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Pandemic-Driven Industry Cutbacks and Closures: Georgia Sales Tax Revenue Impacts

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Introduction

With the spread of the COVID-19 outbreak to the United States and Georgia in recent weeks, certain key industries have been most directly and severely impacted because of the nature of their services that make *social distancing* impractical or impossible. These industries, from airlines to restaurants, serve their customers in larger numbers and in closer proximity to one another than public health guidelines allow. As a result, they faced cutbacks and closures earlier and more severely than other industries.

The purpose of this report is to estimate the impact on Georgia's economy and sales tax revenues from these cutbacks and closures. Though the ultimate depth and duration of the impact cannot be known at this time, depending largely on progress made in the fight against the pandemic, we develop alternate cases of low, moderate and severe reductions in business volumes and then estimate economic impacts using the IMPLAN economic model for Georgia.

The IMPLAN model provides economic impact measures that also enable estimation of state and local sales tax revenue losses from the alternate cutback cases on a monthly basis. The impact on state income tax revenues, on the other hand, is considerably harder to predict because of recent federal policies designed in part to incentivize employers to keep workers on their payrolls rather than laying them off while also substantially expanding unemployment payments. For that reason, we focus for now on sales tax revenues.

The report proceeds by first describing what is known about cutbacks and closures in travel-related, restaurant, entertainment and other early impacted industries (also listed by NAICS code and corresponding IMPLAN sector code in the appendix). We next provide estimates of the size and relative importance of these industries to Georgia's economy and describe the alternate cases for the severity of reductions by industry. After briefly reviewing the IMPLAN model's methodology, we present the model results for the alternate cases in terms of direct, indirect and induced economic impact measures, followed by estimated sales tax revenue impacts. Our conclusions are limited to the near-term depth of the economic and revenue impacts from cutbacks in these specific sectors and to plausible short- to extended-duration scenarios for the remainder of the calendar year. With these qualifications in mind, we find that the cutbacks in these sectors are likely to reduce state gross domestic product (GDP) by between 2.4 percent and 4.1 percent for the full year and to cost the state and local governments around \$729 million to \$1.27 billion in lost sales tax revenues.

Immediate-Impact Georgia Industries

AIRLINES

Voluntary cutbacks in the passenger airline industry began almost immediately after the U.S. State Department raised the travel advisory level for China on January 30, 2020 due to the COVID-19 outbreak there. The next day, Delta, American and United announced they were temporarily cancelling flights to or from mainland China. Initially focused on China, official travel restrictions expanded beginning February 29 and by March 11 included 30-day travel bans on 26 countries in continental Europe (the so-called Schengen area) as well as Iran and South Korea (the United Kingdom and Ireland have been added since). U.S. based airlines responded to the restrictions and a general fall in passenger

demand by reducing scheduled capacity by 40-50 percent; on March 18, Delta announced it would raise its capacity cutbacks to 70 percent.¹

Moody's Investors Service (Moody's), in placing Delta and other airlines on review for a possible downgrade, indicated that it was anticipating average domestic capacity cuts of 50 percent for the second quarter and 25 percent for the third, relative to year-earlier levels. Moody's assumes a 90 percent capacity cut on international routes for the second quarter and a slower recovery than domestic. For Delta, specifically, they assume a 35 percent reduction for the full year.² On April 3, Delta's CEO warned that revenues are now expected to be down 90 percent for the quarter.³

The U.S. Transportation Security Administration (TSA) reports that screenings at U.S. airports are down more than 95 percent for the seven days ending April 12, 2020, compared to the same period a year ago. For the latter half of March, screenings were down 81 percent; for the full month, they were down 52 percent.⁴ Other reports suggest passenger airlines, which already provide air cargo services on passenger flights, have been transporting more cargo in recent weeks, including medical supplies and equipment as well as meeting generally increased demand for air cargo services, using the passenger compartments of their aircraft.⁵

In comparison, after the September 11, 2001, terrorist attacks, scheduled passenger airlines suffered drops in excess of 30 percent, on average, in revenue passenger miles (RPMs) in the month of the attacks versus the year-earlier period. Traffic partially recovered over the next several months and was down year-to-year by roughly 10 percent in February 2002, likely in part due to the recession from March to November 2001. A study from the Bureau of Transportation Statistics estimated the post-9/11 drop in monthly RPMs (for Sept. 12, 2001 through May 2002) at 26.4 percent compared to a forecast in the absence of the 9/11 attacks of a 7.8 percent decline.⁶ After 9/11, the ramped up security in air travel and creation of the Transportation Security Administration provided visible signals to travelers that it was safe to resume normal travel plans. In the present case, it is not yet clear what signals will draw passengers back or when they will appear.

