



Center for Business Analytics and Economic Research

GEORGIA SOUTHERN UNIVERSITY

Manufacturing Sales Tax Exemption Economic and Fiscal Analysis

Prepared for

Georgia Department of Audits and Accounts

Prepared by

Center for Business Analytics and Economic Research

Georgia Southern University

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Prepared by the
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The Center for Business Analysis and Economic Research (CBAER) of the Business Innovation Group (BIG) in the Office of Research at Georgia Southern University was engaged to conduct a study by the Georgia Department of Audits and Accounts.

Executive Summary

This report focuses on the economic and fiscal impact of the sales tax exemption under O.C.G.A. (Official Code of Georgia Annotated) § 48-8-3.2, which applies to goods or equipment purchased for businesses in eligible industries. This tax break is available to four industries in Georgia: Manufacturing; Mining, Quarrying, and Oil and Gas Extraction; Electric Power Generation; and Newspaper Publishers, as defined by the North American Industrial Classification System (NAICS). Of these industries, manufacturing far surpasses the other three in terms of concentration and is the largest contributor to the state economy. From the total establishments of these four industries combined, 95.3 percent are in manufacturing, 2.2 percent are in mining, 2.1 percent are in newspaper publishing, and 0.4 percent are in electric power generation. Following this breakdown, the research team focused on the manufacturing industry within this report. Therefore, the sales tax exemption under O.C.G.A. § 48-8-3.2 is referred to as the manufacturing sales tax exemption for the purposes of this report.

The Center for Business Analytics and Economic Research (CBAER) at Georgia Southern University analyzed the use of the manufacturing tax exemption during the previous five Fiscal Years, starting in 2018 and ending in 2022. Over this time frame, an average of \$5.994 billion in state and local sales taxes were exempted – \$3.426 billion in state taxes and \$2.569 billion in local taxes. This tax exemption is applicable to purchases that are used to support the production process. Exemptions include manufacturing equipment, industrial materials, packaging supplies, and energy. Businesses that used this sales tax exemption generated an average annual total impact of \$122.523 billion in economic output and \$51.108 billion in total value added. This economic activity supported 171,125 jobs directly and 424,333 jobs in total. The jobs in the direct segment had an average annual compensation of \$77,450 per year. At the same time, the total related jobs had compensation packages that reached \$68,909 per year.

Economic activity linked to the State's manufacturing industry added an annual average of \$3.543 billion in tax revenue. If all the tax exemptions granted to manufacturers under O.C.G.A. § 48-8-3.2 were not granted, the government could have only collected an additional average annual \$280 million in new tax revenues based on an alternative use of the state funds supporting the manufacturing exemptions. The total average annual cost of the manufacturing exemptions is \$5.994 billion. After considering the new tax revenue generated of \$3.543 billion and forgone new tax revenue from alternate spending of \$280, the net cost of the manufacturing exemptions is \$2,731 billion.

Within the top ten manufacturers in Georgia, half produce nondurable goods (a useful life of less than one year), and the other half produce durable goods (a useful life of more than one year). Georgia's top performing nondurable goods industries are food and beverage, paper, and textile mills. The State's top performing durable goods producers are aerospace and other transportation equipment, motor vehicles, and parts. The durable goods sector is expanding as high-profile manufacturers have announced plans to build new production facilities in this

State. These include automaker Rivian with plans to build a new facility east of Atlanta on Interstate 20, and Hyundai, with plans to build a new plant in the coastal region on Interstate 16. Hyundai additionally announced a partnership with electric vehicle battery manufacturer SK to construct a new battery plant in Georgia. Given these and other announcements and the overall pace of growth in the manufacturing industry, the research team did not forecast the growth of the manufacturing sales tax exemption. Any forecast is likely to underreport the future usage of this tax exemption as these new companies and their suppliers enter the market.

Although it would not be the only reason these businesses chose to build new facilities in Georgia, the manufacturing tax exemption is likely to have supported their decisions. Up to 25 percent of companies that relocate, expand, or remain in a certain location are influenced by tax incentive policies. Georgia's manufacturing sales tax exemption is attractive because it reduces the cost of production by eliminating sales taxes on manufacturing-related inputs and avoids the pyramiding of sales taxes. Pyramiding refers to the taxing of every exchange of materials, which increases the cost of production and the price of the final products that consumers purchase.¹ When pyramiding occurs, sales taxes become hidden costs of production, which reduces the transparency of the sales tax system and increases the cost paid by consumers.

¹ For example, see industry testimony in State of Ohio, "November 2018 Report," *Tax Expenditure Review Committee*, <https://www.ohiosenate.gov/Assets/Global/TERCReportNovember.pdf>.

