Economic Impact and Tax Revenue Forecasting During COVID-19
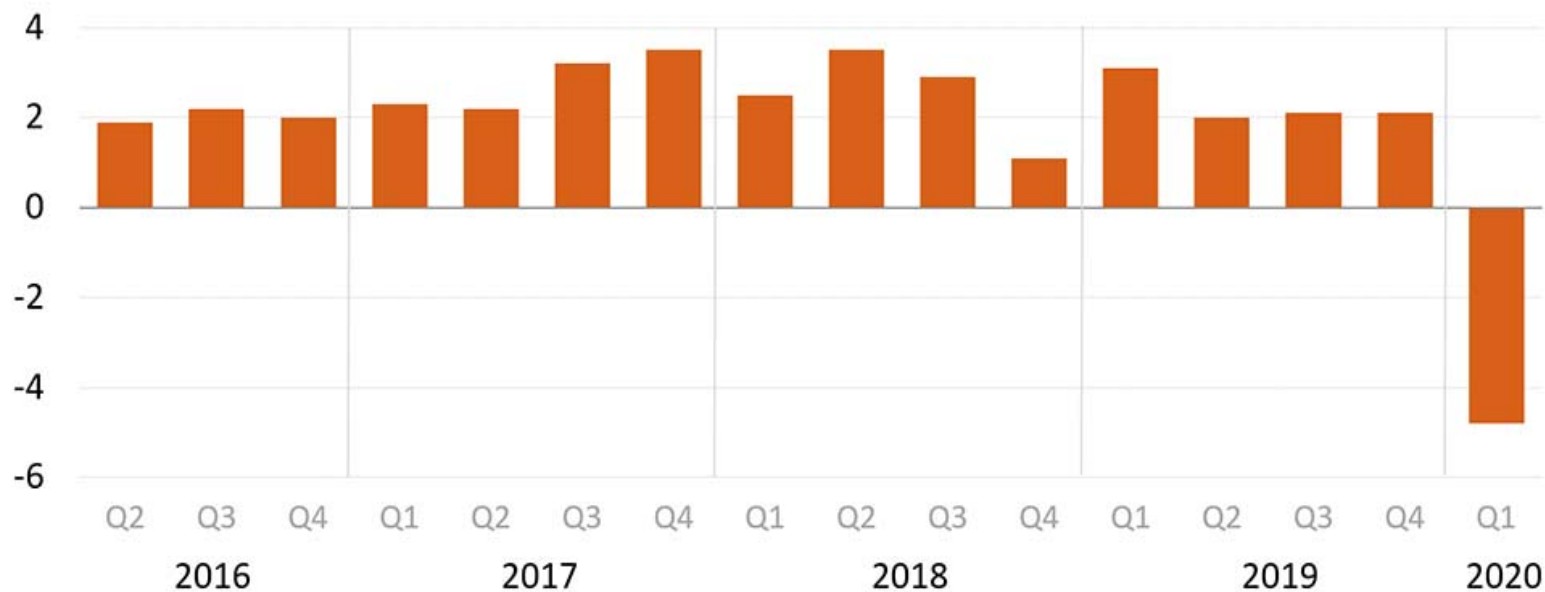
Overview

- National and local data begin to reflect impact of COVID-19, but more to come – lag factor between events and data.
- GDP down almost 5% in Q1 – easily could be multiples of that in Q2 & Q3
- Massive jump in claims for unemployment - many have either not applied or been unable to get through.
- Real-time indicators (oil & industrial production) drop precipitously. U.S. Retail Sales for April down 21.6% from April 2019.
- Issues on the Horizon
  - Timing and level of ongoing govt. support– business & individual
  - Capacity vs willingness to spend
  - Pattern of recovery/rehiring
  - Secondary outbreak?

Overview
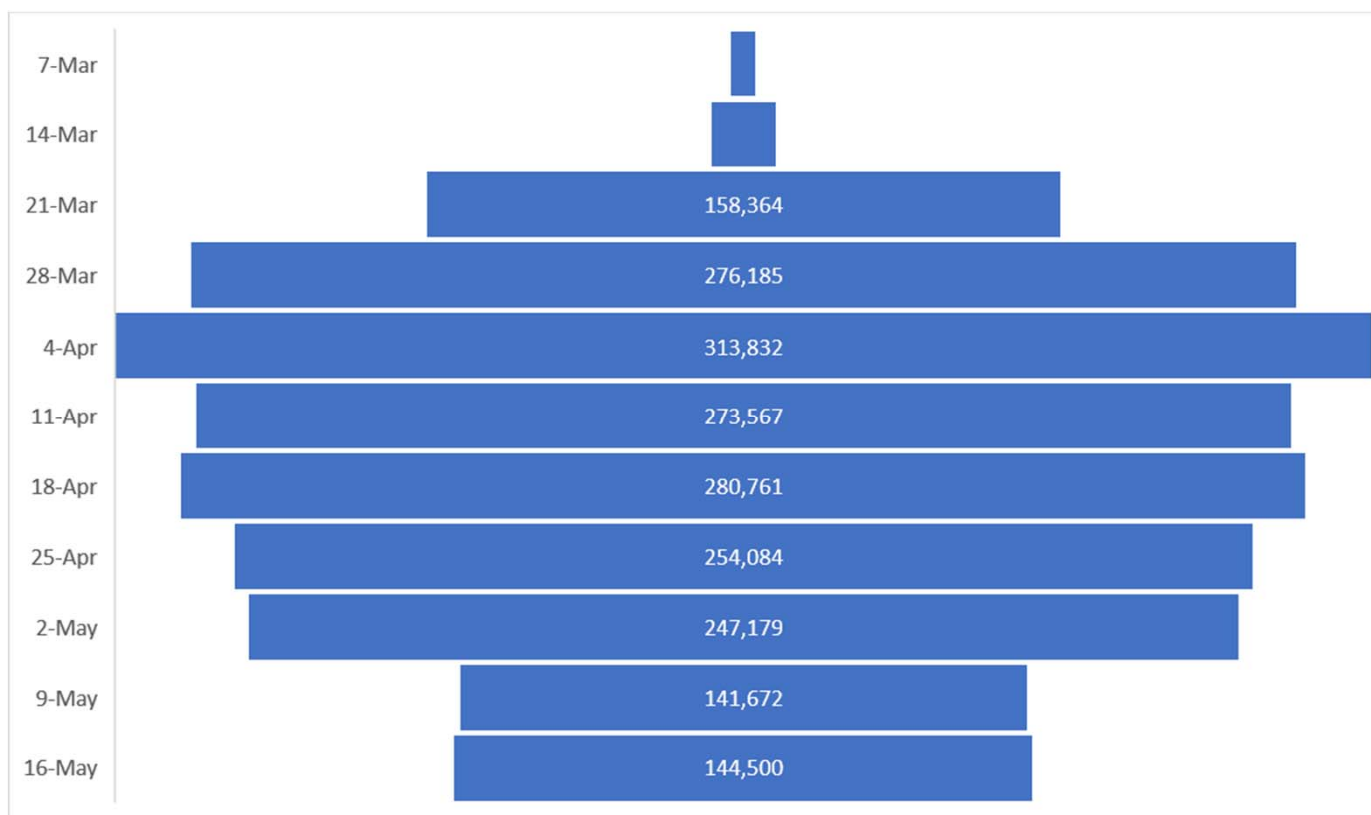
Real GDP: Percent Change from Preceding Quarter

U.S. Bureau of Economic Analysis

Seasonally adjusted at annual rates

Overview

## Texas Weekly Unemployment Insurance Claims

Overview

Texas Weekly Unemployment Insurance Claims by Industry

| Industry	14-Mar	21-Mar	28-Mar	4-Apr	11-Apr	18-Apr	25-Apr
Accomodation and Food Services	2,556	64,909	60,621	44,415	30,556	28,860	19,232
Administrative &Waste Management & Remediation Services	2,044	11,065	21,976	22,934	18,354	18,177	14,440
Agriculture, Forestry, Fishing and Hunting	44	74	138	196	218	302	299
Arts, Entertainment, and Recreation	214	6,783	7,838	6,853	4,825	4,358	2,687
Construction	2,619	6,909	12,956	12,707	9,971	9,881	7,755
Educational Services	259	4,073	6,404	6,591	5,536	5,701	4,437
Finance and Insurance	402	1,114	1,824	2,699	2,069	2,177	1,712
Health Care and Social Assistance	905	13,939	36,901	36,581	24,546	21,327	14,162
Information	296	3,638	3,507	3,094	2,353	2,051	1,577
Management of Companies and Enterprises	138	708	1,448	1,364	1,062	920	648
Manufacturing	966	3,822	16,610	13,742	11,006	11,707	8,607
Mining	986	2,995	4,306	5,481	5,500	6,720	6,221
Other Services	472	8,279	18,520	17,736	11,411	9,390	5,527
Professional, Scientific, and Technical Services	1,078	5,059	9,669	11,545	9,384	8,496	6,755
Public Administration	124	437	669	836	822	833	1,040
Real Estate Rental and Leasing	355	2,405	4,757	5,122	4,099	3,958	2,706
Retail Trade	909	8,381	27,087	49,236	36,820	29,981	19,715
Transportation and Warehousing	1,986	3,526	5,560	7,247	6,729	7,584	6,554
Utilities	41	64	109	129	113	125	95
Wholesale Trade	604	2,499	6,852	10,620	7,540	7,214	6,408
Unknown	775	5,032	10,855	18,586	23,748	20,217	18,236
Grand Total	**17,773**	**155,711**	**258,607**	**277,714**	**216,661**	**199,979**	**148,813**