¹ For more on the timeline of restrictions, capacity cuts and passenger volumes, see "Delta, American, United to suspend all China mainland flights as coronavirus crisis grows," USA Today, Jan 31, 2020 (www.usatoday.com/story/travel/2020/01/31/coronavirus-china-flight-ban-delta-cuts-all-flights-white-house/4620989002/); "You're Grounded: The COVID-19 Effect on Global Flight Capacity," The Visual Capitalist, March 18, 2020 (www.visualcapitalist.com/global-flight-capacity-coronavirus/); and "U.S. Domestic Passenger Flights Could Virtually Shut Down, Voluntarily or by Government Order," Wall Street Journal, March 23, 2020 (www.wsj.com/articles/u-s-domestic-passenger-flights-could-virtually-shut-down-voluntarily-or-by-government-order-11585013673).

² Moody's Investors Service, Rating Action (https://www.moodys.com/research/Moodys-places-all-ratings-for-Delta-Air-Lines-on-review--PR_419865); Sector In-Depth: Passenger Airlines – Global (www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_1219093).

³ "Delta CEO: 'We still haven't seen the bottom,'" CNN, April 4, 2020. (www.cnn.com/2020/04/03/business/airlines-revenue-outlook/index.html)

⁴ Passenger screening counts are available from TSA at www.tsa.gov/coronavirus/passenger-throughput.

⁵ "More Airlines Are Stuffing Cargo Into Passenger Seats To Counter Coronavirus Slump," Forbes, March 26, 2020 (www.forbes.com/sites/cathybuyck/2020/03/26/airlines-spot-revenue-opportunity-and-use-their-passenger-aircraft-to-ship-urgent-cargo/)

⁶ Estimated Impacts of September 11th on US Travel, U.S. Bureau of Transportation Statistics, 2006 (www.bts.dot.gov/archive/publications/estimated_impacts_of_9_11_on_us_travel/index), see Chapter 2. RPM data available from the Federal Reserve Bank of St. Louis, FRED Economic Data (fred.stlouisfed.org/categories/33202?t=passenger&ob=pv&od=desc).

HOSPITALITY

A direct casualty of severe reductions in air travel, and travel more generally, as a result of social distancing and stay-at-home orders, is the hospitality industry. Leisure travel to vacation destinations and to large sports and entertainment events has fallen victim to cancellation of virtually all public events and closure of amusements, museums and similar gathering spots.⁷ The impact is similar for business lodging and related services as firms suspend business travel, conferences and trade shows, and similar events are cancelled or postponed. As of March 17, the American Hotel and Lodging Association was reporting occupancy rates down to 25 percent (and expecting them to remain there through the second quarter) and forecasting a 50-percent decline in revenue for the first half of 2020 with 44 percent job losses in the industry.⁸

Moody's downgraded (or placed under review for possible downgrade) several hotel chains in March due to COVID-19 effects on the industry, reporting estimates of a 60-percent decline in revenues per available room night for the second quarter of 2020 with "some recovery in the third and fourth quarters." Recovery in the hospitality industry is likely to track closely with air travel, subject to the same uncertain timeline and signals that might draw travelers back.⁹ Industry research firm STR reports that, as of the week ending April 4, occupancy rates range from just over 9 percent for luxury and upscale hotels to just under 35 percent for economy hotels, and overall revenues per available room night down 81.6 percent from year-ago levels.¹⁰

RESTAURANTS

Starting with social distancing recommendations from public health officials, and more recently with public orders for closure to dine-in customers, restaurants and bars have experienced severe revenue losses, if they can stay open at all. Those already geared toward take-out or delivery service are at some advantage while others, such as pizza delivery chains and app-based delivery services, may be gaining business. Full-service restaurants and bars, on the other hand, have been forced by events—now by a statewide order—to close entirely or, at best, to maintain what volumes they can from take-out and delivery orders. The National Restaurant Association (NRA), prior to the pandemic, had been projecting industry revenues for 2020 in the U.S. of \$899 billion and employment of 15.6 million Americans but has recently suggested the industry could lose \$225 billion in sales and 5-7 million jobs over the next three months.¹¹

⁷ Gatherings of ten or more people are now banned in Georgia, unless provisions are made to ensure six foot minimum spacing. See Atlanta Journal Constitution, March 23, 2020 (www.ajc.com/blog/politics/breaking-kemp-bans-many-large-gatherings-orders-shelter-place-for-medically-fragile/LRp3MUBsORkUJjjaoBZZYK/).

⁸ "How the Hotel Industry Job Losses and GDP Contribution Stack Up in the COVID-19 Recession," 24/7 Wall Street, March 23, 2020 (247wallst.com/casinos-hotels/2020/03/23/how-the-hotel-industry-job-losses-and-gdp-contribution-stack-up-in-the-covid-19-recession/).

⁹ Moody's, Rating Action, March 23, 2020 (www.moody.com/research/Moodys-downgrades-Hyatts-senior-unsecured-rating-to-Baa3-ratings-are--PR_420381).

¹⁰ "U.S. performance results for week ending April 4," STR Data Insights Blog (video), April 9, 2020 (str.com/data-insights-blog/video-us-performance-results-week-ending-april-4)

¹¹ Restaurant Industry Facts at a Glance, National Restaurant Association, 2020

(<https://restaurant.org/research/restaurant-statistics/restaurant-industry-facts-at-a-glance>).