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Tax Provision Background/Overview

This report provides an analysis of the economic and fiscal impact of the sales and use tax exemptions under O.C.G.A. § 48-8-3.2 in Georgia. The statute exempts manufacturers operating in Georgia from paying state and local sales taxes on the sale, use, storage, or consumption of an extensive list of qualified manufacturing-related goods and services that are necessary and integral to the manufacturing process. Under current law, the sales tax exemption covers consumable supplies (including packing supplies), energy, equipment (including machinery clothing), industrial materials (including raw materials), and machinery (including repair or replacement parts).²

Although the current sales tax exemption was established in 2012, similar laws have been in effect for decades. For example, machinery used in manufacturing has been exempt from state taxes since 1965.³ The original rule was modified in 1994 and again in 2001. The rule was replaced in July of 2009 by expanding the exemption to cover equipment. During this revision, the standard also changed to follow the integrated plant theory. Under this theory, sales taxes are exempted on “machinery and equipment that is necessary and essential to the manufacturing process,”⁴ rather than limiting the sales tax exemptions to items directly used in the manufacturing process.

In 2012, HB 386 created O.C.G.A. § 48-8-3.2; the new section combined machinery and equipment, industrial materials, packaging supplies, and energy into a single sale and use tax exemption for the manufacturing industry.⁵ The energy tax exemption was phased in between the calendar years 2013 and 2016. In 2014, the sales tax exemption was amended by HB 900, which redefined equipment so that consumable supplies would not be included in this category.⁶ The law was further revised in 2017 by HB 247 to include maintenance and replacement parts for concrete mixer trucks (excluding motor fuel used as energy) until July 1, 2020. Finally, in 2021, SB 6 continued the same definition, explanations, and non-exemptions added to the 2017 law through June 30, 2026.⁷

² “§ 48-8-3.2. Exemptions for Manufacturing Equipment, Industrial Materials, Packing Supplies, and Energy,” *Fastcase*, Accessed September 13, 2022, <https://public.fastcase.com/9SKwsfNqTc6OieYDhNMMyMxyR0rGUCfRfUSxGZRTL0D26%2BgY%2BEoFoc5cLt8hGT4ygyfH3ndkCaKcMZyDjzvkyXA%3D%3D>.

³ “Ga. Comp. R. & Regs. r. 560-12-2-.62 Manufacturing Machinery and Equipment, Industrial Materials, and Packaging Supplies,” *Rules and Regulations of the State of Georgia* (Lawriter LLC, accessed September 13, 2022), <https://rules.sos.ga.gov/GAC/560-12-2-.62>.

⁴ Taylor Atwood, “Five Hot Spots for Manufacturing Sales Tax Exemptions,” *Cherry Bekaert*, August 1, 2021, <https://www.cbh.com/guide/articles/five-hot-spots-for-manufacturing-sales-tax-exemptions/>.

⁵ 2012 Legislative Analysis for Enacted Legislation, *Georgia Department of Revenue*, <https://dor.georgia.gov/about-department-revenue/office-legal-affairs/legislation-summaries>

⁶ 2014 Summary of Enacted Legislation, *Georgia Department of Revenue*, <https://dor.georgia.gov/about-department-revenue/office-legal-affairs/legislation-summaries>

⁷ 2021 Summary of Enacted Legislation, *Georgia Department of Revenue*, <https://dor.georgia.gov/about-department-revenue/office-legal-affairs/legislation-summaries>

The law defines manufacturers using North American Industrial Classification System (NAICS) codes 31-33. It also includes NAICS 21 Mining, Quarrying and Oil and Gas Extraction, NAICS 22111 Electric Power Generation, and NAICS 511110 Newspaper Publishers. Federal agencies use NAICS codes to classify business and economic activity that uses businesses as the unit of analysis.⁸ Additionally, the businesses qualifying for tax exemption under O.C.G.A. § 48-8-3.2 should be “generally regarded as a manufacturer.”⁹ The law specifically excludes “businesses engaged in providing personal or professional services or operation of retail outlets.”¹⁰

When a qualifying business chooses to use this sales tax exemption, they must complete Form ST-5M, Sales and Use Tax Certificate of Exemption, located on the Georgia Department of Revenue website.¹¹ By completing and providing this form to a vendor, the business certifies that the goods being purchased are consistent with the use and definitions presented in the statute and accompanying regulations and this business is in a qualifying industrial sector. Upon completion of the ST-5M form, any tangible personal property purchased or leased for qualifying purposes will be tax exempt, but the use or consumption of this property for purposes other than those listed in the ST-5M form will be subject to taxation.¹² The dealer is required to “secure one properly completed certificate of exemption from each buyer making purchases without payment of the tax.”¹³ The dealer must also maintain a copy of the certificate in case of an audit.

This sales tax exemption is promoted by the Georgia Department of Economic Development and is included in the list of statewide tax incentives booklet prepared by the GDECD.¹⁴ However, the Georgia Department of Revenue manages this sales tax exemption. There are two major exceptions to the exemption: the gasoline used to operate concrete mixers or similar types of equipment is not exempt, and any local tax on energy that specifically supports local education is also not automatically exempt. Overall, a significant amount of tax savings is being offered to the qualifying companies.¹⁵

Definitions provided in the law clarify which specific items qualify for this tax exemption. Listed in Table 1 are the definitions for the product categories that are currently exempt in the State of Georgia under § 48-8-3.2. For many of these items to be exempt, they must be necessary and integral to the manufacture of tangible personal property. Machinery and equipment that has multiple purposes, some of which are necessary and integral and some of which are not. The

⁸ Introduction to NAICS, North American Industry Classification System, *United States Census Bureau*, accessed October 2022, <https://www.census.gov/naics/>.