Overview

West Texas Intermediate Daily Price (Dollars per Barrel)
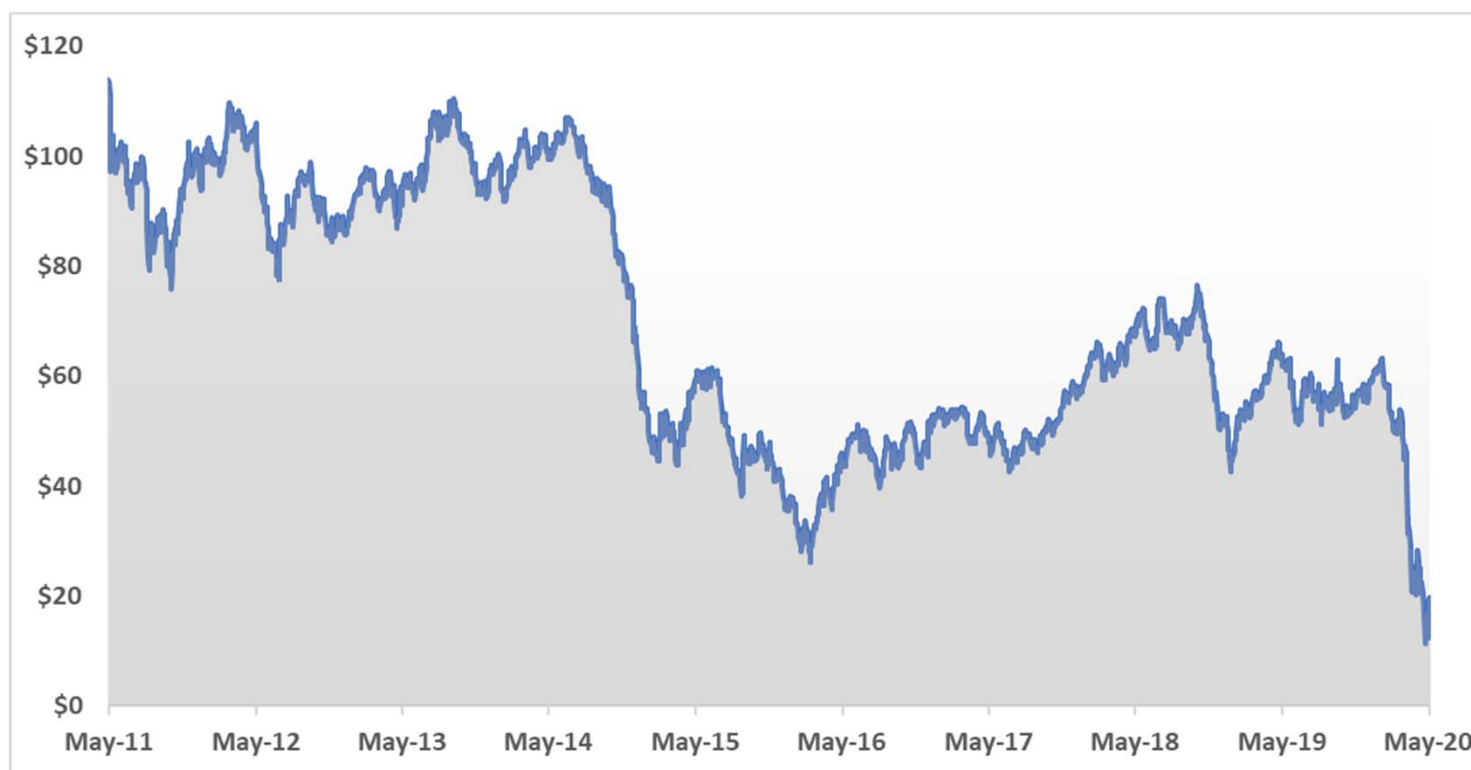
# Overview

Fed Texas Industrial Production Index
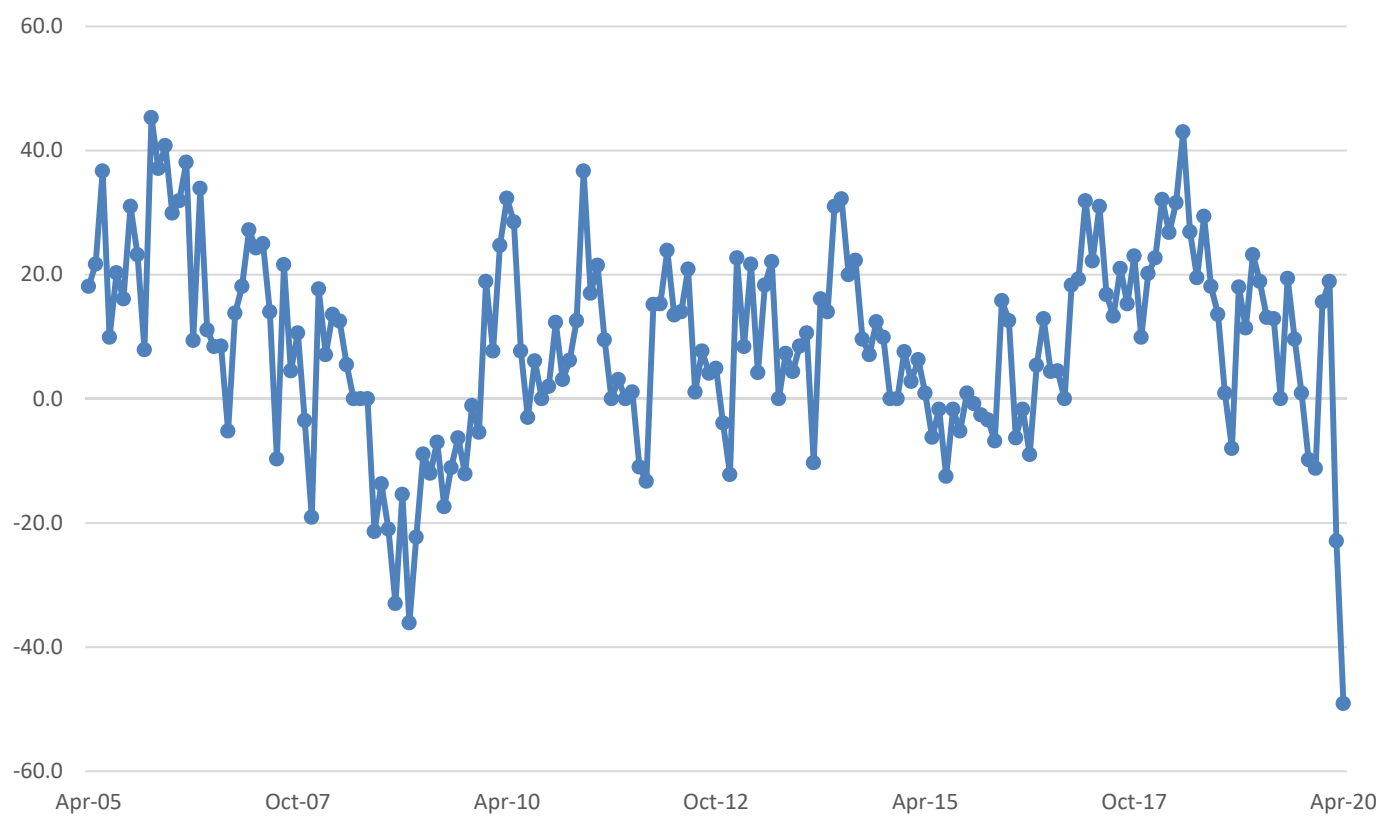
Overview

Year-Over-Year May (March) Sales Tax Growth

Major Cities		Edge Cities		Stand-Alone Cities	
Austin	-4.5%	Flower Mound	-8.1%	Abilene	-2.1%
Dallas	-9.4%	Frisco	-12.0%	Beaumont	-7.9%
El Paso	-11.0%	Grapevine	-24.4%	Longview	-9.5%
Fort Worth	-6.5%	Missouri City	7.1%	Lubbock	-5.5%
Houston	-10.3%	New Braunfels	1.9%	McAllen	-8.0%
San Antonio	-10.8%	San Marcos	23.1%	Midland	-9.5%

- Negative Factors: travel/tourism, employment center, entertainment center, oil & gas, destination commerce (Border)
- Positive Factors: unprecedented stimulus, commuter out-migration, fulfillment/distribution center, isolation (at least at this stage).

Jobs & Sales Taxes

SA MSA Private Employment &
City of San Antonio Sales Tax Growth
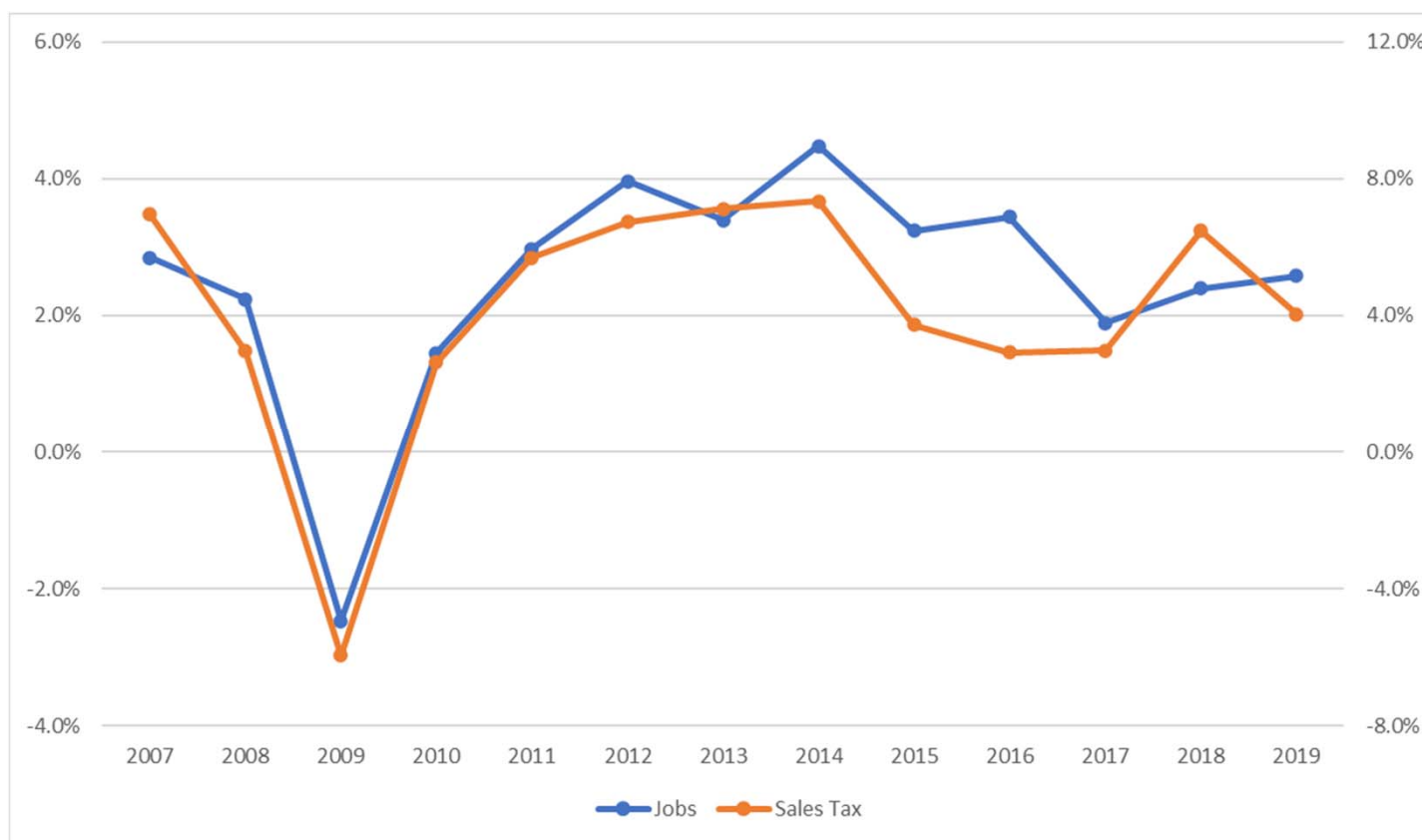
Mitigating Factors

- Sales tax data only reflect COVID-19 for part of March and April.
- Financial support from Federal sources.
    - High levels of unemployment compensation, the PPP program, and EIDL grants all help support consumer spending.
- Rent/debt service abatement also helps maintain spending.
- Shifting patterns of business activity.
    - Some firms able to pivot to maintain at least some revenue – food to go from restaurants, etc.
- San Antonio feels the impact of communities with a high level of commuter "out-migration"– if you aren't driving to work in another town, you are more likely to spend near home. New Braunfels sales tax up about 2% in March.