"NRA predicts \$225B loss for restaurants, urges federal economic aid", Restaurant Dive, March 19, 2020 (<https://www.restaurantdive.com/news/nra-predicts-225b-loss-for-restaurants-urges-federal-economic-aid/574466/>).

The NRA outlook should perhaps be taken with a grain of salt, so to speak, as their outlook essentially calls for the complete loss of an average quarter's sales in one quarter. Moody's suggests that quick-service restaurants (QSRs) with drive-thru service already deliver 60-70 percent of their sales through the window.¹² Meanwhile, Domino's and Papa John's pizza chains both announced in late March that they are hiring, respectively, 10,000 and 20,000 new delivery drivers as soon as possible. App-based delivery services like GrubHub, DoorDash, and Uber Eats are also reporting increased volumes and new restaurant partners. Casual chain operators like Darden Restaurant Group (operator of Olive Garden, Longhorn Steaks and other chains), on the other hand, are reporting sharp sales declines, in Darden's case a 21-percent same-store-sales decline in the second week of March and a 60 percent decline through Wednesday of the third week.¹³

ARTS, ENTERTAINMENT AND SPORTS

Among the more widely covered shutdowns are professional and amateur sports leagues, with the NBA abruptly cancelling the remainder of its season after a player was reported as testing positive for coronavirus as his teammates were warming up for a game. Soon after, the Atlantic Coast Conference terminated its championship tournament after four first-round games, and other conferences and the NCAA followed suit, particularly impacting Atlanta as the scheduled host for this year's NCAA Final Four.

Other college and professional sports have either cancelled or indefinitely postponed their seasons, or in the case of fall sports are in a holding pattern, awaiting positive news on the pandemic. Likewise, music, theater, arts and amusement venues, theme parks, and similar public-gathering establishments are closed, awaiting news of an all-clear from public health officials and lifting of closure orders.

IMPACTED INDUSTRIES IN CONTEXT

Together, the industries discussed above represent 5.3 percent of Georgia GDP and 6.1 percent of employee compensation in the state as of 2017, the latest full year available at a sufficient level of detail. Table I below breaks them down. In the analysis that follows, we also include other related industries, including other categories of passenger transportation and transportation support services.

In addition, one direct consequence of the cutbacks in restaurant sales is substitution by consumers to grocery purchases. An industry analyst at financial firm Barclays estimates that this shift will increase grocery store sales by 32-62 percent in the second quarter, though part of the increase is apparently the result of panic buying, likely to be offset by fewer purchases of the same items in later weeks.¹⁴

¹² Moody's, Outlook: Restaurants – US, March 23, 2020 (www.moody.com/research/Restaurants-US-Going-negative-as-coronavirus-takes-mounting-toll-on--PBC_1219347);

¹³ "Papa John's to hire 20,000 new team members 'immediately' in response to coronavirus," USA Today, March 23, 2020 (www.usatoday.com/story/money/2020/03/23/coronavirus-kentucky-papa-johns-add-20-000-new-team-members/2897463001/); "Coronavirus grows delivery platforms' restaurant partner networks," Restaurant Dive, March 23, 2020 (www.restaurantdive.com/news/coronavirus-grows-delivery-platforms-restaurant-partner-networks/574640/).

¹⁴ "Coronavirus Sales Boom Could Be Short-Lived and Costly, Analyst Warns," Winsight Grocery Business, March 16, 2020 (www.winsightgrocerybusiness.com/retailers/coronavirus-sales-boom-could-be-short-lived-costly-analyst-warns).

Supermarket operator Kroger reported a same-store sales increase for March of 30 percent over March 2019.¹⁵

Table I. Impacted Industries: Share of Georgia Economy and State Sales Taxes

DESCRIPTION	GDP SHARE*	EMPLOYEE COMPENSATION SHARE*	STATE TAXABLE SALES SHARE**
Air Transportation	2.0%	1.9%	0.1%
Accommodations	0.5%	0.5%	3.0%
Food Services and Drinking Places	2.2%	2.9%	14.3%
Arts, Entertainment and Recreation	0.6%	0.8%	1.2%
Total	5.3%	6.1%	18.6%

Sources: U.S. Bureau of Economic Analysis (BEA) and Georgia Department of Revenue

* 2017 BEA data

** from sales tax return data for sales periods July 2018 – June 2019; air transport includes support services

Alternate Impact Case Assumptions

Based on the information gathered with respect to the various industries, we constructed three cases for the severity of the pandemic's impacts on the various industries—that is, low, moderate, and severe business revenue loss assumptions for each. Table 2 presents these assumptions, now broken down according to IMPLAN's industry categorization for use in modeling. The table also shows estimates of the portion of lost revenues in each sector (or gains in the case of food and beverage retailers) that would have been subject to the state sales tax, generally based on Economic Census data.¹⁶

For these cases, no assumptions have yet been made as to the duration of impacts, but rather model results are reported in monthly terms for each case. Longer-term effects can be estimated by choosing different case results for a series of months, e.g., two months of severe impacts followed by a moderately impacted month and then a low-impact month.

