50). Despite the overall decrease, the breakdown of international origins stayed consistent. In FY 2021, Asia/Middle East continues to be SFO's largest international passenger market, representing less than 5% of all traffic. Notably, Latin America displaced Europe to become the second-largest international passenger market in FY 2021. Latin America was also the only segment to exhibit growth between FY 2018 and 2021, growing from 3% to 4%.

SFO'S ROLE IN INTERNATIONAL TRADE

The Bay Area's proximity to the Asian markets has made the region a major player in international trade. Between CY 2012 and CY 2021,[1] the value of Bay Area exports grew by 46%, from $26 billion to $39 billion.

SFO remains the dominant player among the three Bay Area airports in terms of exports; in CY 2021, SFO handled 98% of the value of all air cargo through the region. SFO has seen a 5% average annual percent increase since 2012, with higher growth of 9% and 19% in the past two calendar years.

1 *Data at the individual Bay Area airport level is only available at the calendar year level.*

In comparison, in CY 2021, OAK only handled 0.7% of all export value at $294 million and SJC handled the remaining 1.2% or $482 million in exports (see Figure 33). However, both airports have seen higher average annual percent change over the past decade, at 8% and 26% respectively.

EXPORT COMMODITIES

While SFO handles 97 different categories of exports, its top three categories make up 86% of all export value. In FY 2021, exports of electrical machinery, sound equipment, TV equipment, and parts made up 41% of all export value at $15.1 billion. The second largest category of exports was industrial machinery (including computers) with 32% of the value at $12 billion. The third category of optical, photographical, and medical instruments made up 12% of all value at $4.5 billion. Seven of the top 10 exports by value have experienced a double-digit percent increase over the past decade (see Table 51).

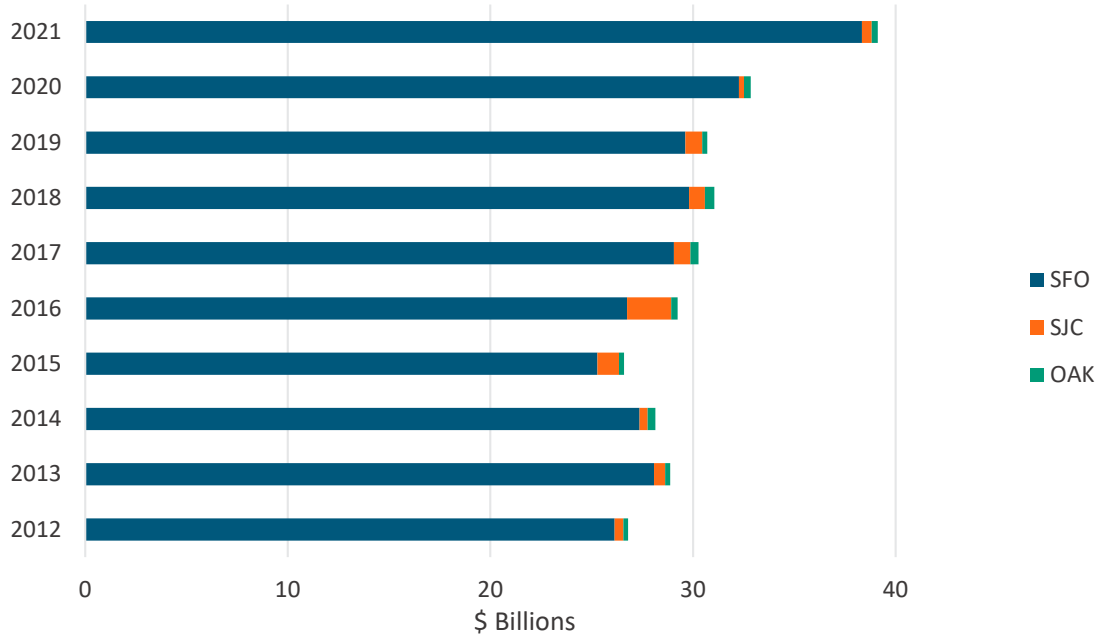
When examining exports by weight, the top 10 commodities are slightly different. Topping the list is industrial machinery, at 28,000 metric tons, or 23% of the airport's overall exports in FY 2021. The next 27% of exports are nearly split by edible fruit and nuts and electric machinery. Over the past decade, most of these top commodities have seen positive compound average growth rates (see Figure 34).