⁹ “§ 48-8-3.2. Exemptions for Manufacturing Equipment,” *Fastcase*.

¹⁰ *Ibid*.

¹¹ “ST-5M Sales and Use Tax Certificate of Exemption,” *Georgia Department of Revenue*, Accessed September 13, 2022, <https://dor.georgia.gov/st-5m-certificate-exemption-manufacturer>.

¹² *Ibid*.

¹³ *Ibid*.

¹⁴ “Incentives,” *Georgia USA* (Georgia Department of Economic Development, Accessed September 13, 2022), <https://www.georgia.org/competitive-advantages/incentives>.

¹⁵ “Ga. Comp. R. & Regs. r. 560-12-2-.62,” *Rules and Regulations of the State of Georgia*.

“substantial purpose” of the machinery and equipment is used in determining eligibility for the exemption. The substantial purpose is defined as “the purpose for which an item of tangible personal property is used more than one-third of the total amount of time that the item is in use, or it could also be defined using alternate measures such as the number of items produced.”¹⁶ These definitions ensure that the goods receiving tax exemption are necessary for the operation of the manufacturing facility.

Table 1: Definitions of O.C.G.A. § 48-8-3.2 Tax Exempt Machinery and Equipment

Consumable Supplies	Energy	Industrial Materials	Packaging Operation
tangible personal property, other than machinery, industrial materials, packaging supplies, and energy, that is consumed or expended during the manufacture of tangible personal property	natural or artificial gas, oil, gasoline, solid fuel, wood, waste, ice, steam, water, and other materials necessary and integral for heat, light, power, refrigeration, climate control, processing or any other use in any phase of the manufacture of tangible personal property	materials purchased for future processing, manufacture, or conversion into articles of tangible personal property for resale when the industrial materials become a component part of the finished product	processes necessary to prepare or package manufactured products in a manner suitable for sale or delivery to customers as finished goods, or for transport of work in process among manufacturing plants, and the movement of finished goods or work in process to a storage or distribution area at a manufacturing plant
Equipment	Machinery	Machinery Clothing	Packaging Supplies
tangible personal property, other than machinery, industrial materials, and energy	an assemblage of parts that transmits force, motion, and energy one to the other in a predetermined manner to accomplish a specific objective	felts, screen plates, wires or any other items used to carry, form, or dry work in process through the manufacture of tangible personal property	materials, whether reusable or single-use, used in a packaging operation solely for packaging tangible personal property

Source: Rules and Regulations of the State of Georgia, <https://rules.sos.ga.gov/GAC/560-12-2-.62>

Using these definitions, promotional materials, and a review of current law and regulations, the implied purpose of this sales and use tax exemption under O.C.G.A. § 48-8-3.2 is to support existing manufacturers in Georgia and to prevent the pyramiding of sales tax paid by the consumer.

¹⁶ Ibid.

Tax Provision-Related Activity

The manufacturing; mining, quarrying, oil and gas extraction; electric power generation; and newspaper publishing industries generally have long supply chains, with many businesses serving a national and/or international market. This means that goods produced or extracted in Georgia are not always used in the State. From an economic standpoint, these businesses help bring new dollars into the market and develop connections to other markets that make the host economy more resilient to economic shocks linked to local changes in demand.

Given the long supply chains and types of businesses eligible for the exemption, it is important to include economic data that incorporates national economic trends and comparisons. Changes in national demand will likely influence production decisions made by Georgia-based companies. For this reason, CBAER included national and state-level economic performance information in this report. This section will focus on the current conditions facing the industries that qualify for this exemption: NAICS 31-33 Manufacturing, NAICS 21 Mining, Quarrying and Oil and Gas Extraction, NAICS 22111 Electric Power Generation, and NAICS 511110 Newspaper Publishers. For the remainder of this report, CBAER will use the phrase “manufacturing sales tax exemption” when referring to the tax provision.

National Overview

For the national overview section, we individually examine each sector included in the manufacturing sales tax exemption. This allowed for a complete review of factors influencing the growth trajectory of the industries using this tax exemption in Georgia. CBAER began by analyzing the manufacturing industry defined by the 2012 NAICS¹⁷ codes as “establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products.”¹⁸

The goods produced by the manufacturing industry are sold to either consumers or other manufacturers. This makes the industry dependent on both consumer and business purchasing. The goods produced in the industry are sold into five broad categories of companies based on industry revenue. Approximately 53.4 percent of industry revenue comes from wholesalers and retailers. These industries are most closely linked to finished goods for domestic consumption. In contrast, 17.4 percent of manufactured goods are going to other manufacturers, 15.0 percent are going to export, and 14.2 percent are going into the other categories. This other segment includes goods used by the agriculture and forestry, mining, utilities, and construction industries.¹⁹

¹⁷ The 2012 NAICS code manufacturing definition is used to stay in alignment with the timeframe that the bill was written and passed.