For the transportation sectors affected, i.e., passenger transportation (air and ground) and support services, note that IMPLAN does not split out passenger versus cargo revenue within the air transport sector. However, according to U.S. Census Bureau data, passenger air transportation accounts for about 93 percent of estimated receipts for the air transport 4-digit NAICS code, 4811; thus, we do not make separate assumptions for passenger versus cargo activity. We assume for our severe-impact case a 90-percent decline in air transportation revenues and the same for the related sectors.¹⁷ Note, however, that only about 2.5 percent of air transportation revenues are subject to state or local sales tax because federal law prohibits state taxation of airfares.

For the hospitality sectors, all but about 8 percent of revenues are derived from taxable services and, based on industry reports cited above, we assume an 80-percent revenue loss for the severe case. For

¹⁵ "Kroger sees March identical-store sales jump 30% due to coronavirus," Supermarket News, April 1, 2020 (www.supermarketnews.com/retail-financial/kroger-sees-march-identical-store-sales-jump-30-due-coronavirus)

¹⁶ U.S. Census Bureau data on sales by product line by NAICS code, specifically that from the 2012 Economic Census, the latest currently available at this level of detail, available at www.census.gov/programs-surveys/economic-census/data/tables.2012.html.

¹⁷ 2017 SUSB Annual Data Tables by Establishment Industry, Statistics of U.S. Businesses, U.S. Census Bureau, March 2020 (www.census.gov/programs-surveys/susb/data.html)

restaurants, only immaterial amounts of revenue are not taxed, while the severity of expected revenue losses are smaller for limited-service restaurants than for full-service ones or for bars and other food service establishments. We assume a 50-percent revenue loss in the severe case for the limited service sector and 90 percent for all others.

Severe-case revenue loss assumptions vary across the arts, entertainment and sports sectors, even though they are all generally shut down, based on the degree to which they rely on daily audience/customer revenues as opposed to other sources. Performing arts establishments, for example, derive about three quarters of their revenue from admissions, food and beverage sales, contract performance fees, merchandise sales and arts instruction. The balance comes from private donations, government support and similar sources that do not depend on normal daily operations. Museums, historical sites, zoos and parks are even less reliant on revenues from daily visitors at around 35 percent, though some donor revenue is also earned through fundraising events that also cannot be held while group events are prohibited or discouraged. We assume a 75-percent revenue loss in the severe case for performing arts and 50 percent for museums, historical sites, etc.

Spectator sports also rely only partially on having spectators in seats to generate revenue, about 16 percent for racing and 42 percent for other sports, according to Census data. In a recent report on the outlook for the North American sports market, accounting and consulting firm PwC projects that in 2020, absent the current shutdowns, gate revenues (tickets, food and beverage, on-site merchandise sales, etc.) would account for about 27 percent of the industry's total revenues. Media rights were projected to be the largest revenue source, followed by gate revenues, sponsorships and merchandising.¹⁸ We assume, however, that a significant portion of media revenues, in particular, and some sponsorship revenues are dependent on games, matches or races occurring, which is generally not the case at this time. Thus, we assume a 75-percent revenue loss for the severe case for the spectator sports sectors.

Amusement and recreation sectors, except fitness centers, derive almost all revenue from daily visitors (admissions, bowling lane and shoe rentals, food and beverage sales, arcade games, etc.), while fitness centers tend to charge monthly or annual memberships rather than daily fees. We assume severe-case losses of 95 percent for amusement sectors, 98 percent for bowling centers and 60 percent for fitness centers.

Taxable shares of revenue for arts, entertainment and sports also differ greatly, from about 8 percent for fitness centers to 49 percent for performing arts and 95 percent for bowling centers. However, the taxable shares of audience- or visitor-dependent revenues, and thus the revenue losses from temporary shutdowns, are generally much higher. Thus, we apply larger taxable-share assumptions to the direct revenue losses for these sectors than their overall taxable revenue shares would suggest.

Finally, for retail food and beverage stores, we assume severe-case revenue gains of 30 percent; Kroger's reported March sales gains are around the lower end of industry analyst estimates. We assume that much of the gains at the higher end of the analyst estimates are from early panic buying and hoarding of certain items that are unlikely to be sustained. The taxable revenue share in this sector is relatively low—about 32 percent—at the state level because of the exemption for food for off-premise consumption, while all but about 3 percent (mostly prescription drug sales) is taxable at the local level.