Table 52 shows how SFO ranks among the top several airports for the top three commodities by value. SFO's export share in FY 2021 for these top three goods ranges between 8% and 17%. It ranks 1st for both electric machinery and industrial machinery (including computers), and 6th for optic/photographic/surgical instruments.

IMPORT COMMODITIES

As a major player in international trade, SFO also imports several categories of goods (see Table 53). In FY 2021, SFO's top three imports made up

FIGURE 33. VALUE OF BAY AREA EXPORTS BY AIRPORT CY 2012 THROUGH CY 2021



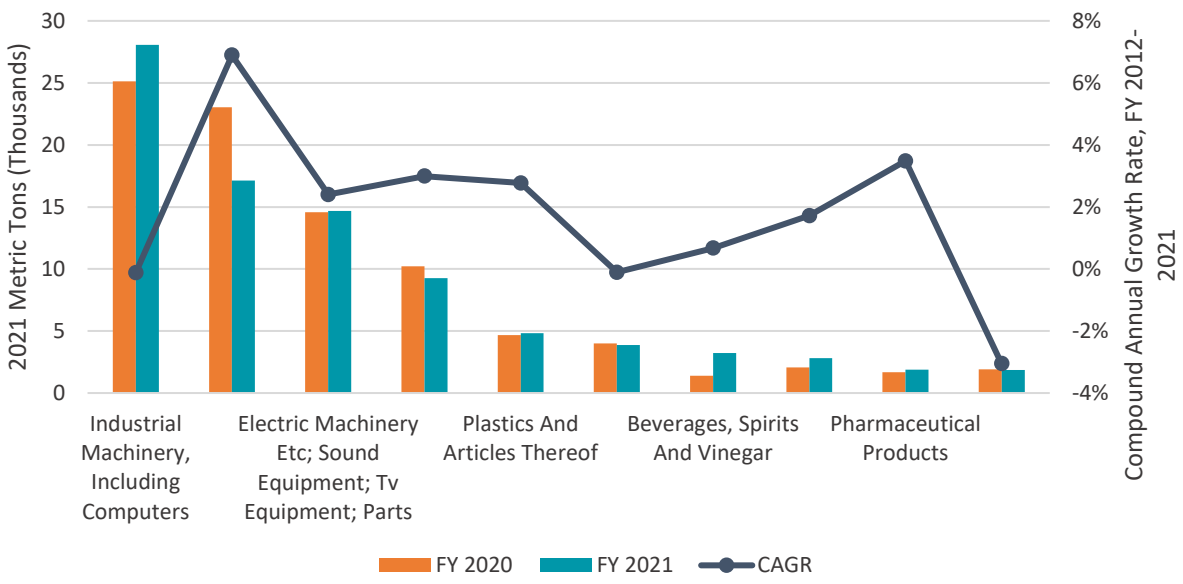
Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

TABLE 51. TOP 10 SFO EXPORT COMMODITIES BY AIR VALUE, FY 2020 AND 2021

COMMODITY	RANK FY 2021	FY 2021	RANK FY 2020	FY 2020	PERCENT CHANGE (FY 2012-2021)	PERCENT COMPOUND ANNUAL CHANGE (FY 2012-2021)
Electric Machinery, etc.; Sound Equipment, TV Equipment; Parts	1	$15,196,725,000	1	$10,346,319,000	134%	8.87%
Industrial Machinery, including Computers	2	$11,997,906,000	2	$9,011,200,000	28%	2.50%
Optic, Photographic, etc., Medical or Surgical Instruments, etc.	3	$4,498,238,000	3	$5,008,266,000	-24%	-2.66%
Pharmaceutical Products	4	$1,506,446,000	4	$1,440,884,000	33%	2.91%
Miscellaneous Chemical Products	5	$602,948,000	5	$682,161,000	26%	2.34%
Aircraft, Spacecraft, And Parts Thereof	6	$402,421,000	6	$537,309,000	160%	10.01%
Plastics And Articles Thereof	7	$396,178,000	7	$337,290,000	-42%	-5.27%
Photographic Or Cinematographic Goods	8	$378,354,000	8	$315,133,000	269%	13.94%
Works Of Art, Collectors Pieces and Antiques	9	$208,909,000	12	$123,113,000	369%	16.72%
Ceramic Products	10	$175,824,000	11	$132,500,000	103%	7.32%
Arms And Ammunition; Parts and Accessories Thereof	11	$162,676,000	9	$217,646,000	138%	9.06%
Glass And Glassware	12	$121,788,000	13	$97,661,000	214%	12.12%
Edible Fruit & Nuts; Citrus Fruit or Melon Peel	13	$115,429,000	10	$140,259,000	9%	0.88%
All Commodities		**$37,009,000,000**		**$29,633,923,000**	**41%**	**3.52%**

Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

FIGURE 34. TOP 10 SFO EXPORT COMMODITIES BY WEIGHT, FY 2020 AND 2021



Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

TABLE 52. US AIRPORT RANKINGS FOR TOP THREE COMMODITIES EXPORTED THROUGH SFO BY VALUE, FY 2021

ELECTRIC MACHINERY, ETC.; SOUND EQUIPMENT, TV EQUIPMENT; PARTS		INDUSTRIAL MACHINERY, INCLUDING COMPUTERS		OPTIC, PHOTOGRAPHIC, ETC., MEDICAL OR SURGICAL INSTRUMENTS, ETC.	
AIRPORT	PERCENT OF TOTAL	AIRPORT	PERCENT OF TOTAL	AIRPORT	PERCENT OF TOTAL
SFO	16.3%	SFO	17.1%	ORD	20.7%
MSY	14.7%	LAX	14.3%	LAX	14.8%
LAX	14.6%	JFK	13.8%	MSY	14.0%
CLE	11.1%	ORD	12.3%	CLE	11.5%
DFW	10.0%	DFW	10.7%	JFK	10.5%
MIA	9.3%	MIA	10.0%	SFO	8.3%
ORD	7.2%	MSY	7.6%	ANC	6.6%
JFK	6.9%	CLE	7.6%	MIA	5.7%
ANC	6.8%	ATL	3.9%	ATL	4.4%
SEA	2.9%	SEA	2.8%	DFW	3.5%
Total ($B)	**$93.1**		**$70.3**		**$53.9**

Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

79.9% of the airport's import value. The top three imports matched its top three exports: industrial machinery, including computers, was the most valuable import category at $11 billion, followed by electrical machinery and optical/photographic/medical instruments, at $8.5 and $2.2 billion respectively. In the past decade, industrial machinery and organic chemicals have seen the biggest growth with a percent increase of 134% and 89%, significantly outpacing the average percent change of all commodities.

As displayed in Table 54, SFO's top three imports by weight are the same as its exports, with electric and industrial machinery both making up about 24% of all tonnage. However, four out of the 10 imports have seen a decline in tonnage over the past decade.

TABLE 53. TOP 10 SFO IMPORT COMMODITIES BY AIR VALUE, FY 2020 AND 2021

COMMODITY	RANK FY 2021	FY 2021	RANK FY 2020	FY 2020	PERCENT CHANGE (FY 2012-2021)	PERCENT COMPOUND ANNUAL CHANGE (FY 2012-2021)
Industrial Machinery, including Computers	1	$11,007,702,000	2	$9,412,478,000	89.01%	6.57%
Electric Machinery Etc.; Sound Equipment; TV Equipment; Parts	2	$8,517,696,000	1	$11,103,213,000	-22.07%	-2.46%
Optic, Photographic, Medical or Surgical Instruments Etc.	3	$2,179,639,000	3	$2,755,145,000	7.38%	0.71%
Special Classification Provisions, NESOI*	4	$1,517,656,000	4	$1,671,093,000	6.38%	0.62%
Miscellaneous Chemical Products	5	$573,682,000	6	$581,155,000	-0.85%	-0.09%
Pharmaceutical Products	6	$515,915,000	5	$772,489,000	-2.53%	-0.26%
Organic Chemicals	7	$396,731,000	7	$259,766,000	134.20%	8.88%
Natural Pearls, Precious Stones, Precious Metals; Coins	8	$231,250,000	10	$152,990,000	-2.36%	-0.24%
Plastics And Articles Thereof	9	$166,364,000	8	$175,345,000	69.24%	5.40%
Photographic Or Cinematographic Goods	10	$162,016,000	9	$172,171,000	-11.87%	-1.26%
All Commodities		**$27,180,324,000**		**$29,105,596,000**	**16.57%**	**1.55%**

**NESOI stands for Not Elsewhere Specified or Included.*

Note: *All dollars are in 2021 value and rounded to the nearest thousand. Columns may not add due to rounding.*

Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

TABLE 54. TOP 10 SFO IMPORT COMMODITIES BY AIR WEIGHT FY 2021

COMMODITY	RANK FY 2021	FY 21 U.S. TONS	RANK FY 2020	FY 20 U.S. TONS	PERCENT CHANGE (FY 2012-2021)	PERCENT COMPOUND ANNUAL CHANGE (FY 2012-2021)
Electric Machinery; Sound Equipment; TV Equipment; Parts	1	36,149	2	37,470	10.5%	1.0%
Industrial Machinery, including Computers	2	36,101	1	38,825	7.4%	0.7%
Edible Fruit & Nuts; Citrus Fruit or Melon Peel	3	10,757	4	8,066	301.4%	14.9%
Optic, Photographic, Medical, or Surgical Instruments, etc.	4	9,078	3	12,046	-9.6%	-1.0%
Fish, Crustaceans & Aquatic Invertebrates	5	5,341	10	2,839	155.3%	9.8%
Plastics And Articles Thereof	6	5,053	5	6,950	43.3%	3.7%
Miscellaneous Chemical Products	7	3,033	6	5,270	-9.9%	-1.0%
Articles Of Iron or Steel	8	2,733	7	4,373	-2.4%	-0.2%
Apparel Articles and Accessories, Not Knit Etc.	9	2,467	9	3,520	-26.3%	-3.0%
Beverages, Spirits and Vinegar	10	2,430	15	1,790	80.7%	6.1%
All Commodities		**150,188**		**165,216**	**22.8%**	**2.1%**

Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

TOTAL TRADE

In FY 2021, SFO facilitated the transportation of 270,000 metric tons valued at $64.2 billion in total international trade (imports and exports). Top trade partners China, Korea, and Taiwan comprised almost 53% of the value of all trade, contributing $33.7 billion in air value (see Table 55). Their goods also made up more than 40% of the tonnage at 108,000 metric tons. Fifteen countries had a total trade value of over $1 billion with SFO in FY 2021. Of the top ten trade partners, seven are in Asia, with the largest non-Asian market being Germany.

TRADE WITH ASIA

As seen in the previous section, Asia is a major origin and destination for freight moving through SFO. Compared to other US commercial airports, SFO has ranked 5th in terms of total air value of exports over the past three fiscal years[2] (Figure 35). In FY 2021, SFO exports to Asia were valued at $16.9 billion.

However, SFO ranks first among U.S. airports in value per ton exported to Asian markets (see Figure 36). Despite the global pandemic, the value per ton increased in fiscal year 2021 by almost 35% from $248,000/ton to $335,000/ton. FY 2022 saw a decrease to just above 2020 levels to $269,000/ton.

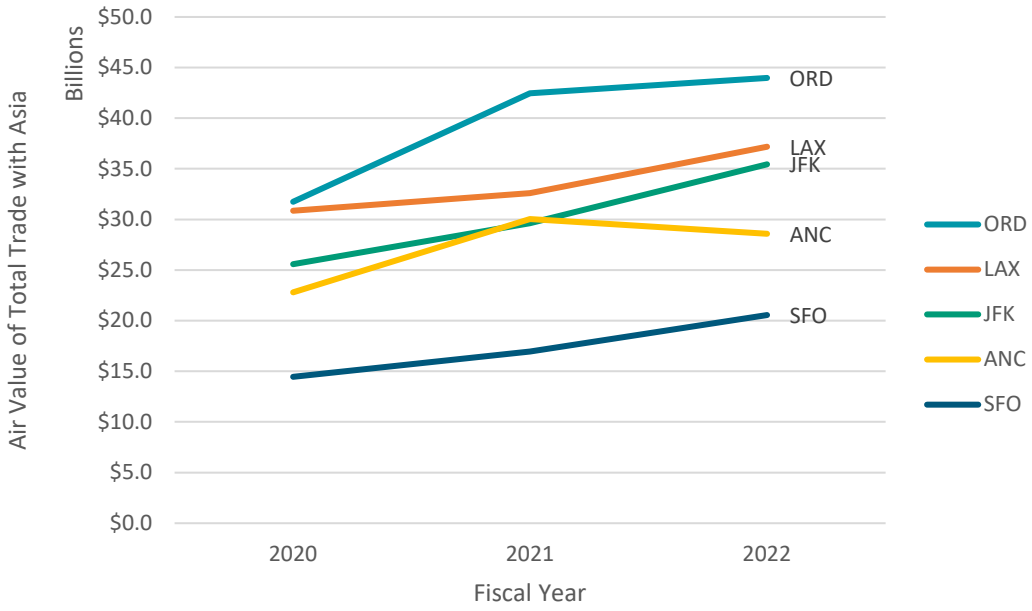
2 *Monthly data for trade with Asia at the airport level is only available for 2019-2022*