¹⁸ Introduction to NAICS, *United States Census Bureau*.

¹⁹ Kimberly Troncoso, “Manufacturing in the U.S.,” U.S Industry (NAICS) Report 31-33 / Manufacturing, *IBISWorld*, September 2022, <https://my.ibisworld.com/us/en/industry/31-33/about>.

According to McKinsey & Company, manufacturing (NAICS 31-33) currently accounts for 8 percent of the U.S. workforce and 11 percent of GDP and is responsible for a disproportionate contribution to the U.S. economy by stimulating demand for services and inputs from industries that supply the manufacturing sector.²⁰ The sector accounts for 35 percent of productivity growth, 60 percent of exports, and 70 percent of research and development spending. The industry is changing due to the increased use of technology, particularly artificial intelligence and machine learning applications that increase the efficiency of operations and help manage global supply chains. Deloitte predicts that manufacturing will grow by 2.5 percent in 2023, but longer-term trends will likely be down somewhat.²¹ The primary problems identified are the shortage of skilled workers and issues with the supply chain that have remained problematic since the pandemic. Faist predicts a shortfall of 2.1 million skilled workers by 2030 and that inability to integrate supply chains may stall smart factory initiatives by 2025.²²

Next, the authors examined the mining, quarrying, and oil and gas extraction industry sectors. The NAICS codes defined this industry as “establishments that extract naturally occurring mineral solids, such as coal and ores; liquid minerals, such as crude petroleum; and gases, such as natural gas. The term mining is used broadly to include “quarrying, well operations, beneficiating (e.g., crushing, screening, washing, and flotation), and other preparation customarily performed at the mine site or as a part of mining activity.”²³ Although this entire industry is included in the manufacturing sales tax exemption, Georgia has no petroleum, natural gas, or coal production or proven reserves in this state.²⁴ These three segments of the U.S. account for 92.1 percent of industry revenue in 2022.²⁵ However, Georgia is a “leading producer of fuller’s earth, kaolin, and iron oxide pigments.”²⁶ It produces “barite, dimension stone, feldspar, cement, common clay, construction sand and gravel, crushed stone, gemstones, and mica.”²⁷

²⁰ Tyler Carr, Eric Chewning, Mike Doheny, Anu Madgavkar, Asutosh Padhi, and Andrew Tingley, “Delivering the US Manufacturing Renaissance,” *McKinsey & Company*, August 29, 2022, <https://www.mckinsey.com/capabilities/operations/our-insights/delivering-the-us-manufacturing-renaissance>.

²¹ Kruttika Dwivedi, Kate Hardin, and Paul Wellener, “2023 Manufacturing Industry Outlook,” *Deloitte Development LLC*, 2022, <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/us-2023-outlook-manufacturing.pdf>.

²² “2022 Manufacturing Industry Outlook,” *Faist*, May 11, 2022, <https://www.faistgroup.com/news/2022-manufacturing-industry-outlook/>.

²³ Sector 21—Mining, Quarrying, and Oil and Gas Extraction, 2017 NAICS Definition, North American Industry Classification System, *United States Census Bureau*, accessed October 2022, <https://www.census.gov/naics/?input=21&year=2017&details=21>.

²⁴ “Georgia State Profile and Energy Estimates: Profile Analysis,” *U.S. Energy Information Administration*, Last updated December 16, 2021, <https://www.eia.gov/state/analysis.php?sid=GA>.

²⁵ Matty O’Malley, “Mining in the U.S.,” U.S. Industry (NAICS) Report 21 / Mining, *IBISWorld*, August 2022, <https://my.ibisworld.com/us/en/industry/21/about>

²⁶ “The Mineral Industry of Georgia,” *National Minerals Information Center*, Accessed October 2022, <https://www.usgs.gov/centers/national-minerals-information-center/mineral-industry-georgia>.

²⁷ *Ibid.*

In the United States, oil and gas extraction makes up 89 percent of industry revenue in the mining, quarrying, and oil and gas extraction sector. Developing new drilling techniques, including hydraulic fracturing and directional drilling, has driven industry revenue. Additionally, the coal mining and metallic mineral mining accounts for 3.1 and 4.3 percent of industry revenue, respectively. The last remaining part of this industry is nonmetallic ore mining which includes gypsum, stone, sand, gravel, etc. This includes most of the ores mined in Georgia. In the United States, this segment accounts for 4.3 percent of industry revenue. Over the past several years, segment demand has increased due in part to the construction industry. This is focused on residential structures and road construction.²⁸

The third industrial sector included in the manufacturing sales tax exemption is electric power generation. NAICS defined this industry as “establishments primarily engaged in operating electric power generation facilities. These facilities convert other forms of energy, such as waterpower (i.e., hydroelectric), fossil fuels, nuclear power, and solar power, into electrical energy. The establishments in this industry produce electric energy and provide electricity to transmission systems or to electric power distribution systems.”²⁹ This section covers the generation of power but not the transmission of this electricity to end users.