Sales Tax Approach - Updated

- Initial approach relied on work done by St. Louis Fed and others to create estimates of total job loss due to COVID-19.
- St. Louis Fed initial estimate of a national level of unemployment of 52.8 million – approximately 32.1% job loss rate.
- TXP refines St. Louis Fed approach using likelihood of job loss for 400 occupations. Estimate was for 26.4% local job loss.
- Establish the correlation and overall relationship between job gain/loss and sales tax gain/loss for the City. Outcome: for every percentage point gain/lost in employment, sales tax moves up/down X percentage points.
- Account for mitigating factors.
- Create near-term scenarios around level of job losses and patterns of rehiring associated with shutdowns due to COVID-19. These scenarios form the basis of sales tax forecasts for FY 2020 & FY 2021.
- Use historical compound annual growth rates of City sales tax to drive projections for 2022-25 (or further).

Sales Tax Approach - Updated

- Estimates of "job loss" in the 25% range likely to be fairly close
  - General consensus that, for every 1 percentage point of "unemployment," there are actually 2 percentage points of people not working who would choose to.
    - June 5 *New York Times* article
    - Confirmation from head of local workforce board in Austin
    - Bexar County April unemployment rate of 13.7% consistent with 26.4% actual job loss.
- However, historic relationships between the job market and sales tax collections don't appear to apply, at least for now.
  - Unprecedented level of stimulus clearly has propped up spending
    - Direct household cash payments
    - PPP/EIDL loans
    - Expanded unemployment
      - National figures indicate more than two-thirds receiving unemployment are making more than when working
      - Texas figures (unpublished) are closer to 75%

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Sales Tax Approach - Updated

- Initial thought on stimulus was that it essentially would offset the loss of travel and tourism spending
  - That assumption appears to be too conservative, at least for the time being. Consumer spending, based on the limited results from March and April, is stronger than anticipated.
- An alternative approach is to use the unemployment rate itself as the driver of sales tax projections. The Federal Reserve Bank released its economic projections for 2020-2022 on June 8th. Their median forecast for average annual unemployment nationally is 9.3% for 2020, 6.5% for 2021, and 5.5% for 2022 (compared to 3.7% in 2019).
- The San Antonio labor market historically has performed at a slightly higher level in terms of job creation compared to the U.S. overall, as the local unemployment rate has been on average 85% of the national figure over the past 20 years. This relationship can be combined with the Fed forecasts to create monthly unemployment estimates for the City, which in turn drive the sales tax projections.

Historical Growth

City of San Antonio FY Year Over Year Change in Taxable Sales

■ Increase ■ Decrease ■ Total

- 2004: 5.5%
- 2005: 6.9%
- 2006: 15.2%
- 2007: 6.6%
- 2008: 3.2%
- 2009: -9.4%
- 2010: -2.8%
- 2011: 7.5%
- 2012: 9.8%
- 2013: 3.6%
- 2014: 5.9%
- 2015: 6.5%
- 2016: 4.4%
- 2017: -2.3%
- 2018: 6.4%
- 2019: 2.9%
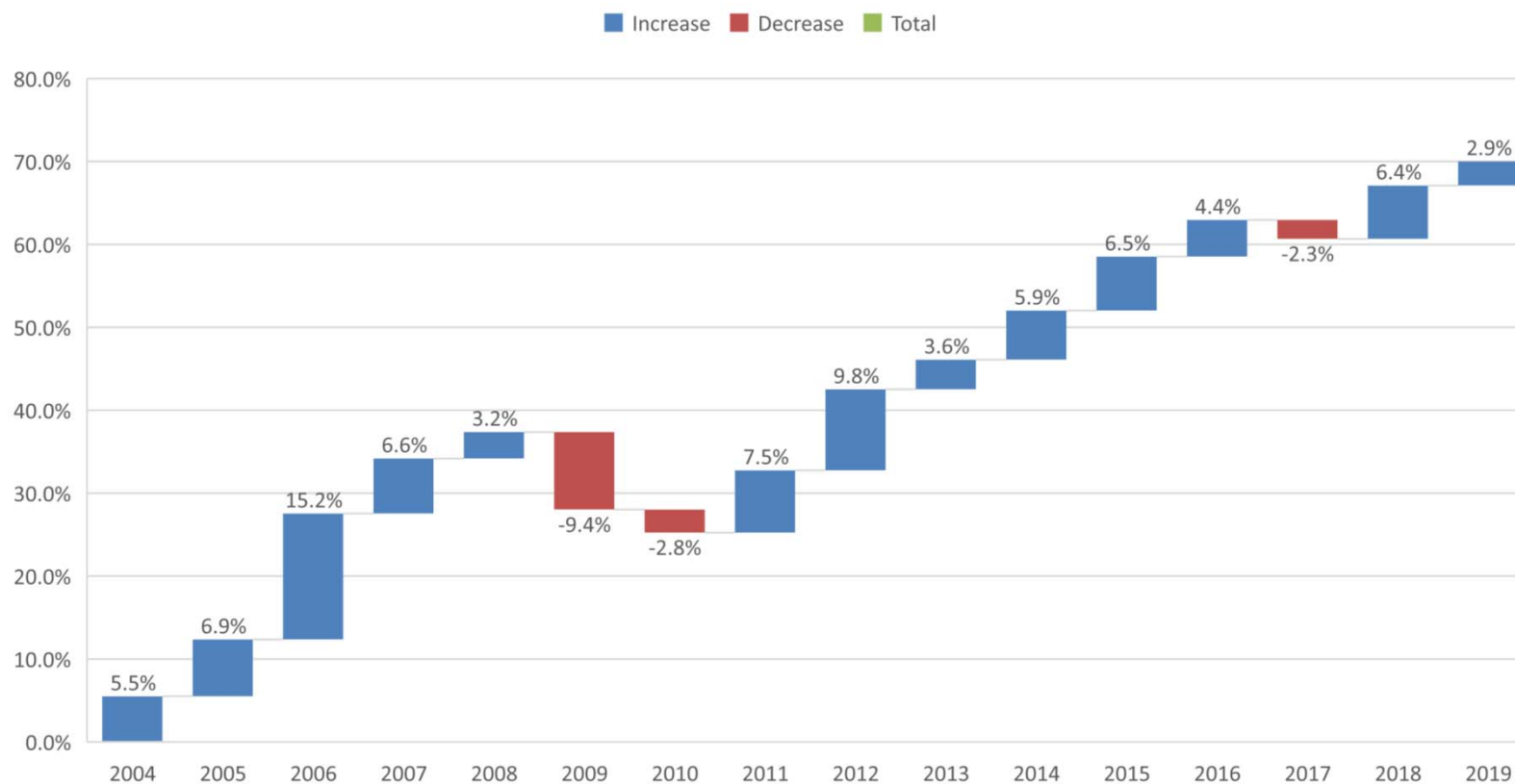
Source: Texas Comptroller

2020 Scenarios

- Given the short number of months remaining in FY 2020, the unemployment – driven methodology largely is used to create the forecasts for the balance of this fiscal year. In addition, three general scenarios related to the reopening of the economy and the arc of recovery are developed for FY 2021-25:
  - Optimistic: opening up keeps the level of infections within hospital capacity, and most workers begin to return to work. Spending remains relatively strong due to stimulus and some economic recovery.
    - *Spending declines set at 75% of historic unemployment/sales tax ratio.*
  - Baseline: Infections continue to rise without overwhelming the medical sector, but there is the possibility of another short-term shutdown in the near term. However, overall return to work continues.
    - *Spending declines set at 125% of historic unemployment/sales tax ratio.*
  - Pessimistic: Rising infections and/or unfelt to-date economic impact yield sluggish rehiring and signs of a sustained recession.
    - *Spending declines at the same year-over-year rate it did in June (-16.5%) for the balance of the fiscal year.*

2021-25 Scenarios

- Three general scenarios related to the reopening of the economy and the arc of recovery are developed for FY 2021-25:
  - Optimistic: The momentum of some improvement in 2020 continues, as the economy bounces back as quickly as hoped for and travel & tourism returns fairly strongly by the end of 2021.
    - *Uses Historic Patterns From FY2008-13 for FY2021 and FY2004-19 for FY 2022-25*
  - Baseline: While stimulus has propped up consumer spending for some time, underlying economic problems in sectors such as banking and commercial real estate cause multi-year declines and slower growth going forward . However, overall hiring continues, and the vast majority of lost jobs are recovered by mid-2021.
    - *2021 Continues 2020 Methodology. Uses Historic Pattern from FY2014-19 (22-25).*
  - Pessimistic: The recession lingers for several years at a deep level.
    - *Uses Historic Patterns From FY2009-10 for FY2021 and FY2007-12 for 2022-25*

Sales Tax Forecasts
Optimistic

Annual Growth from Previous Year

FY2020	FY2021	FY2022-25
-3.0%	2.2%	4.1%

	2020 External Forecast	2021 External forecast	2022 External forecast	2023 External forecast	2024 External forecast	2025 External forecast
Oct	$27,188,359	$27,797,218	$28,944,515	$30,139,165	$31,383,123	$32,678,424
Nov	$25,270,623	$25,836,536	$26,902,908	$28,013,294	$29,169,509	$30,373,446
Dec	$23,582,299	$24,110,403	$25,105,531	$26,141,732	$27,220,701	$28,344,203
Jan	$32,297,694	$33,020,972	$34,383,873	$35,803,026	$37,280,753	$38,819,472
Feb	$23,052,508	$23,568,748	$24,541,520	$25,554,442	$26,609,171	$27,707,433
March	$21,698,002	$22,183,909	$23,099,524	$24,052,929	$25,045,685	$26,079,416
April	$25,252,601	$25,818,110	$26,883,722	$27,993,316	$29,148,706	$30,351,784
May	$20,560,925	$21,021,368	$21,889,000	$22,792,442	$23,733,173	$24,712,732
June	$22,002,097	$22,494,814	$23,423,261	$24,390,028	$25,396,698	$26,444,916
July	$26,403,202	$26,994,478	$28,108,643	$29,268,794	$30,476,828	$31,734,723
August	$24,032,939	$24,571,135	$25,585,280	$26,641,282	$27,740,869	$28,885,840
Sept	$23,245,501	$23,766,064	$24,746,980	$25,768,382	$26,831,941	$27,939,397
Total	**$294,586,750**	**$301,183,756**	**$313,614,757**	**$326,558,832**	**$340,037,158**	**$354,071,787**

Sales Tax Forecasts
Baseline

	Annual Growth from Previous Year		
	FY2020	FY2021	FY2022-25
	-4.2%	-1.2%	3.6%

	2020 External Forecast	2021 External forecast	2022 External forecast	2023 External forecast	2024 External forecast	2025 External forecast
Oct	$27,188,359	$24,851,519	$25,733,629	$26,647,050	$27,592,892	$28,572,308
Nov	$25,270,623	$23,269,190	$24,095,134	$24,950,396	$25,836,016	$26,753,071
Dec	$23,582,299	$21,873,761	$22,650,175	$23,454,147	$24,286,657	$25,148,717
Jan	$32,297,694	$28,771,306	$29,792,550	$30,850,043	$31,945,071	$33,078,968
Feb	$23,052,508	$20,956,818	$21,700,685	$22,470,955	$23,268,566	$24,094,489
March	$21,698,002	$21,310,362	$22,066,778	$22,850,043	$23,661,110	$24,500,966
April	$25,252,601	$26,513,782	$27,454,894	$28,429,411	$29,438,519	$30,483,445
May	$20,560,925	$23,150,840	$23,972,584	$24,823,495	$25,704,611	$26,617,001
June	$20,999,386	$22,298,616	$23,090,110	$23,909,698	$24,758,378	$25,637,181
July	$25,276,939	$26,638,118	$27,583,644	$28,562,731	$29,576,571	$30,626,398
August	$23,077,259	$24,137,696	$24,994,469	$25,881,653	$26,800,327	$27,751,610
Sept	$22,387,733	$23,377,485	$24,207,274	$25,066,516	$25,956,257	$26,877,580
Total	**$290,644,327**	**$287,149,494**	**$297,341,925**	**$307,896,138**	**$318,824,976**	**$330,141,735**