TABLE 55. COUNTRIES THAT TRADED COMMODITIES THROUGH SFO WITH A VALUE OF MORE THAN $1 BILLION, FY 2021

TRADING PARTNER	FY 21 TOTAL TRADE AIR VALUE	PERCENTAGE OF AIR VALUE	FY 21 TOTAL TRADE TONNAGE	PERCENTAGE OF TOTAL TONNAGE
China	$13,511,009,000	21.0%	43,588	16.1%
Republic Of Korea	$11,542,563,000	18.0%	27,303	10.1%
Taiwan	$8,634,321,000	13.5%	37,624	13.9%
Japan	$6,360,296,000	9.9%	39,631	14.7%
Malaysia	$3,463,825,000	5.4%	7,012	2.6%
Singapore	$3,312,469,000	5.2%	11,795	4.4%
Germany	$2,077,848,000	3.2%	9,790	3.6%
Hong Kong	$1,380,072,000	2.2%	6,111	2.3%
Australia	$1,215,987,000	1.9%	10,000	3.7%
Switzerland	$1,210,553,000	1.9%	3,067	1.1%
Philippines	$1,192,456,000	1.9%	1,775	0.7%
Thailand	$1,165,890,000	1.8%	5,869	2.2%
Israel	$1,130,209,000	1.8%	2,719	1.0%
Netherlands	$1,083,841,000	1.7%	4,800	1.8%
Vietnam	$1,064,082,000	1.7%	5,711	2.1%
Other (219 Countries)	$5,843,769,000	9.1%	53,467	19.8%
Total	**$64,189,189,000**	**100.0%**	**216,795**	**100.0%**

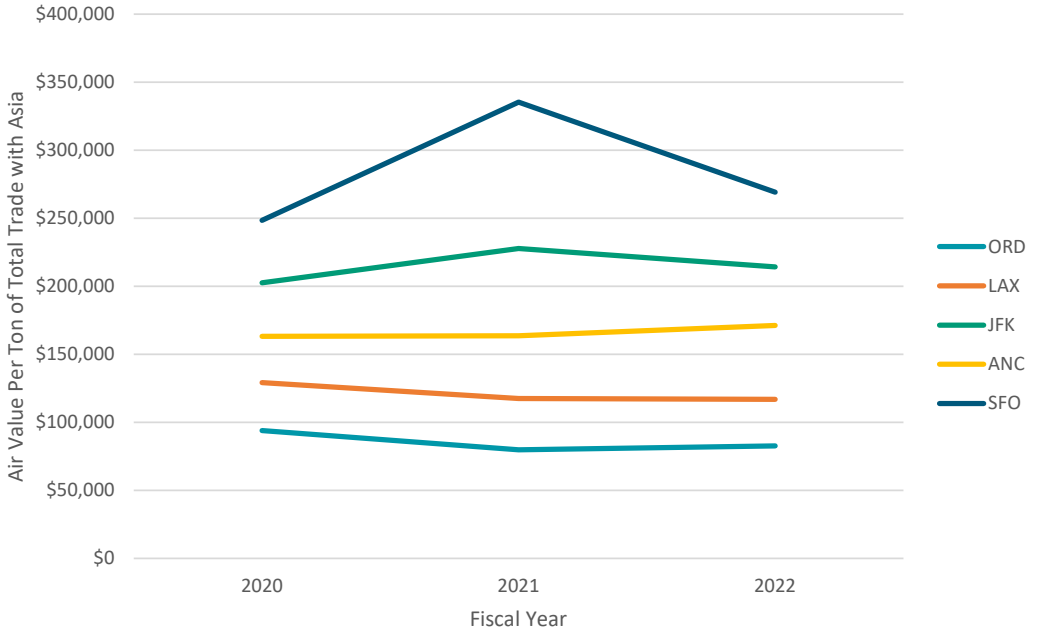
Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

FIGURE 35. TOP FIVE AIRPORTS BY AIR VALUE OF EXPORTS TO ASIA, FY 2020 – 2022



Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

FIGURE 36. TOP 5 AIRPORTS BY AIR VALUE PER TON OF EXPORTS TO ASIA 2012-2021



Source: *U.S. Census Bureau Foreign Trade Division via WISERTrade*

[PAGE LEFT BLANK INTENTIONALLY]

San Francisco International Airport

PO BOX 8097
SAN FRANCISCO, CA 94128-8097