Electric Power Generation accounts for 18.7 percent of the utilities industry in the United States. As the economy continues to grow, the demand for electricity is forecast to increase. IBIS World noted that the industrial production index is forecast to grow at an annual rate of 1.4 percent over the next five years, and the value of nonresidential construction is expected to increase by 2.2 percent annually over the next five years. Together these factors should push electricity use going forward while even more efficient use at homes and businesses slow consumption.³⁰

The fourth and final industry eligible to use the manufacturing sales tax exemption is newspaper publishing. The NAICS codes defined this industry as “establishments known as newspaper publishers... carry out operations necessary for producing and distributing newspapers, including gathering news. These establishments may publish newspapers in print or electronic form.” This industry has been struggling with how to manage a move away from print media to digital content. These struggles are predicted to continue for the foreseeable future. Revenue is expected to decline by 5.4 percent to \$15.5 billion over the next five years. In addition to a decline in revenue, the workforce is also expected to fall by 5.1% to 93,469 employees in 2027. The contraction of the workforce is mainly due to the 5.1% decline in enterprises to 2,969 in the same period.³¹ Taken together, the outlook for the newspaper

²⁸ O'Malley, “Mining in the U.S.”

²⁹ Sector 22—Utilities, 2017 NAICS Definition, North American Classification System, *United States Census Bureau*, accessed October 2022, <https://www.census.gov/naics/?input=22&year=2017&details=22111>.

³⁰ Gavin Ross, “Utilities in the U.S.,” U.S. Industry (NAICS) Report 22 / Utilities, *IBISWorld*, September 2022, <https://my.ibisworld.com/us/en/industry/22/about>

³¹ Jameson Ayers, “Newspaper Publishing in the U.S.,” U.S. Industry (NAICS) Report 51111 / Information, *IBISWorld*, September 2022, <https://my.ibisworld.com/us/en/industry/51111/about>.

publishing industry is the least positive of this group, and at this point, it is unclear if publishing print editions of newspaper content is going to remain a viable business option going forward.

Georgia Economic Overview

Available gross domestic product, employment, and establishment data were gathered covering 2017 to 2021 for these NAICS industries eligible for manufacturing sales tax exemption. The dates were selected because they overlap with the Fiscal Years used later in the analysis and cover the most recent data available. The data displayed in this section have been aggregated to illustrate the overall economic value of the tax exemption.

To begin the analysis, we calculated the proportion of economic activity linked to the four industries covered by the manufacturing sales tax exemption. Table 2 illustrates how much each of the four eligible industries provides to the group in terms of economic activity.

Table 2: Average Industry Contribution of Manufacturing Sales Tax Exemption Industries

	Manufacturing (NAICS 31-33)	Mining, Quarrying, and Oil and Gas Extraction (NAICS 21)	Electric Power Generation (NAICS 22111)	Newspaper Publishers (NAICS 511110)
Georgia Gross Domestic Product	91.1%	2.1%	4.6%	2.3%
Industry Employment	96.7%	1.3%	0.8%	1.0%
Establishments	95.3%	2.2%	0.4%	2.1%

Source: CBAER Analysis of JobsEQ data

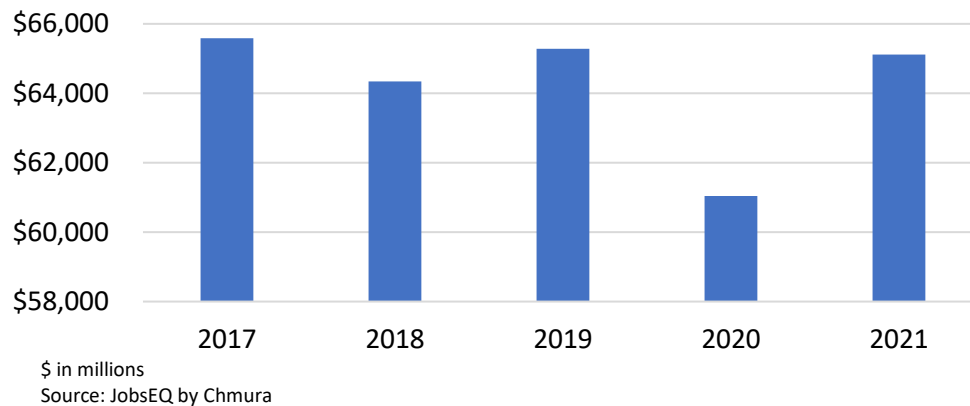
Across all four industries eligible for the manufacturing sales tax exemption, the manufacturing industry is the largest contributor by a wide margin. Within all three of these variables, the manufacturing industry is never below 90 percent in economic activity terms. The largest variation within this grouping is electric power generation, where gross domestic product for Georgia figures far outpace industry employment and establishments variables. Following this information, we will primarily focus on the manufacturing industry.