¹⁸ At the gate and beyond: PwC Outlook for the sports market in North America through 2023, PwC, 2019 (www.pwc.com/us/en/industries/tmt/library/sports-outlook-north-america.html)

Table 2. Impact Scenario Assumptions by IMPLAN Sector

IMPLAN SECTOR		IMPACT SCENARIO			TAXABLE SHARE	
CODE	DESCRIPTION	LOW	MODERATE	SEVERE	TOTAL	DIRECT*
Transportation						
408	Air transportation	-50%	-70%	-90%	2.5%	2.5%
412	Transit and ground passenger transportation	-50%	-70%	-90%	96%	96%
414	Scenic and sightseeing transportation and support activities for transportation	-50%	-70%	-90%	10%	10%
Hospitality						
499	Hotels and motels, including casino hotels	-50%	-60%	-80%	92%	92%
500	Other accommodations	-50%	-60%	-80%	92%	92%
Restaurant sectors						
501	Full-service restaurants	-50%	-70%	-90%	100%	100%
502	Limited-service restaurants	-20%	-40%	-50%	100%	100%
503	All other food and drinking places	-50%	-70%	-90%	100%	100%
Arts, entertainment and sports						
488	Performing arts companies	-25%	-50%	-75%	49%	66%
489	Commercial Sports Except Racing	-25%	-50%	-75%	40%	56%
490	Racing and Track Operation	-25%	-50%	-75%	15%	20%
493	Museums, historical sites, zoos, and parks	-20%	-35%	-50%	35%	70%
494	Amusement parks and arcades	-35%	-65%	-95%	94%	100%
496	Other amusement and recreation industries	-35%	-65%	-95%	94%	100%
497	Fitness and recreational sports centers	-20%	-40%	-60%	8%	20%
498	Bowling centers	-35%	-65%	-98%	95%	100%
Other						
400	Retail - Food and beverage stores**	10%	20%	30%	32%	32%

IMPLAN sector codes as of 2017

* Estimated share of "direct" impact assumed to be subject to state sales tax

** Taxable share for local sales taxes for retail food and beverage stores is estimated to be 97%

We do not consider impacts in other retail and consumer service sectors beyond the indirect and induced losses resulting from cutbacks in the main industries of interest. Some general merchandise retailers like Walmart and Target also sell groceries in some stores and are reporting gains approaching those of supermarkets, while home improvement and hardware store also remain open and busy. It is also not yet clear how much of what would otherwise have been in-store purchases in retail sectors that have closed their stores has simply moved to online purchases from the same or competing online retailers. Many service businesses also remain open, including landscapers, pest control companies, plumbers, electricians and others, while some like hair and nail salons are closed.

We do, however, include indirect and induced effects on all goods and services sectors. We use DOR sales tax return data, specifically reported taxable and total sales, to derive assumptions for taxable sale shares for all retail sectors. Most services are not subject to sales taxes, but non-consumer, tangible goods sectors may be subject to tax on their sales within the state if the purchaser is not a reseller, a manufacturer or other business whose input purchases are exempt. Because we do not have clear data on taxable shares of intermediate goods sales for all sectors, we account for sales tax revenue losses

from sectors other than those directly analyzed here based on the known sectors' shares in July 2018–June 2019 of total state sales tax revenue. That is, the four broad sectors listed in Table 1 account for about 18.6 percent of reported sales subject to the state sales tax in Georgia, while all retail sectors together (NAICS sector codes 44 and 45) account for 49.3 percent, for a combined total of 67.9 percent. Thus, we gross up the estimated state sales tax losses from these identified sectors to account for the 32.1 percent of total sales tax revenues expected from other sectors.

IMPLAN Analysis

IMPLAN is a regional input-output model that is used to estimate how an initial change in spending or revenue for any industry category works its way through a regional economy. This analysis uses IMPLAN model data for the year 2017, adjusted forward to represent average monthly revenues in the current year.

The model uses sector multipliers to estimate the impact of the initial or direct change on suppliers of goods and services to the sectors of interest. Representing reductions in input purchases by the directly impacted sectors, these effects are referred to as indirect effects. Additional changes in purchases by business input suppliers, including workers spending wage income on consumption goods and services, are called induced effects and are also estimated as changes across the different goods and services sectors.

Results from the model of interest here include the direct, indirect and induced changes in output and in state gross domestic product (GDP). Output includes sales of not only final goods and services, which are counted as part of GDP, but also sales of intermediate goods and services, which are not. Output estimates are used, along with assumptions described above about taxable sales shares in the different sectors, to estimate changes in the state and local sales tax bases. IMPLAN measures GDP using the income approach as the sum of value added for all sectors, so changes in direct plus indirect value added reported from the model are equivalent to changes in state GDP before considering induced or multiplier effects; total value-added changes include the induced effects.

Results

Table 3 presents results for each severity case, by sector, in terms of impacts on value added, including the direct, indirect and induced effects of the shock to each. To illustrate the relative significance to the overall state economy of these estimated impacts, we also show them as a percent of CY 2019 average monthly state GDP, about \$51.4 billion, using BEA estimates.

The largest impacts on state GDP from pandemic-induced cutbacks come from transportation at between \$0.9 and \$1.6 billion per month, followed by restaurants and bars at \$0.8–\$1.6 billion, including induced effects. As a percent of average monthly GDP for the state in 2019, these losses represent 1.7–3.1 percent and 1.5–3.0 percent, respectively. Effects for all five broad sectors range from \$1.9 to \$3.6 billion per month or 3.6–6.9 percent of monthly 2019 GDP.