Sales Tax Forecasts
Pessimistic

Annual Growth from Previous Year

FY2020	FY2021	FY2022-25
-6.4%	-2.8%	2.8%

	2020 External Forecast	2021 External forecast	2022 External forecast	2023 External forecast	2024 External forecast	2025 External forecast
Oct	27,188,359	$26,432,523	$27,175,276	$27,938,902	$28,723,985	$29,531,129
Nov	25,270,623	$24,568,100	$25,258,463	$25,968,226	$26,697,933	$27,448,145
Dec	23,582,299	$22,926,711	$23,570,951	$24,233,295	$24,914,251	$25,614,341
Jan	32,297,694	$31,399,818	$32,282,153	$33,189,281	$34,121,900	$35,080,725
Feb	23,052,508	$22,411,648	$23,041,416	$23,688,879	$24,354,537	$25,038,899
March	21,698,002	$21,094,798	$21,687,561	$22,296,982	$22,923,527	$23,567,678
April	25,252,601	$24,550,579	$25,240,450	$25,949,707	$26,678,893	$27,428,570
May	20,560,925	$19,989,331	$20,551,031	$21,128,515	$21,722,226	$22,332,621
June	19,762,457	$19,213,060	$19,752,947	$20,308,005	$20,878,660	$21,465,350
July	23,608,401	$22,952,087	$23,597,041	$24,260,118	$24,941,827	$25,642,692
August	21,392,367	$20,797,659	$21,382,073	$21,982,910	$22,600,629	$23,235,707
Sept	20,598,787	$20,026,141	$20,588,875	$21,167,423	$21,762,227	$22,373,746
Total	**$284,265,021**	**$276,362,454**	**$284,128,239**	**$292,112,242**	**$300,320,596**	**$308,759,605**

Forecasting Other Variables

- On the economy side, ratio analysis can be used to estimate variables such as personal income, retail sales, and value-added (gross product).
- General approach is to look at trends for a given variable by job, forecast that ratio, and then apply that ratio to the employment forecast to generate the variable forecast.
- On the local government side specific revenue streams (such as lodging taxes or mixed beverage taxes) may correlate to job growth/loss in a certain sector or a variable such as local hotel occupancy rate.
- Ad valoreum taxbase correlates fairly well to total private sector job growth – interest rates have had an impact in the past, but rates are expected to remain low (by historical standards) for the foreseeable future.

Employment Forecast

San Antonio MSA Year-End Baseline

Annual Change

	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23	Dec-24	Dec-25	2019-20	2020-25
Agriculture, etc.	2,202	2,202	2,202	2,602	3,076	3,636	4,298	0.0%	14.3%
Mining, Quarrying, & Oil and Gas	10,413	9,977	9,894	10,210	11,810	13,179	13,311	-4.2%	5.9%
Construction	56,818	54,991	54,814	56,475	58,341	60,798	64,111	-3.2%	3.1%
Utilities	6,926	6,894	6,894	6,888	6,819	6,643	6,700	-0.5%	-0.6%
Manufacturing	50,468	49,776	49,708	50,648	51,822	52,347	52,772	-1.4%	1.2%
Wholesale Trade	34,356	33,192	33,080	33,584	33,999	34,122	34,904	-3.4%	1.0%
Retail Trade	117,123	105,518	103,427	104,332	103,711	102,866	102,610	-9.9%	-0.6%
Transportation & Warehousing	38,948	38,641	38,641	40,736	42,132	43,765	45,953	-0.8%	3.5%
Information	19,494	18,945	18,891	18,368	17,874	17,309	16,444	-2.8%	-2.8%
Finance and Insurance	67,491	65,666	65,488	66,834	67,370	68,518	69,761	-2.7%	1.2%
Real Estate & Rental	17,863	17,005	16,882	17,139	17,393	17,259	17,259	-4.8%	0.3%
Professional, Scientific Services	54,684	54,368	54,368	56,418	58,671	61,575	64,653	-0.6%	3.5%
Management of Companies	14,180	14,099	14,099	15,055	16,283	17,742	18,451	-0.6%	5.5%
Administrative, Support Services	70,397	68,579	68,490	69,760	70,067	70,001	68,111	-2.6%	-0.1%
Educational Services	99,149	98,691	98,691	99,344	100,037	100,813	102,326	-0.5%	0.7%
Health Care & Social Assistance	171,188	166,681	166,242	171,003	173,849	176,837	177,686	-2.6%	1.3%
Arts, Entertainment, & Recreation	16,592	14,891	14,585	15,183	15,838	16,457	16,753	-10.3%	2.4%
Accommodation & Food Services	120,527	94,747	89,681	92,033	93,809	95,385	96,129	-21.4%	0.3%
Other Services	29,821	28,814	28,717	29,471	29,950	30,517	31,094	-3.4%	1.5%
Public Administration	44,120	43,826	43,826	44,266	44,796	45,655	46,375	-0.7%	1.1%
Unclassified	474	474	474	474	474	474	474	0.0%	0.0%
TOTAL	**1,043,234**	**987,976**	**979,094**	**1,000,825**	**1,018,124**	**1,035,899**	**1,050,175**	**-5.3%**	**1.2%**

City Property Taxbase Scenarios

City Property Taxbase (Billions)
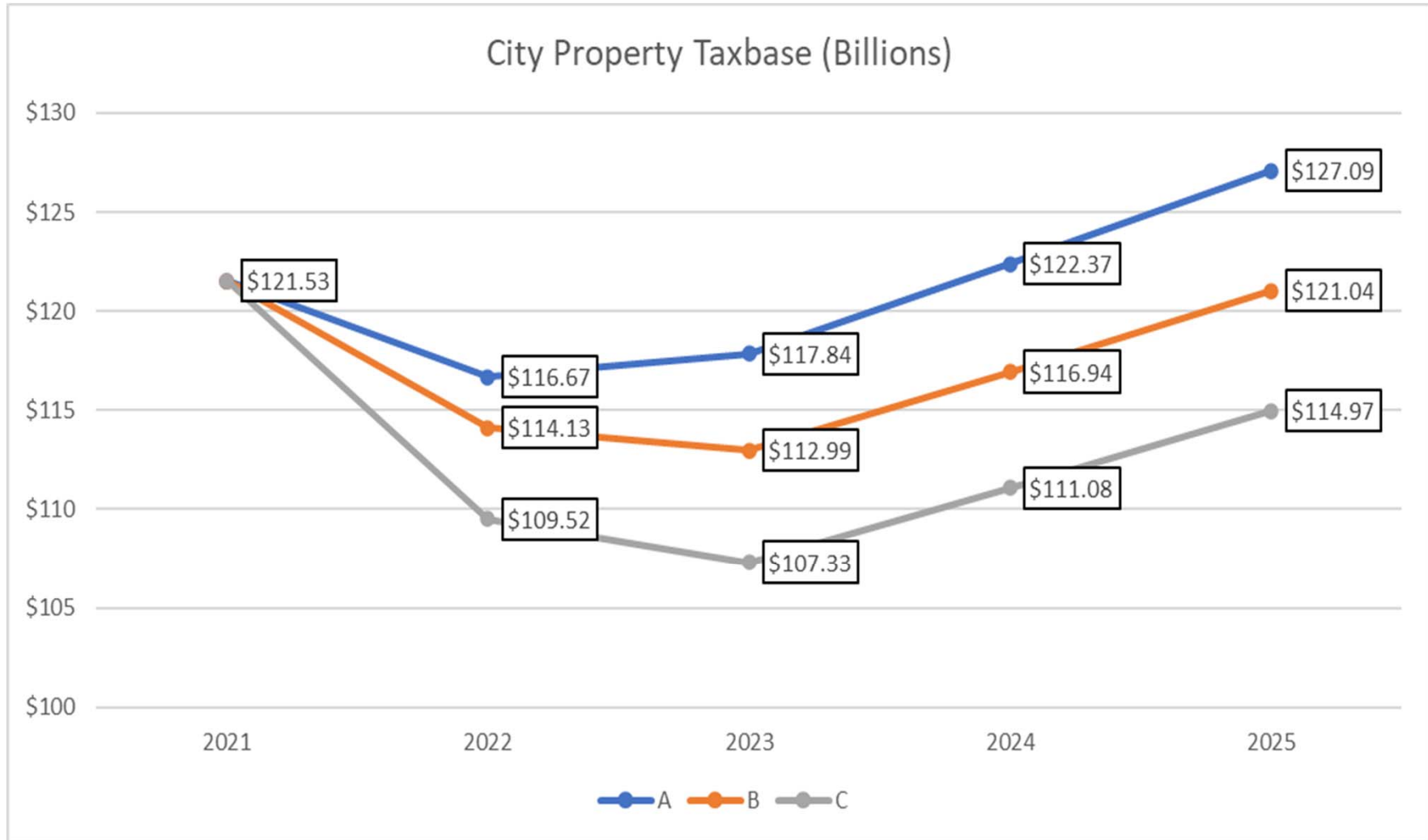
Hotel Occupancy Tax Revenues: General Expectations

- Three scenarios were forecast: baseline, pessimistic, and optimistic.
- While it is expected that demand may recover relatively quickly, ADR will take about 6-8 years to get back to pre-COVID levels. It took about 3-4 years for ADR to recover from 9/11 and the Great Recession. The industry expectation is that recovery from the pandemic will take about twice as long.
- Demand will be led out of the recovery by leisure visitors. While convention and other business travel may pick up by the end of this year, it is expected that convention attendance will be less than pre-pandemic levels.
- Revenues are adjusted to account for 8% of rooms being tax exempt.

Hotel Occupancy Tax Revenues: Baseline Scenario Assumptions

- Some recovery in consumer confidence for staying in hotels as economy reopens.

- A second wave of coronavirus cases will occur in the winter causing a reduction in consumer confidence for staying in hotels as more people become wary again of being in facilities in which crowds may gather, including a continued contraction in convention business.

- The economy is not locked down like in March or April of this year and begins to stabilize and transitions to more typical consumer activity in 2021.

Hotel Occupancy Tax Revenues: Baseline Scenario Methodology

- Projected year-over-year (Y/Y) declines in demand and ADR for April through September 2020 were provided by Visit San Antonio. These projections were used in this scenario as provided.

- Projected to see improvements in the Y/Y change in room demand and ADR (i.e., declines are not as large) through October. There will be increases in the Y/Y declines in November and December 2020, but room demand and ADR will start to improve in 2021.

- While the appearance in the tables may be that room demand recovers slower than the ADR, this period reflects that room demand fluctuates at about 2-3 times the rate of fluctuation in the ADR leading to larger declines in this scenario. Over the entire period of the forecast, ADR recovers to pre-pandemic levels more slowly.