The Georgia manufacturing industry has a diverse industry mix with goods production varying from food and beverage products to paper and chemicals to aircraft and vehicles. Among the top 10 industry sectors in Georgia, half of these are considered nondurable goods (a useful life of less than one year), which includes food and beverage chemicals, paper, textile mills, and plastic rubber production. The other top-performing industries are in durable goods products (a useful life of more than one year), including aerospace and other transportation equipment, machinery, fabricated metal products, motor vehicles and parts, and wood manufacturing.³²

³² Lucia Mutikani, "Supply chain bottlenecks amid roaring demand slow U.S. manufacturing," *Reuters*, May 31, 2021, <https://www.reuters.com/business/us-manufacturing-sector-slows-april-amid-supply-challenges-2021-05-03/>.

We started with gross domestic product for Georgia because it is a measure of “the value of the final goods and services”³³ produced in Georgia. This variable also highlights the overall economic value generated by industries included in the sales tax exemption group. It provides a clear dollar value metric that defines the general contribution this grouping of industries made to Georgia over the past five calendar years.

Figure 1: Georgia Gross Domestic Product of Manufacturing Sales Tax Exemption Industries



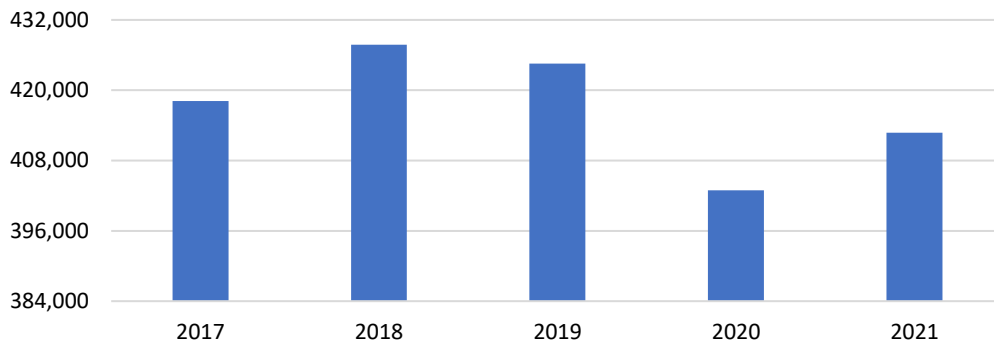
The gross domestic product linked to the manufacturing sales tax exemption reached \$65.114 billion in 2021. Although this group has not fully recovered from the economic declines in 2020, it is close to the 2019 figures, and it should be fully recovered by the end of 2022 based on current development trends. In March of 2022, the Georgia manufacturing industry was growing more quickly than the total GDP in the state. This is partially due to the need to restock existing customers as consumers continue to purchase goods at a strong rate.³⁴

Next, the team examined employment directly linked to the sales tax exemption. These employment figures demonstrate that the industries related to this exemption have a significant amount of employment in this state. In 2021, 8.4 percent of total employment in Georgia was located in one of these industries.

³³ Zenon Rajewski, “Gross Domestic Product,” *Eastern European Economics* 32, no. 4 (1994): 71-80, <https://doi.org/10.1080/00128775.1994.11648537>.

³⁴ Jeffrey Humphreys, “2022 Industry Outlook,” *Georgia Trend Magazine*, March 30, 2022, <https://www.georgiatrend.com/2022/03/30/2022-industry-outlook/>.

Figure 2: Georgia Industry Employment of Manufacturing Sales Tax Exemption Industries

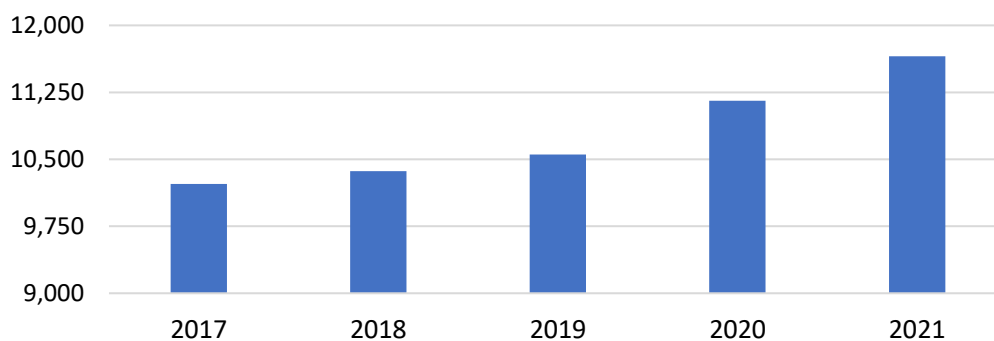


Source: JobsEQ by Chmura

Although the steady employment gains of 2.4 percent or just over 9,800 were not enough to fully recover from 2020, these industries are still making a significant contribution to employment at the state level. Employment has also taken longer to recover because some job seekers are more selective in their search. This has increased competition for talent, which has shifted more power from the employer to the employee. Employers are not laying off or firing as many workers because they know it will be hard to replace them, while employees are quitting their jobs and quickly finding new employment.³⁵

The third variable in the analysis, establishments, focuses on the different locations of businesses in Georgia. For example, it is possible to have three locations for a single manufacturer in Georgia, even if these shops are owned by one person and are considered one business. Within the establishment definition, this single business becomes three establishments. The number of manufacturing sales tax exemption establishments has been growing over the last five years.