Table 3. IMPLAN Monthly State GDP Impact Estimates (\$ millions)

SECTOR	CHANGE IN STATE VALUE ADDED				PCT OF 2019 MONTHLY AVG STATE GDP	
	DIRECT	INDIRECT	INDUCED	TOTAL	DIR + IND	TOTAL
Transportation						
Low	(\$474)	(\$184)	(\$237)	(\$894)	-1.3%	-1.7%
Moderate	(\$663)	(\$257)	(\$331)	(\$1,252)	-1.8%	-2.4%
Severe	(\$853)	(\$331)	(\$426)	(\$1,610)	-2.3%	-3.1%
Accommodations						
Low	(\$91)	(\$35)	(\$38)	(\$163)	-0.2%	-0.3%
Moderate	(\$109)	(\$41)	(\$45)	(\$195)	-0.3%	-0.4%
Severe	(\$145)	(\$55)	(\$60)	(\$260)	-0.4%	-0.5%
Food Services and Drinking Places						
Low	(\$380)	(\$173)	(\$214)	(\$767)	-1.1%	-1.5%
Moderate	(\$615)	(\$279)	(\$328)	(\$1,222)	-1.7%	-2.4%
Severe	(\$781)	(\$354)	(\$418)	(\$1,554)	-2.2%	-3.0%
Arts, Entertainment and Recreation						
Low	(\$54)	(\$25)	(\$26)	(\$104)	-0.2%	-0.2%
Moderate	(\$103)	(\$47)	(\$49)	(\$199)	-0.3%	-0.4%
Severe	(\$152)	(\$70)	(\$73)	(\$295)	-0.4%	-0.6%
Food and Beverage Stores						
Low	\$29	\$12	\$14	\$56	0.1%	0.1%
Moderate	\$58	\$25	\$29	\$111	0.2%	0.2%
Severe	\$88	\$37	\$43	\$167	0.2%	0.3%
Total						
Low	(\$969)	(\$404)	(\$499)	(\$1,872)	-2.7%	-3.6%
Moderate	(\$1,431)	(\$601)	(\$725)	(\$2,757)	-4.0%	-5.4%
Severe	(\$1,843)	(\$774)	(\$935)	(\$3,552)	-5.1%	-6.9%

Table 4 shows the estimated changes in output for the five broad sectors of interest, again including the direct, indirect and induced effects. The table also shows the estimated impact on state and local sales tax revenues for each broad sector, using the state tax rate of 4 percent and the population-weighted statewide average of local sales tax rates, approximately 3.31 percent as of January 1, 2020, according to the Tax Foundation. Again, note that taxable shares of revenue differ across industries and between direct effects and overall industry sales, so the total effect on sales tax revenues will be less than that implied by simply multiplying total output or revenue losses by the statutory state or average local tax rates.

Total output losses, again concentrated in transportation followed by restaurant and bars, are estimated at \$3.4–\$6.4 billion per month. However, because of the low taxable share of sales in air transportation, around two thirds of estimated state and local sales tax revenue losses are attributable to restaurants and bars.

Table 4. IMPLAN Monthly State Output Estimates, and State and Local Sales Tax Effects (\$ millions)

SECTOR	CHANGE IN STATE OUTPUT				CHANGE IN SALES TAX REVENUE	
	DIRECT	INDIRECT	INDUCED	TOTAL	STATE	LOCAL
Transportation						
Low	(\$909)	(\$319)	(\$402)	(\$1,630)	(\$9.6)	(\$5.9)
Moderate	(\$1,273)	(\$447)	(\$563)	(\$2,282)	(\$13.4)	(\$8.3)
Severe	(\$1,637)	(\$575)	(\$724)	(\$2,936)	(\$17.2)	(\$10.7)
Accommodations						
Low	(\$151)	(\$61)	(\$64)	(\$276)	(\$6.2)	(\$5.2)
Moderate	(\$181)	(\$73)	(\$76)	(\$330)	(\$7.4)	(\$6.2)
Severe	(\$241)	(\$97)	(\$102)	(\$440)	(\$9.9)	(\$8.3)
Food Services and Drinking Places						
Low	(\$727)	(\$309)	(\$363)	(\$1,398)	(\$33.8)	(\$27.9)
Moderate	(\$1,171)	(\$499)	(\$557)	(\$2,227)	(\$54.0)	(\$44.7)
Severe	(\$1,488)	(\$633)	(\$710)	(\$2,831)	(\$68.6)	(\$56.8)
Arts, Entertainment and Recreation						
Low	(\$94)	(\$42)	(\$43)	(\$180)	(\$2.9)	(\$2.4)
Moderate	(\$181)	(\$82)	(\$83)	(\$346)	(\$5.5)	(\$4.5)
Severe	(\$268)	(\$121)	(\$124)	(\$512)	(\$8.1)	(\$6.7)
Food and Beverage Stores						
Low	\$46	\$21	\$24	\$91	\$0.7	\$1.5
Moderate	\$93	\$42	\$48	\$183	\$1.5	\$3.0
Severe	\$139	\$62	\$73	\$274	\$2.2	\$4.5
Total						
Low	(\$1,834)	(\$711)	(\$848)	(\$3,393)	(\$52)	(\$40)
Moderate	(\$2,713)	(\$1,058)	(\$1,231)	(\$5,002)	(\$79)	(\$61)
Severe	(\$3,494)	(\$1,364)	(\$1,587)	(\$6,445)	(\$102)	(\$78)