Hotel Occupancy Tax Revenues: Baseline Scenario Methodology

Projected Change in Room Demand (Y/Y)		Projected Change in ADR (Y/Y)	
May 2020	-70%	May 2020	-45.0%
June 2020	-50%	June 2020	-35.0%
July 2020	-30%	July 2020	-30.0%
August 2020	-20%	August 2020	-20.0%
September 2020	-20%	September 2020	-15.0%
October 2020	-20%	October 2020	-15.0%
November 2020	-40%	November 2020	-30.0%
December 2020	-40%	December 2020	-30.0%
January 2021	-30%	January 2021	-20.0%
February 2021	-30%	February 2021	-20.0%

Hotel Occupancy Tax Revenues: Baseline Scenario Methodology

- Room Demand
  - For March 2021 – February 2022, the average room demand minus one standard deviation for 2010-2019 was used.
  - For 2022, the average room demand for 2017-2019 was used to reflect that demand is returning to levels similar to the pre-pandemic period. For 2023-2025, the average Y/Y growth rate for each month from 2010-2019 was used to forecast room demand. The period from 2010-2019 was used to reflect the long-term average growth rate.

- ADR
  - It was assumed that it will take 7 years to get back to pre-pandemic levels of the ADR.
  - For March – December 2021, **the average ADR plus 85%** of a standard deviation from 2010-2019 was used.
  - In 2022, it was assumed growth would occur at 0.1% less than the average Y/Y growth from 2010-2019.
  - In 2023-2025, it was assumed growth would be equivalent to the average Y/Y rate from 2010-2019.

Hotel Occupancy Tax Revenues: Baseline Scenario Forecast

Projected Hotel Occupancy Tax Revenues: Baseline Scenario

	2019	2020	2021	2022	2023	2024	2025
Oct	$6,973,024	$7,262,648	$5,221,608	$5,877,008	$7,030,827	$7,377,898	$7,742,102
Nov	$7,391,983	$7,321,878	$2,875,928	$5,049,314	$6,102,267	$6,415,521	$6,744,856
Dec	$6,591,698	$6,578,878	$2,847,506	$4,967,546	$6,016,219	$6,323,103	$6,645,641
Jan	$6,129,557	$6,737,185	$3,572,427	$4,937,995	$5,225,615	$5,529,988	$5,852,090
Feb	$7,600,055	$7,812,618	$4,255,162	$5,833,381	$6,103,016	$6,385,115	$6,680,252
Mar	$10,790,978	$2,341,691	$7,791,979	$9,332,108	$9,853,398	$10,403,808	$10,984,963
Apr	$10,148,067	$2,184,335	$6,418,218	$7,673,968	$8,066,294	$8,478,678	$8,912,145
May	$7,272,732	$1,235,480	$5,708,651	$6,698,797	$7,058,429	$7,437,368	$7,836,652
Jun	$7,291,570	$2,767,570	$6,544,592	$7,574,300	$7,892,562	$8,224,196	$8,569,765
Jul	$10,639,245	$4,472,188	$7,465,251	$8,158,818	$8,469,260	$8,791,514	$9,126,030
Aug	$5,341,026	$4,614,343	$5,813,707	$6,573,703	$6,821,484	$7,078,605	$7,345,418
Sep	$7,308,616	$4,515,079	$4,842,991	$5,928,474	$6,257,657	$6,605,117	$6,971,870
Total	**$93,478,549**	**$57,843,893**	**$63,358,020**	**$78,605,413**	**$84,897,028**	**$89,050,912**	**$93,411,785**

Hotel Occupancy Tax Revenues: Pessimistic Scenario Assumptions

- Some recovery in consumer confidence for staying in hotels into the fall as economy reopens.

- A strong second wave of coronavirus cases will occur in the winter causing a reinstitution of shelter-at-home orders and restrictions on economic activity comparable to March and April 2020.

- This leads to a prolonged reduction in consumer confidence to stay in hotels and an extended reduction in convention business.

- Economy stabilizes and returns to long-term trend growth rates in 2023.

Hotel Occupancy Tax Revenues: Pessimistic Scenario Methodology

- Projected year-over-year declines in demand and ADR for April through September 2020 were provided by Visit San Antonio.

- The room demand and ADR projections for November and December 2020 were assumed to similar levels to May and June. A slight recovery is projected for January and February 2021.

- While the appearance in the tables may be that room demand recovers slower than the ADR, this period reflects that room demand fluctuates at about 2-3 times the rate of fluctuation in the ADR leading to larger declines in this scenario. Over the entire period of the forecast, ADR recovers to pre-pandemic levels more slowly.

Hotel Occupancy Tax Revenues: Pessimistic Scenario Methodology

Projected Change in Room Demand (Y/Y)		Projected Change in ADR (Y/Y)	
May 2020	-80%	May 2020	-45.0%
June 2020	-60%	June 2020	-35.0%
July 2020	-40%	July 2020	-30.0%
August 2020	-30%	August 2020	-20.0%
September 2020	-30%	September 2020	-15.0%
October 2020	-20%	October 2020	-15.0%
November 2020	-60%	November 2020	-35.0%
December 2020	-80%	December 2020	-45.0%
Januaruy 2021	-40%	Januaruy 2021	-30.0%
February 2021	-40%	February 2021	-30.0%

Hotel Occupancy Tax Revenues: Pessimistic Scenario Methodology

- Room Demand
  - For March – December 2021, the average room demand less 1.5 times the standard deviation for 2010-2019 was used.
  - For 2022, the average room demand for each month from 2010-2019 was used.
  - For 2023-2025, the average Y/Y growth rate for each month from 2010-2019 was used to forecast room demand.
- ADR
  - It was assumed that it will take 8 years to get back to pre-pandemic levels of the ADR.
  - For March – December 2021, **the average ADR plus 75%** of a standard deviation from 2010-2019 was used.
  - In 2022, it was assumed growth would occur at 0.2% less than the average Y/Y growth from 2010-2019.
  - In 2023-2025, it was assumed growth would be equivalent to the average Y/Y rate from 2010-2019.

Hotel Occupancy Tax Revenues: Pessimistic Scenario Forecast

Projected Hotel Occupancy Tax Revenues: Pessimistic Scenario

	2019	*2020*	*2021*	*2022*	*2023*	*2024*	*2025*
Oct	$6,973,024	$7,262,648	$5,221,608	$5,591,113	$6,401,514	$6,717,520	$7,049,125
Nov	$7,391,983	$7,321,878	$1,780,337	$4,789,215	$5,540,249	$5,824,653	$6,123,657
Dec	$6,591,698	$6,578,878	$745,775	$4,704,842	$5,470,222	$5,749,254	$6,042,521
Jan	$6,129,557	$6,737,185	$3,418,556	$4,973,142	$5,262,810	$5,569,349	$5,893,743
Feb	$7,600,055	$7,812,618	$4,052,936	$5,965,460	$6,241,200	$6,529,686	$6,831,506
Mar	$10,790,978	$2,341,691	$7,403,879	$8,478,192	$8,951,783	$9,451,828	$9,979,806
Apr	$10,148,067	$2,184,335	$6,080,293	$6,988,220	$7,345,489	$7,721,022	$8,115,754
May	$7,272,732	$823,653	$5,450,207	$6,190,030	$6,522,348	$6,872,508	$7,241,466
Jun	$7,291,570	$2,214,056	$6,267,506	$7,046,392	$7,342,471	$7,650,991	$7,972,475
Jul	$10,639,245	$3,833,304	$7,236,977	$7,851,392	$8,150,136	$8,460,247	$8,782,159
Aug	$5,341,026	$4,037,550	$5,605,048	$6,198,021	$6,431,642	$6,674,068	$6,925,633
Sep	$7,308,616	$3,950,694	$4,581,625	$5,336,828	$5,633,159	$5,945,944	$6,276,096
Total	**$93,478,549**	**$55,098,491**	**$57,844,747**	**$74,112,847**	**$79,293,022**	**$83,167,071**	**$87,233,940**

Hotel Occupancy Tax Revenues: Optimistic Scenario Assumptions

- Consumer confidence for staying in hotels will rebound strongly into the fall as economy reopens.

- While this scenario envisions an increase in cases of coronavirus toward the end of the year, the increase in cases is relatively mild through the remainder of the year leading to enhanced consumer confidence, but there will still likely be some reduction in attendance at conventions.

- Economy stabilizes and begins to return to more normal consumer activity in 2021 with demand beginning to accelerate in 2022.

Hotel Occupancy Tax Revenues: Optimistic Scenario Methodology

- Projected year-over-year declines in demand and ADR for April through September 2020 were provided by Visit San Antonio. The ADR projections were left the same, and the room demand projections were increased by 10% (i.e., growth was increased by 10%).

- Projections for the remainder of 2020 through February 2021 reflect relatively strong return of hotel room demand but still slightly off previous year's demand levels, and while the declines in ADR are reduced over this period, they still reflect the difficulty hotels will have in raising rates back to pre-pandemic levels.

Hotel Occupancy Tax Revenues: Optimistic Scenario Methodology

Projected Change in Room Demand (Y/Y)		Projected Change in ADR (Y/Y)	
May 2020	-60%	May 2020	-45.0%
June 2020	-40%	June 2020	-35.0%
July 2020	-20%	July 2020	-30.0%
August 2020	-10%	August 2020	-20.0%
September 2020	-10%	September 2020	-15.0%
October 2020	-10%	October 2020	-15.0%
November 2020	-20%	November 2020	-15.0%
December 2020	-20%	December 2020	-10.0%
Januaruy 2021	-15%	Januaruy 2021	-10.0%
February 2021	-15%	February 2021	-10.0%

Hotel Occupancy Tax Revenues: Optimistic Scenario Methodology

- Room Demand
  - For March – December 2021, the average room demand less 75% of a standard deviation for 2010-2019 was used.
  - For 2022, the average room demand plus one standard deviation from 2017-2019 was used to reflect an acceleration in demand from a period just preceding the pandemic.
  - For 2023-2025, the average Y/Y growth rate for each month from 2010-2019 was used to forecast room demand reflecting a return to long-term growth rates.

- ADR
  - It was assumed that it will take 6 years to get back to pre-pandemic levels of the ADR.
  - For March – December 2021, the average ADR from 2010-2019 was used.
  - For 2022-2025, it was assumed growth would occur at the average Y/Y growth rate from 2010-2019.

Hotel Occupancy Tax Revenues: Optimistic Scenario Forecast

Projected Hotel Occupancy Tax Revenues: Optimistic Scenario

	2019	*2020*	*2021*	*2022*	*2023*	*2024*	*2025*
Oct	$6,973,024	$7,262,648	$5,874,309	$6,066,531	$7,386,173	$7,750,786	$8,133,397
Nov	$7,391,983	$7,321,878	$4,656,265	$5,214,064	$6,465,721	$6,797,633	$7,146,584
Dec	$6,591,698	$6,578,878	$4,881,439	$5,134,862	$6,404,939	$6,731,652	$7,075,029
Jan	$6,129,557	$6,737,185	$4,880,190	$5,877,092	$6,219,412	$6,581,670	$6,965,028
Feb	$7,600,055	$7,812,618	$5,812,855	$6,837,463	$7,153,510	$7,484,165	$7,830,104
Mar	$10,790,978	$2,341,691	$8,069,873	$9,742,040	$10,286,229	$10,860,817	$11,467,501
Apr	$10,148,067	$2,184,335	$6,655,067	$8,040,009	$8,451,049	$8,883,103	$9,337,246
May	$7,272,732	$1,647,307	$5,876,519	$7,053,647	$7,432,330	$7,831,343	$8,251,777
Jun	$7,291,570	$3,321,084	$6,728,165	$8,014,697	$8,351,464	$8,702,381	$9,068,042
Jul	$10,639,245	$5,111,072	$7,641,581	$8,678,244	$9,008,450	$9,351,220	$9,707,033
Aug	$5,341,026	$5,191,136	$5,953,514	$6,905,061	$7,165,332	$7,435,414	$7,715,675
Sep	$7,308,616	$5,079,464	$5,007,749	$6,188,354	$6,531,967	$6,894,658	$7,277,488
Total	**$93,478,549**	**$60,589,295**	**$72,037,524**	**$83,752,066**	**$90,856,576**	**$95,304,841**	**$99,974,905**

Airport Revenues: Methodology

- From 2011 to 2019 there is a 97% correlation between total passengers and total airport revenues.
- This relationship forms the basis of the forecast of revenues.
- Total passengers were forecast for each month under three scenarios (assumptions described below).
- The change in passengers was forecast for each year, and the monthly number of passengers was calculated by multiplying the annual number of passengers by the average proportion of passengers in each month to the total in the respective year (see table on following slide).