Figure 3: Georgia Industry Establishments of Manufacturing Sales Tax Exemption Industries



Source: JobsEQ by Chmura

³⁵ Neil Irwin, "Workers still have all the power," *Axios*, January 5, 2022, <https://www.axios.com/2022/01/05/great-resignation-job-market-labor-data>

Establishments in Georgia in this grouping have increased by an annual rate of 2 percent over the past five years. This has resulted in an additional 1,400 establishments opening in Georgia over this five-year timeframe, indicating that businesses are either expanding their operations or new companies are regularly locating within the state. Either of these potential outcomes illustrates that the underlying economic health of these industries is strong.

Comparison to Other States

Sales taxes are one of the most important sources of revenue for most state government budgets. Across the United States, sales taxes are levied by 45 states. Five states currently do not have a sales tax: Alaska, Delaware, Montana, New Hampshire, and Oregon. In Fiscal Year 2021, this revenue source accounted for 29.5 percent of total revenue collections for the states with a statewide sales tax³⁶ and 25.8 percent of total revenue collections for Georgia.³⁷ Despite the sizable contribution to revenue made by sales taxes, not all goods are taxed at the same rate, and not all spending is viewed the same by all states. Many states have created rules that apply sales taxes differently to businesses, particularly when the goods purchased are an intermediate input into a production process. Even with some form of sales tax exemption being used by many states, businesses across the United States still paid \$180.1 billion in sales tax on inputs and capital investment spending in the Fiscal Year 2020.³⁸ These sales taxes are an important part of many state budgets. Even with the value to state government, every state that levies a sales tax also offers full or partial sales tax exemptions for goods used in the manufacturing process.

Most states offer manufacturing exemptions to allow companies to reduce production costs, reducing the final product cost for consumers. However, the definition of a manufacturer for tax exemption purposes may vary across states. These exemptions ensure industry competitiveness with other states and eliminates most pyramiding of sales tax into the cost of completed products.³⁹ Some states limit the tax exemption to materials used directly in manufacturing, while others have adopted a broader view of the costs qualifying for exemption.⁴⁰

³⁶ Jared Walczak, "State Sales Tax Breadth and Reliance, Fiscal Year 2021," *Tax Foundation*, May 4, 2022, <https://taxfoundation.org/state-sales-tax-base-reliance/>.

³⁷ "Department of Revenue – Revenue Collections Overview," Accessed September 13, 2022, https://insights.georgia.gov/views/GeorgiaDepartmentofRevenueHistoricalRevenuePressRelease/RevenueOverview?%3AshowAppBanner=false&%3Adisplay_count=n&%3AshowVizHome=n&%3Aorigin=viz_share_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y

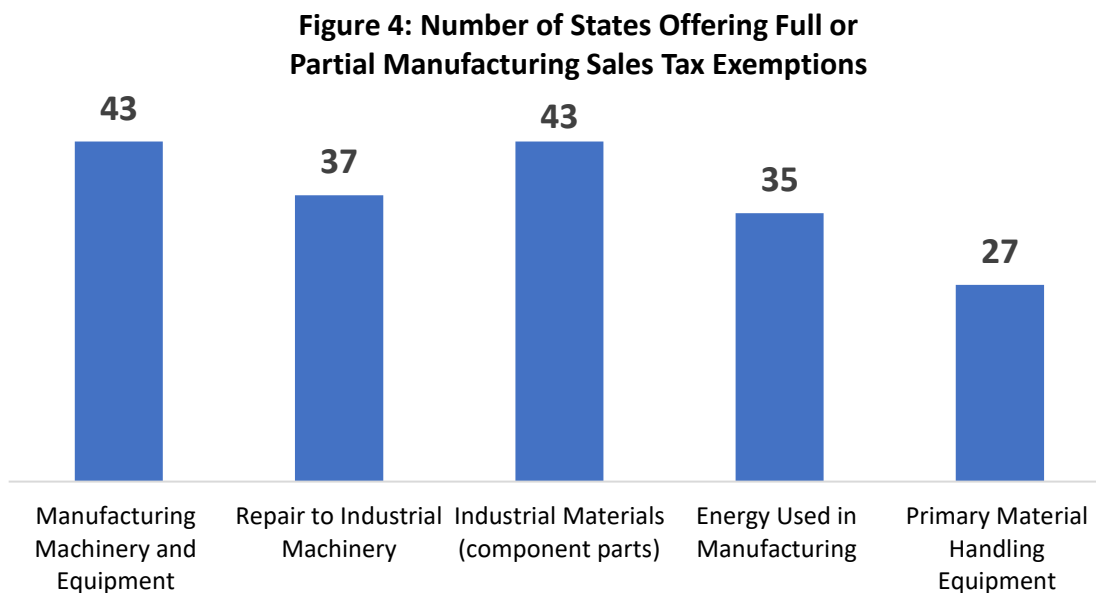
³⁸ Andrew Phillips, "Total State and Local Business Taxes for FY20," *Ernest & Young Global Limited*, November 18, 2021, https://www.ey.com/en_us/tax/fy-20-total-state-and-local-business-taxes.