We next construct longer-term scenarios based on assumptions as to the length of time severe, moderate or low impact conditions may persist before activity in these sectors returns to relatively normal levels. For the short-, moderate- and extended-duration scenarios, we assume severe-impact conditions persist from mid-March through mid-May, mid-June and mid-July, respectively. Two months of moderate-impact conditions are then followed by 1–3 months of low-impact conditions, bringing the horizons for relative normality to mid-August, mid-October and mid-December. These are not forecasts or bounds on outcomes; the possible paths of the pandemic, and thus the economy, remain unknown. Rather, they are simply illustrative cases or plausible scenarios.

Table 5 shows the cumulative effects, under each duration scenario, on full-year 2020 state GDP and on state and local sales tax revenues. We also split the state sales tax revenue effect between fiscal years 2020 and 2021, assuming for simplicity that economic impacts through June 15 impact sales tax collections in FY 2020, the balance in FY 2021.

Table 5. Longer-Term Scenarios from March 16, 2020 (\$ millions)

	SHORT	MODERATE	EXTENDED
Severe-Case Months	2	3	4
Moderate-Case Months	2	2	2
Low-Case Months	1	2	3
2020 GDP Effect	(\$14,489)	(\$19,913)	(\$25,337)
Percent of 2019 State GDP	-2.4%	-3.2%	-4.1%
State Sales Tax Effect	(\$412)	(\$565)	(\$719)
Local Sales Tax Effect	(\$317)	(\$435)	(\$553)
FY 2020 State Revenue Effect	(\$360)	(\$383)	(\$406)
FY 2021 State Revenue Effect	(\$52)	(\$182)	(\$313)

These scenarios, monthly or longer-term, also do not include effects of partial or full shutdowns of other industries before or in response to the recent, statewide shelter-in-place order. Auto manufacturers across the United States, for example, ceased manufacturing operations beginning in mid-March, but are now working out worker-safety measures and testing to allow reopening of factories here as GM and others have done in China and South Korea.¹⁹ Auto sales to end consumers are also down for March by as much as 40 percent, according to JD Power, but dealers are adjusting by promoting online ordering and home delivery of new cars as well as zero-interest financing to maintain sales.²⁰ For these and other durable goods, it is also reasonable to expect growing pent-up demand will translate to a sharp bounce back once restrictions are lifted, possibly higher than normal sales for a short period before returning to pre-pandemic trends.

Personal service businesses like hair and nail salons and all but *essential* retail stores are also closed until shelter-in-place orders are lifted (i.e., currently until at least April 30), but again, most services are not subject to sales tax and *non-essential* retail shopping has at least partially moved online.

Conclusions

Without estimating other sectors directly, cutbacks in four key Georgia industries that were perhaps the earliest and most direct economic casualties of the COVID-19 pandemic can reasonably be expected to take between \$1.9 and \$3.6 billion dollars per month off state GDP until the cutbacks abate. As a share of average monthly state GDP in 2019, the high end (and likely current reality going into the second quarter) of these losses amounts to 6.9 percent, not much better than the worst quarter of the Great Recession, an 8.4 percent annualized nominal GDP loss in the first quarter of 2008.

¹⁹ “Automakers push to reopen plants with testing and lots of masks,” *Automotive News*, April 9, 2020 (www.autonews.com/manufacturing/automakers-push-reopen-plants-testing-and-lots-masks)

²⁰ “Worst yet to come as coronavirus takes its toll on auto sales,” *CNBC*, April 1, 2020 (www.cnn.com/2020/04/01/worst-yet-to-come-as-coronavirus-takes-its-toll-on-auto-sales.html); “Coronavirus Is Pushing Car Dealerships Into Online Sales and Home Delivery,” *Consumer Reports*, April 8, 2020 (www.consumerreports.org/buying-a-car/coronavirus-pushing-car-dealerships-into-online-sales-and-home-delivery/)

Many economists are predicting much larger second quarter losses for the nation, so a deeper fall this quarter than the worst of 2008 seems likely. The impact on state sales tax revenues from the cutbacks in these industries is estimated to be as much as \$102 million per month. Looking out through the rest of CY 2020, the impacts on full-year GDP and sales tax collections are likely to be as much as 4.1 percent lower state GDP and \$719 million lower sales tax collections.