Airport Revenues: Methodology

- The projections also considered the forecasts published by the International Air Transport Association (IATA) covering the next five years and the International Civil Aviation Organization (ICAO) covering the period through September 2020.
  - Some key insights taken from these studies:
    - Air travel measured by RPKs* may recover slower than overall economy (IATA). (However, this considers a sharp decline in international travel, and only 4% of San Antonio passengers are international.)
    - Domestic air travel as measured by RPKs will recover by 2022 but international travel may not recover until 2023-24 (IATA). (This should benefit San Antonio since it is mostly a domestic travel market.)
    - The forecasts of passengers provided by ICAO (shown in a chart below)
    *revenue passenger kilometers (RPK)

Sources: https://www.icao.int/sustainability/Documents/COVID-19/ICAO_Coronavirus_Econ_Impact.pdf;
https://www.iata.org/en/iata-repository/publications/economic-reports/covid-19-outlook-for-air-travel-in-the-next-5-years/

Proportion of Passengers

Proportion of Passengers in Each Month to Annual Total

January	7.2%
February	6.8%
March	8.6%
April	8.3%
May	8.6%
June	9.1%
July	9.4%
August	8.5%
September	7.6%
October	8.7%
November	8.4%
December	8.5%

ICAO Forecast of International Passengers

Scenarios 1 & 2: 705 - 1,117 million and 642 - 1,054 million less passengers than Baseline and 2019
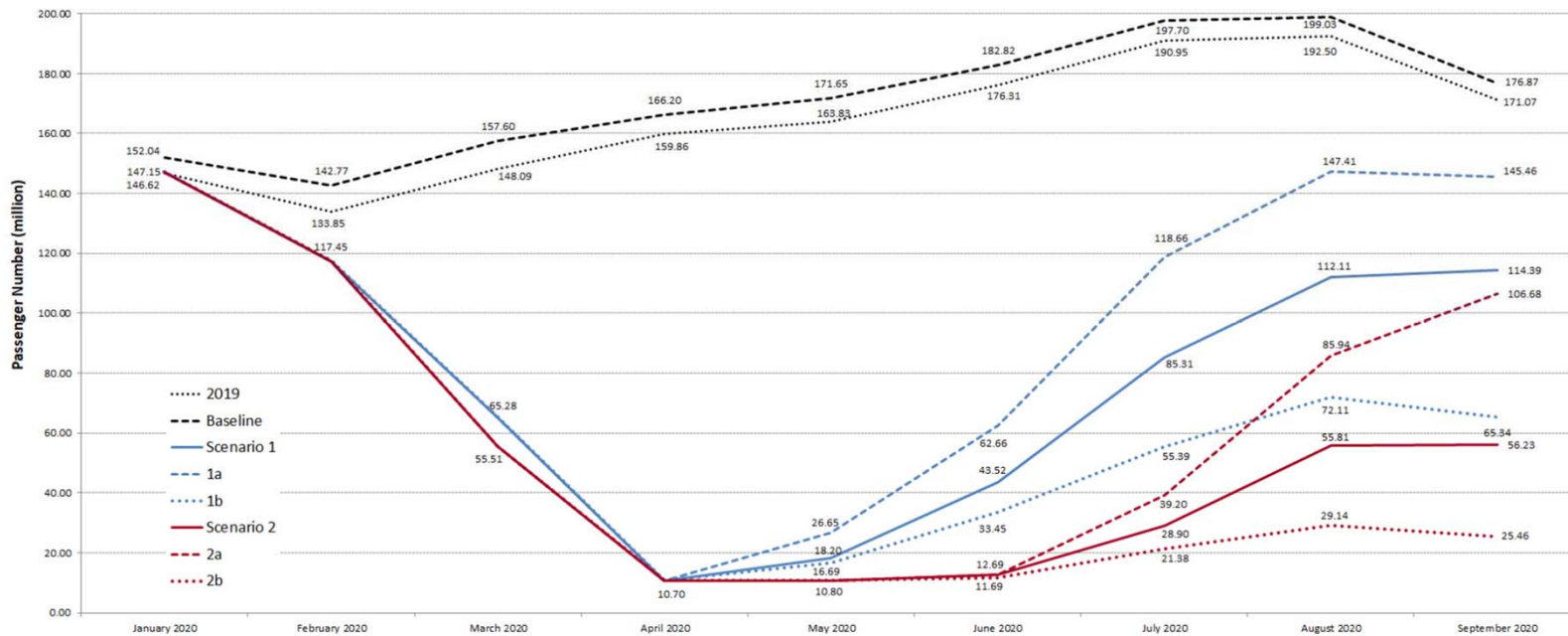
Note: Number of international passengers departing from each country and territory, which are aggregated at the regional level to avoid double counting

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Airport Revenues:
Baseline Scenario Assumptions

- Modest recovery in consumer confidence for air travel through remainder of 2020 and into 2021.

- Passenger volume in 2022 recovers to 2019 level as consumer confidence continues to improve.

- Passenger volume in 2023-2025 grows at the long-term year-over-year rate 2.0% annually (excludes growth rate in 2018 which was an outlier rate of growth at 10.8%).

Total Passengers: Baseline Scenario

Total Passengers: Baseline Scenario

Calendar Year	Total Passengers	Change from 2019	Year-over-Year Change
2019	10,363,040		
2020	5,784,451	-44%	-44%
2021	8,781,501	-15%	52%
2022	10,368,023	0%	18%
2023	10,575,384	2%	2.0%
2024	10,786,892	4%	2.0%
2025	11,002,629	6%	2.0%

Airport Revenues: Baseline Scenario

Projected Airport Revenues: Baseline Scenario

	2019	*2020*	*2021*	*2022*	*2023*	*2024*	*2025*
Oct	$10,747,922	$18,893,336	$7,292,476	$8,499,245	$10,034,773	$10,235,469	$10,440,178
Nov	$14,052,663	$8,891,839	$7,714,176	$8,264,418	$9,757,521	$9,952,672	$10,151,725
Dec	$11,635,117	$11,842,630	$8,812,810	$8,358,882	$9,869,052	$10,066,433	$10,267,761
Jan	$10,073,544	$12,765,945	$7,107,693	$8,391,815	$8,559,651	$8,730,844	$8,905,461
Feb	$9,256,787	$11,031,565	$6,644,352	$7,844,764	$8,001,659	$8,161,692	$8,324,926
Mar	$12,701,121	$8,170,667	$8,464,346	$9,993,570	$10,193,441	$10,397,310	$10,605,256
Apr	$12,261,790	$4,316,409	$8,112,193	$9,577,795	$9,769,351	$9,964,738	$10,164,033
May	$12,324,507	$910,178	$8,400,556	$9,918,255	$10,116,620	$10,318,952	$10,525,331
Jun	$11,467,750	$2,386,232	$8,984,565	$10,607,774	$10,819,930	$11,036,328	$11,257,055
Jul	$13,843,454	$4,576,793	$9,240,557	$10,910,016	$11,128,216	$11,350,780	$11,577,796
Aug	$10,620,298	$5,481,232	$8,339,669	$9,846,367	$10,043,295	$10,244,161	$10,449,044
Sep	$19,280,868	$5,919,320	$7,496,014	$8,850,292	$9,027,298	$9,207,844	$9,392,001
Total	**$148,265,821**	**$95,186,147**	**$96,609,406**	**$111,063,193**	**$117,320,808**	**$119,667,224**	**$122,060,569**

Airport Revenues:
Pessimistic Scenario Assumptions

- Weak recovery in consumer confidence for air travel leading to smaller gains in the number of passengers relative to baseline scenario through remainder of 2020 and into 2021 and 2022.

- Pre-COVID levels of passenger volume not attained until 2023.

- Passenger volume in 2024 and 2025 grows at the long-term year-over-year rate 2.0% annually (excludes growth rate in 2018 which was an outlier rate of growth at 10.8%).

Total Passengers: Pessimistic Scenario

Total Passengers: Pessimistic Scenario

Calendar Year	Total Passengers	Change from 2019	Year-over-Year Change
2019	10,363,040		
2020	3,542,194	-66%	-66%
2021	7,748,383	-25%	119%
2022	9,298,059	-10%	20%
2023	10,368,023	0%	12%
2024	10,575,384	2%	2%
2025	10,786,892	4%	2%

Airport Revenues: Pessimistic Scenario

Projected Airport Revenues: Pessimistic Scenario

	2019	*2020*	*2021*	*2022*	*2023*	*2024*	*2025*
Oct	$10,747,922	$18,893,336	$2,996,908	$7,499,334	$8,999,200	$10,034,773	10,235,469
Nov	$14,052,663	$8,891,839	$3,333,286	$7,292,134	$8,750,560	$9,757,521	9,952,672
Dec	$11,635,117	$11,842,630	$3,960,813	$7,375,484	$8,850,581	$9,869,052	10,066,433
Jan	$10,073,544	$12,765,945	$6,271,494	$7,525,792	$8,391,815	$8,559,651	8,730,844
Feb	$9,256,787	$11,031,565	$5,862,664	$7,035,196	$7,844,764	$8,001,659	8,161,692
Mar	$12,701,121	$8,170,667	$7,468,541	$8,962,249	$9,993,570	$10,193,441	10,397,310
Apr	$12,261,790	$4,316,409	$7,157,818	$8,589,381	$9,577,795	$9,769,351	9,964,738
May	$12,324,507	$910,178	$7,412,255	$8,894,706	$9,918,255	$10,116,620	10,318,952
Jun	$11,467,750	$1,051,955	$7,927,557	$9,513,068	$10,607,774	$10,819,930	11,036,328
Jul	$13,843,454	$1,608,654	$8,153,432	$9,784,119	$10,910,016	$11,128,216	11,350,780
Aug	$10,620,298	$1,949,265	$7,358,531	$8,830,238	$9,846,367	$10,043,295	10,244,161
Sep	$19,280,868	$2,281,317	$6,614,130	$7,936,956	$8,850,292	$9,027,298	9,207,844
Total	**$148,265,821**	**$83,713,759**	**$74,517,429**	**$99,238,657**	**$112,540,990**	**$117,320,808**	**$119,667,224**

Airport Revenues:
Optimistic Scenario Assumptions

- Strong recovery in pent-up demand for air travel as consumer confidence recovers quickly leading to larger gains in the number of passengers relative to baseline scenario through remainder of 2020 and into 2021 and 2022.