Finally, we considered other state revenue sources beyond sales taxes. Income taxes are the state's largest source of revenue, and IMPLAN does produce estimates for labor income losses as well as estimate of income tax losses, but actual income losses in the state should be mitigated to a large degree by the recently enacted federal CARES Act. Under this act, smaller businesses (under 500 employees) can receive forgivable loans under the Paycheck Protection Program (PPP) to keep employees on the payroll and to pay business rent, utilities and other eligible expenses.

Expanded unemployment benefits under the act allow those workers who do lose their jobs, including self-employed and so-called gig workers who previously were not eligible for unemployment, to collect up to \$965 per week in unemployment benefits, the current maximum for regular unemployment of \$365 (\$55 minimum) plus \$600 added under the act. These expanded unemployment benefits, available for up to four months, are equivalent to between about \$34,000 and \$50,000 annualized. Payments to workers under both the PPP and unemployment insurance are taxable, thus income tax impacts of the pandemic may be limited if the duration of shutdowns is not too long.

Federal checks written directly to lower- and middle-income taxpayers—\$1,200 per adult (non-dependent) and \$500 per child, but phased out for higher incomes—are not taxable, but together with the PPP and expanded unemployment should also mitigate some of the induced economic impact and some of the sales tax losses as well.

Other state and local revenue streams, including alcohol and motor fuel excise taxes as well as motor vehicle title fees, are also impacted. From the estimates reported from IMPLAN, we find that sales of alcoholic beverages by restaurants, bars, and food and beverage retailers in the state may fall by \$97–\$194 million each month (low-to-severe cases) due only to effects of cutbacks in the sectors analyzed directly. Unfortunately, because alcohol taxes are unit-volume rather than sale-price based, we are currently unable to translate those figures into alcohol-tax losses. Also, alcoholic beverage (“package”) stores remain open and food stores generally sell packaged alcohol as well, so press reports suggesting a significant rise in packaged alcohol sales also suggest at least a partial mitigation of losses from sales by restaurants and bars.

Motor fuel sales are also off sharply, due initially to the rise in working from home by those who could and now to shelter-in-place orders. Analytics firm IHS Markit, cited in the Wall Street Journal, suggests a 50-percent or more decline in gasoline demand lasting until the end of April or mid-May.²¹ Based on Federal Highway Administration reports of gasoline and gasohol sales in Georgia in April and May 2019 (but not including diesel or special fuels) and the current excise tax rate of 27.9 cents per gallon, a 50-percent drop in demand for April would reduce excise tax collections by about \$116 million. Including half of May would bring the loss to about \$177 million.

²¹ “Gasoline Is Cheap, but With Coronavirus, Nobody’s Buying,” Wall Street Journal, March 30, 2020 (www.wsj.com/articles/gasoline-is-cheap-but-with-coronavirus-nobodys-buying-11585570263)

The scope of this report is necessarily limited to a few hard-hit sectors, and others are now also economic casualties of the pandemic, but much of the economy is able to make do with workers working from home or working under new safety protocols at factories or warehouses, and some sectors are even seeing gains. Nevertheless, the effects on unemployment claims are already evident and large. With many Georgians not currently working and most rarely leaving their homes for now, GDP will necessarily fall sharply in the second quarter. However, massive government assistance programs for individuals and businesses will, hopefully, limit the immediate damage and enable the economy to at least enjoy a U-shaped recovery later this year. How soon, however, depends on science.

Appendix

Early Impacted NAICS Codes and IMPLAN Sectors

NAICS*	IMPLAN**	NAICS DESCRIPTION
481111	408	Scheduled Passenger Air Transportation
481211	408	Nonscheduled Chartered Passenger Air Transportation
483112	410	Deep Sea Passenger Transportation
485xxx	412	Transit and Ground Passenger Transportation
487110	414	Scenic and Sightseeing Transportation, Land
487210	414	Scenic and Sightseeing Transportation, Water
488119	414	Other Airport Operations
488190	414	Other Support Activities for Air Transportation
711110	488	Theater Companies and Dinner Theaters
711120	488	Dance Companies
711130	488	Musical Groups and Artists
711190	488	Other Performing Arts Companies
711211	489	Sports Teams and Clubs
711212	490	Racetracks
711219	489	Other Spectator Sports
712110	493	Museums
712120	493	Historical Sites
712130	493	Zoos and Botanical Gardens
712190	493	Nature Parks and Other Similar Institutions
713110	494	Amusement and Theme Parks
713120	494	Amusement Arcades
713940	497	Fitness and Recreational Sports Centers
713950	498	Bowling Centers
713990	496	All Other Amusement and Recreation Industries
721110	499	Hotels (except Casino Hotels) and Motels
721120	499	Casino Hotels
721191	500	Bed-and-Breakfast Inns
721199	500	All Other Traveler Accommodation
722310	503	Airline Food Services Contractors
722410	503	Drinking Places (Alcoholic Beverages)
722511	501	Full-Service Restaurants
722513	502	Limited-Service Restaurants
722514	503	Cafeterias, Grill Buffets, and Buffets
722515	503	Snack and Nonalcoholic Beverage Bars

* North American Industrial Classification System 2017 codes

** IMPLAN sector codes as of 2017

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