- Passenger traffic only down 5% from 2019 in 2021 and up 7% from 2019 in 2022.

- Passenger volume in 2023-2025 grows at the long-term year-over-year rate 2.0% annually (excludes growth rate in 2018 which was an outlier rate of growth at 10.8%).

Total Passengers: Optimistic Scenario

Total Passengers: Optimistic Scenario

Calendar Year	Total Passengers	Change from 2019	Year-over-Year Change
2019	10,363,040		
2020	6,723,468	-35%	-35%
2021	9,814,618	-5%	46%
2022	11,054,359	7%	13%
2023	11,275,447	9%	2%
2024	11,500,956	11%	2%
2025	11,730,975	13%	2%

Airport Revenues: Optimistic Scenario

Projected Airport Revenues: Optimistic Scenario

	2019	*2020*	*2021*	*2022*	*2023*	*2024*	*2025*
Oct	$10,747,922	$18,893,336	$8,591,136	$9,499,156	$10,699,049	$10,913,030	$11,131,291
Nov	$14,052,663	$8,891,839	$8,666,543	$9,236,702	$10,403,444	$10,611,513	$10,823,743
Dec	$11,635,117	$11,842,630	$9,604,972	$9,342,280	$10,522,357	$10,732,804	$10,947,460
Jan	$10,073,544	$12,765,945	$7,943,892	$8,947,331	$9,126,278	$9,308,803	$9,494,979
Feb	$9,256,787	$11,031,565	$7,426,041	$8,364,067	$8,531,348	$8,701,975	$8,876,015
Mar	$12,701,121	$8,170,667	$9,460,152	$10,655,118	$10,868,220	$11,085,585	$11,307,296
Apr	$12,261,790	$4,316,409	$9,066,569	$10,211,820	$10,416,056	$10,624,378	$10,836,865
May	$12,324,507	$2,997,597	$9,388,857	$10,574,817	$10,786,314	$11,002,040	$11,222,081
Jun	$11,467,750	$3,681,841	$10,041,572	$11,309,981	$11,536,181	$11,766,905	$12,002,243
Jul	$13,843,454	$5,898,397	$10,327,681	$11,632,230	$11,864,875	$12,102,172	$12,344,216
Aug	$10,620,298	$6,822,428	$9,320,806	$10,498,171	$10,708,135	$10,922,297	$11,140,743
Sep	$19,280,868	$7,300,214	$8,377,898	$9,436,159	$9,624,882	$9,817,379	$10,013,727
Total	**$148,265,821**	**$102,612,868**	**$108,216,119**	**$119,707,833**	**$125,087,139**	**$127,588,881**	**$130,140,659**

Number of Businesses Permanently Closed: Methodology

- A = (# jobs lost from closing establishments)$_i$/(total job losses)$_i$ = Proportion of jobs lost from closing establishments in industry i relative to total jobs lost in the industry
  – Jobs lost from closing establishments and total job losses were calculated as the average in each industry from Q1 2007 – Q4 2009 to capture the period of the Great Recession.
  – Data source: U.S. Bureau of Labor Statistics – Business Employment Dynamics
- B = (A)(jobs forecast to be lost in industry i in 2020) = jobs lost in industry i from closing establishments
- C = (# establishments in industry i with employment lost by closing)/(job losses from closing establishments in industry i) = establishments per job lost
  – Number of establishments with employment lost by closing and jobs lost from closing establishments were calculated as the average in each industry from Q1 2007 – Q4 2009 to capture the period of the Great Recession.
  – Data source: U.S. Bureau of Labor Statistics – Business Employment Dynamics
- # businesses lost = (B)(C)

Small Businesses Permanently Closed: Methodology

- To project the number of small businesses that will permanently close:
  - Used the Small Business Administration (SBA) definition of small business by industry. The SBA defines small businesses by either or employment or revenue by six-digit NAICS code, but for this study, the average by two-digit NAICS code was used.
  - Data from Infogroup on all businesses in the San Antonio MSA was used.
  - Using the definition of small business, the proportion of small businesses to all businesses in each industry was calculated.
  - The proportion of small businesses was multiplied by the number of establishments lost to get the number of these establishments that are projected to be small businesses.
  - A similar analysis was conducted to calculate the number of microbusinesses lost. Microbusinesses are defined as those with 25 or fewer employees.

Nonprofits Permanently Closed: Methodology

- To project the number of establishments lost that will be nonprofits:
  - Data were pulled from the BLS on the number of nonprofit establishments in the San Antonio MSA in 2017 (most recent data available).
  - The proportion of nonprofit establishments to total number of private establishments was calculated by industry.
  - This proportion was multiplied by the number of establishments lost to get the number of these establishments that are projected to be nonprofits.
  - Nonprofits do not exist in every industry or data could not be reported due to disclosure restrictions (probably due to the existence of too few nonprofits in that industry).

Establishments Permanently Closed: 2020

Establishments Permanently Closed Due to Pandemic: 2020

Industry	Establishments	% of All Establishments	Small Businesses	Microbusinesses	Nonprofits
Agriculture, Forestry, Fishing and Hunting	0	0.00%	0	0	N/A
Mining, Quarrying, and Oil and Gas Extraction	10	5.93%	10	9	N/A
Construction	73	1.31%	72	69	N/A
Utilities	0	0.00%	0	0	N/A
Manufacturing	12	0.64%	12	11	N/A
Wholesale Trade	76	3.68%	75	70	N/A
Retail Trade	353	5.09%	350	344	N/A
Transportation and Warehousing	12	1.04%	12	11	N/A
Information	20	2.35%	20	19	N/A
Finance and Insurance	149	5.26%	148	145	N/A
Real Estate and Rental and Leasing	70	2.00%	70	69	N/A
Professional, Scientific, and Technical Services	17	0.32%	17	17	N/A
Management of Companies and Enterprises	4	2.25%	N/A	N/A	N/A
Administrative, Support, Waste Mgt. and Remediation Services	99	4.31%	98	94	N/A
Educational Services	17	4.48%	17	17	3
Health Care and Social Assistance	170	1.08%	169	166	7
Arts, Entertainment, and Recreation	37	3.77%	37	35	3
Accommodation and Food Services	557	14.50%	555	512	N/A
Other Services (except Public Administration)	61	1.21%	61	59	2
Total	1,732	2.93%	1,724	1,647	15

Businesses Permanently Closed by Gender and Ethnicity of Ownership: 2020

- To calculate the impacts by gender and ethnicity:
  - The Infogroup data provide the gender and ethnicity of the owner, although not all firms reported data.
  - The Infogroup data categorize the data into 168 different race/ethnicities, which cannot be summarized into broader categories like white, African-American, Asian. However, Hispanic is provided, so the number of businesses with a Hispanic owners as a proportion of all businesses by industry was calculated, and all other ethnicities were included in an "Other" category.
  - The proportions were multiplied by the number of establishments lost to get the number of establishments that are projected to go out of business by gender and race/ethnicity.

Establishments Permanently Closed by Gender and Ethnicity: 2020

Establishments Permanently Closed by Gender and Ethnicity of Ownership: 2020

Industry	Gender		Ethnicity	
	Female	*Male*	*Hispanic*	*All Other*
Agriculture, Forestry, Fishing and Hunting	0	0	0	0
Mining, Quarrying, and Oil and Gas Extraction	2	8	1	9
Construction	11	62	22	51
Utilities	0	0	0	0
Manufacturing	2	10	3	9
Wholesale Trade	12	64	18	58
Retail Trade	114	239	108	245
Transportation and Warehousing	2	9	4	7
Information	5	16	5	16
Finance and Insurance	53	96	43	106
Real Estate and Rental and Leasing	35	35	18	52
Professional, Scientific, and Technical Services	5	12	4	13
Management of Companies and Enterprises	N/A	N/A	N/A	N/A
Administrative, Support, Waste Mgt. and Remediation Services	24	75	27	72
Educational Services	9	9	5	13
Health Care and Social Assistance	94	75	37	133
Arts, Entertainment, and Recreation	13	24	9	28
Accommodation and Food Services	194	363	225	332
Other Services (except Public Administration)	23	38	21	40
Total	599	1,133	549	1,183

Estimating Job Losses - Gender Ratios

- Sources for all Gender and Race/Ethnicity estimates are:
  - Workforce Solutions Alamo (WSA) and TXP employment projections
- WSA provided internal data on number of unemployment insurance claims for the period February through May 2020.
- These included data on Industry, Gender and Ethnicity
  - We estimated a female/male ratio of 54/46, meaning 54% of claims were by women and 46 % were by men. These numbers were rounded to the nearest whole number.
- These ratios were applied to each industry
  - Differences in the level of disaggregation between TXP data and WSA data necessitated averaging.

Total and Women's Jobs Lost: 2019 -2020

Industry	TXP Jobs 12/1/2019	Women in Jobs	Men in Jobs	TXP Jobs 12/1/2020	Women in Jobs	Men in Job	2019 -2020 Change Total Jobs	2019-2020 Change in Women's Jobs	2019-2020 Change in Men's Jobs
Agriculture, etc.	2,202	1,189	1,013	2,202	1188.81	1012.69	0.00	0.00	0.00
Mining, Quarrying, & Oil and Gas	10,413	5,623	4,790	9,977	5387.70	4589.52	-435.88	-235.37	-200.50
Construction	56,818	30,682	26,136	54,991	29694.96	25295.70	-1827.42	-986.81	-840.61
Utilities	6,926	3,740	3,186	6,894	3722.86	3171.33	-32.30	-17.44	-14.86
Manufacturing	50,468	27,253	23,215	49,776	26879.15	22897.06	-691.88	-373.61	-318.26
Wholesale Trade	34,356	18,552	15,804	33,192	17923.67	15268.31	-1163.62	-628.36	-535.27
Retail Trade	117,123	63,246	53,876	105,518	56979.60	48538.18	-11605.01	-6266.70	-5338.30
Transportation & Warehousing	38,948	21,032	17,916	38,641	20866.37	17775.06	-306.23	-165.36	-140.86
Information	19,494	10,527	8,967	18,945	10230.19	8714.60	-549.21	-296.57	-252.64
Finance and Insurance	67,491	36,445	31,046	65,666	35459.50	30206.24	-1825.42	-985.73	-839.69
Real Estate & Rental	17,863	9,646	8,217	17,005	9182.57	7822.19	-858.25	-463.45	-394.79
Professional, Scientific Services	54,684	29,529	25,155	54,368	29358.78	25009.33	-315.88	-170.58	-145.31
Management of Companies	14,180	7,657	6,523	14,099	7613.63	6485.68	-81.09	-43.79	-37.30
Administrative, Support Services	70,397	38,014	32,382	68,579	37032.40	31546.12	-1818.03	-981.73	-836.29
Educational Services	99,149	53,541	45,609	98,691	53292.95	45397.70	-458.61	-247.65	-210.96
Health Care & Social Assistance	171,188	92,441	78,746	166,681	90007.50	76673.06	-4507.22	-2433.90	-2073.32
Arts, Entertainment, & Recreation	16,592	8,960	7,632	14,891	8041.05	6849.78	-1701.55	-918.84	-782.71
Accommodation & Food Services	120,527	65,084	55,442	94,747	51163.58	43583.79	-25779.46	-13920.91	-11858.55
Other Services	29,821	16,104	13,718	28,814	15559.80	13254.64	-1006.93	-543.74	-463.19
Public Administration	44,120	23,825	20,295	43,826	23665.91	20159.85	-293.92	-158.72	-135.20
Unclassified	474	256	218	474	256.22	218.27	0.00	0.00	0.00

For more information on Gender and Ethnic calculations contact Belinda Román, PhD at belinda@romaneconomics.com
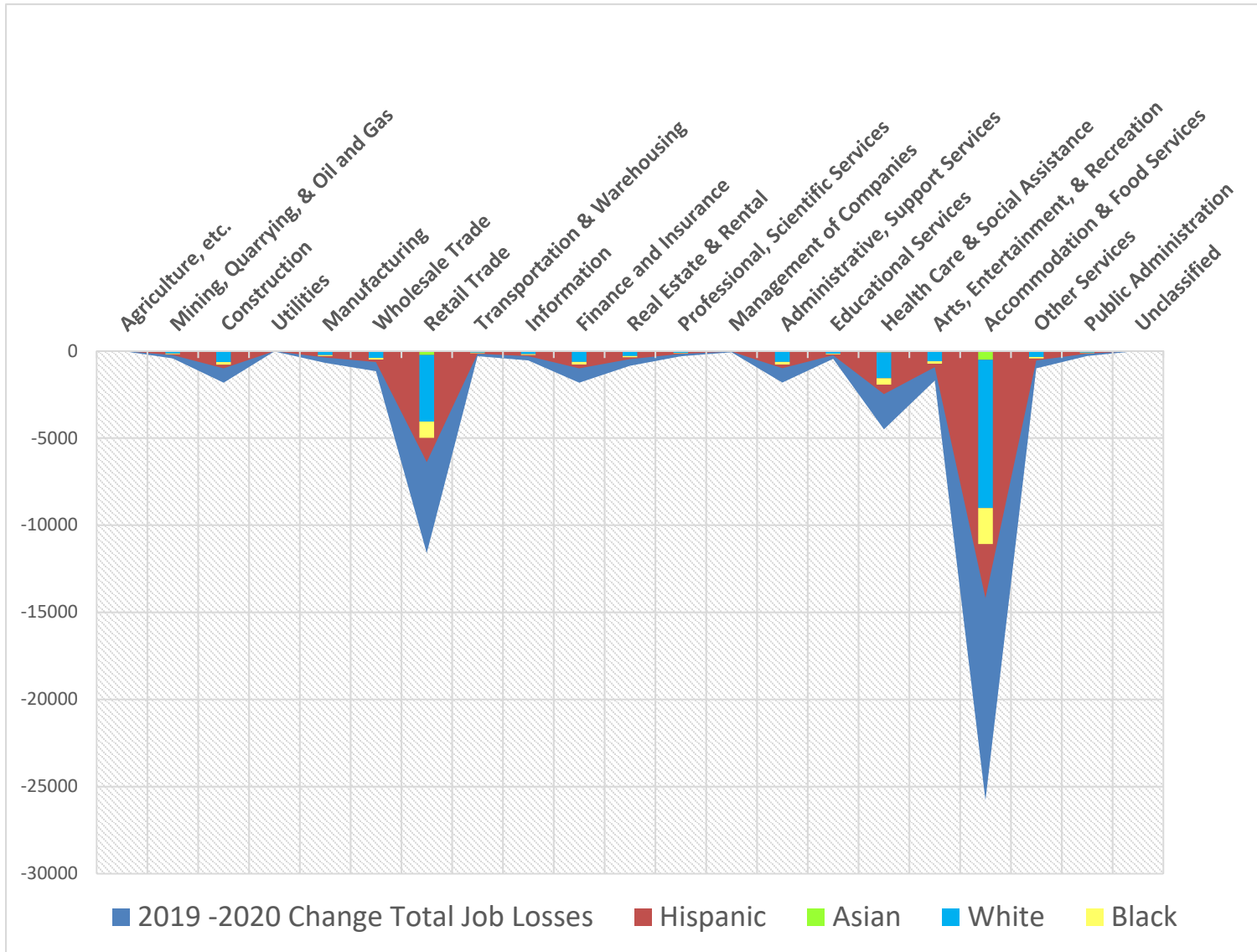
Absolute Change in Jobs: 2019-2020
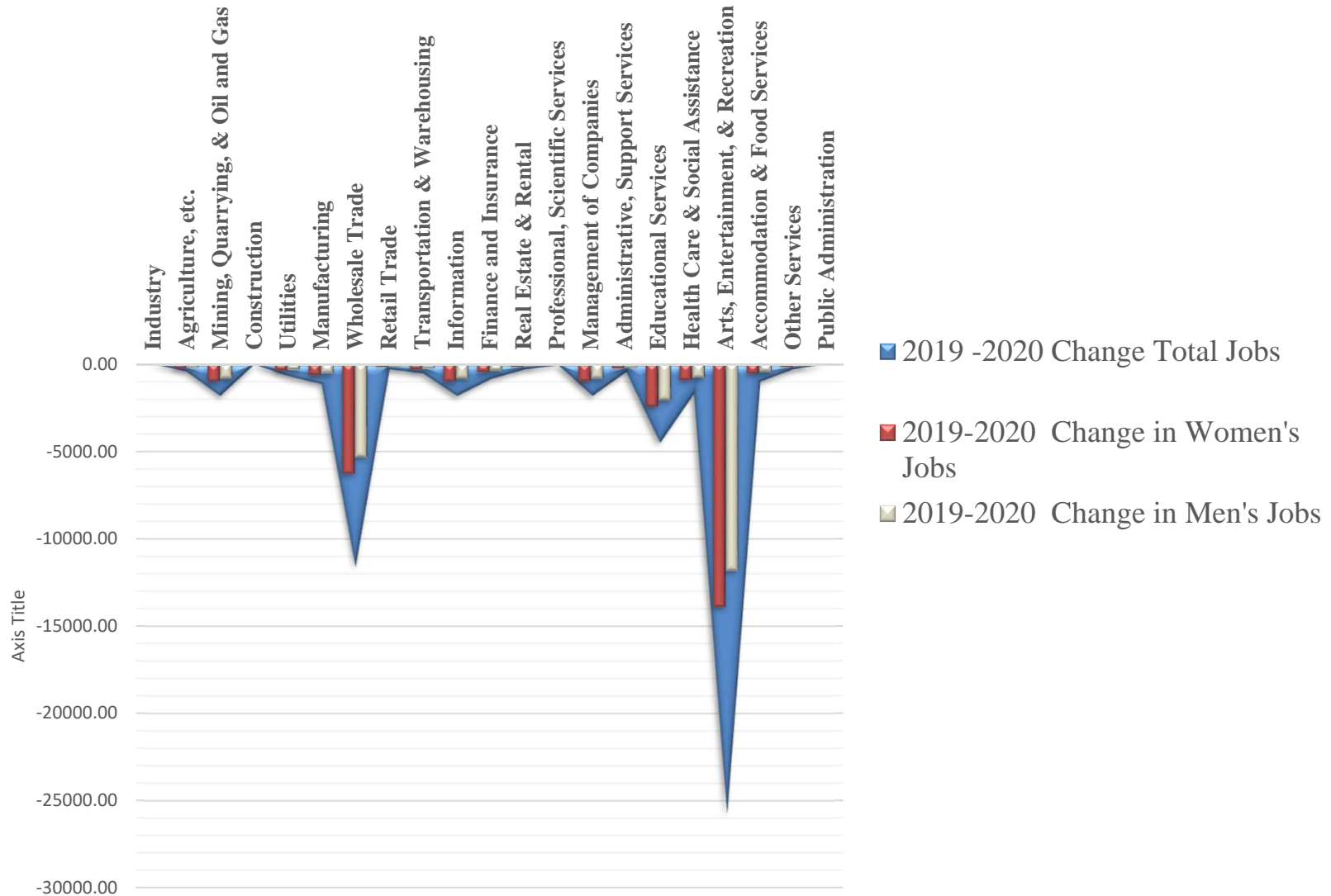
For more information on Gender and Ethnic calculations contact Belinda Román, PhD at belinda@romaneconomics.com

Estimating Job Losses by Industry - Race/Ethnicity Ratios

- Using same TXP projections and WSA internal data:
  - We calculated the average Ethnic and Race Composition for all job losses using WSA data
    - Data included Gender and Race/Ethnicity by Industry
    - Example: Hispanic job losses are an average of job losses in all Industries
    - Estimated average was 55%
  - This was done to accommodate differing levels of disaggregation between TXP projections and Alamo Workforce data
  - Native, Pacific and Other are not included
  - Averages by Race and Ethnicity were applied to each Industry.

Estimated Job Losses by Race and Ethnicity: 2019-2020

For more information on Gender and Ethnic calculations contact Belinda Román, PhD at belinda@romaneconomics.com

Estimated Job Losses by Race and Ethnicity: 2019-2020

Industry	TXP Jobs 12/1/2019	TXP Jobs 12/1/2020	2019 -2020 Change Total Job Losses	Hispanic	White	Black	Asian
Agriculture, etc.	2,202	2,202	0	0	0	0	0
Mining, Quarrying, & Oil and Gas	10,413	9,977	-436	-240	-144	-35	-9
Construction	56,818	54,991	-1827	-1005	-603	-146	-37
Utilities	6,926	6,894	-32	-18	-11	-3	-1
Manufacturing	50,468	49,776	-692	-381	-228	-55	-14
Wholesale Trade	34,356	33,192	-1164	-640	-384	-93	-23
Retail Trade	117,123	105,518	-11605	-6383	-3830	-928	-232
Transportation & Warehousing	38,948	38,641	-306	-168	-101	-24	-6
Information	19,494	18,945	-549	-302	-181	-44	-11
Finance and Insurance	67,491	65,666	-1825	-1004	-602	-146	-37
Real Estate & Rental	17,863	17,005	-858	-472	-283	-69	-17
Professional, Scientific Services	54,684	54,368	-316	-174	-104	-25	-6
Management of Companies	14,180	14,099	-81	-45	-27	-6	-2
Administrative, Support Services	70,397	68,579	-1818	-1000	-600	-145	-36
Educational Services	99,149	98,691	-459	-252	-151	-37	-9
Health Care & Social Assistance	171,188	166,681	-4507	-2479	-1487	-361	-90
Arts, Entertainment, & Recreation	16,592	14,891	-1702	-936	-562	-136	-34
Accommodation & Food Services	120,527	94,747	-25779	-14179	-8507	-2062	-516
Other Services	29,821	28,814	-1007	-554	-332	-81	-20
Public Administration	44,120	43,826	-294	-162	-97	-24	-6
Unclassified	474	474	0	0	0	0	0
TOTAL	**1,043,234**	**987,976**	-55258	-30392	-18235	-4421	-1105

Conclusions

- Consumer activity (retail & personal services) and hospitality are the two sectors hit first, and hardest, by COVID-19
- Other sectors also heavily influenced, especially in the near-term
    - Oil
    - Airlines
    - Non-essential Medical
    - Sales
    - Any unique transaction business, eg, Real Estate
- Overall economic impact will hit in coming months/years. Starting point is job loss/gain – other measures of impact best derived from there.
- Local governments could experience impacts in other areas
    - COVID-19 specific costs
    - Fund transfer from other entities
    - Social services

Economic Impact and Tax Revenue Forecasting During COVID-19

June 2020

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