³⁹ For example, see industry testimony in State of Ohio, "November 2018 Report," *Tax Expenditure Review Committee*, <https://www.ohiosenate.gov/Assets/Global/TERCReportNovember.pdf>.

⁴⁰ Michael G. Galloway, "Arizona's Long History of Business-Friendly Sales and Use Tax Manufacturing Exemptions," *Wolters Kluwer, Taxes The Tax Magazine* (July 2016): 43-54, http://www.arizonatax.com/dox/MAG_07-16_Galloway.pdf.

Most states operate their manufacturing sales tax exemption programs through the Department of Revenue, and they generally do not require pre-approval to use the tax exemption. What constitutes a qualified manufacturing business is determined by statute. In most cases, states require manufacturers to complete a form that the Department of Revenue distributes. This sales tax exemption form then allows manufacturers to avoid sales taxes on qualifying purchases. Using this method means that the burden of proof is on the manufacturer to verify that purchases made using the exemption qualify. This is how Georgia operates this program. Many states offer a variety of tax exemptions on machinery, equipment, supplies, and energy used in manufacturing processes to attract manufacturers, spur economic growth, and increase employment levels.

The state comparison group used in these analyses covered the 45 sales tax collecting states that offer either a full or partial sales tax exemption for manufacturing products or goods that are also exempt in Georgia. Although the intent of supporting the manufacturing industry through the use of sales tax exemption is common, the implementation of the sales tax varies across all 45 states. The first analysis revealed five broad categories for tax exemption: machinery and equipment, repair to industrial machinery, component parts, energy used in the production process, and primary materials handling equipment. All 45 states offer either full or partial sales tax exemptions for at least one of these items from this broad list, 44 states offer exemptions for any two items, and 40 states offer exemptions for three or more items. Through the implementation of these policies, states can influence how these programs are used or viewed by the industry. Figure 4 displays how many states are following these sales tax exemptions offered in Georgia.

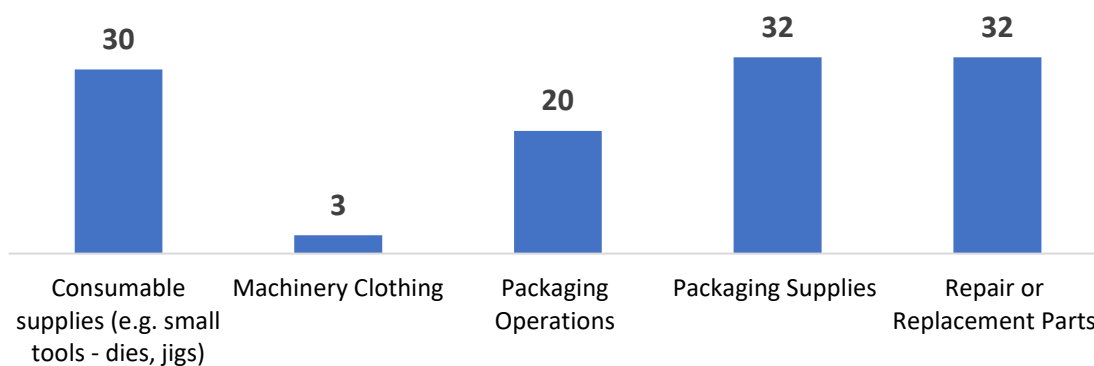


Source: CBAER Data

The amount of participation in the sales tax exemption for these broad manufacturing categories, all of which are offered in Georgia, varies. There are two types of manufacturing sales tax exemptions that are most common within the comparison group. Nearly all states offer a full or partial sales tax exemption on purchases of machinery and equipment, except for Hawaii and Nevada. Most states also offer a full or partial sales tax exemption on industrial materials and component parts purchases, except for Florida and Louisiana. The least popular manufacturing sales tax exemption is in the purchase of primary material handling equipment. Eighteen (18) states in the comparison group do not offer this tax exemption. Alabama, Arkansas, Kentucky, and Texas are the southeastern states that do not provide tax exemptions in purchasing primary material handling equipment.

Building on this information, a second analysis examined the number of states that offer manufacturing tax exemptions on the same items that qualify under Georgia law. Georgia law exempts a larger number of items from sales tax than other states do. Those items that qualify for the manufacturing sales tax exemption in Georgia include consumable supplies, machinery clothing, packaging operations, packaging supplies, and replacement parts. Because this list is more extensive compared to other states, the authors believed this warranted a closer look. Figure 5 shows how many states offer tax exemptions on these same items.

Figure 5: Number of States Offering Specific Item Qualifications for the Manufacturing Sales Tax Exemption



Source: CBAER Analysis

This second analysis further illustrates the variations in how and for what manufacturing sales tax exemptions are being used. Like Georgia, 71 percent of comparison states offer full or partial sales tax exemptions on packaging supplies and repair or replacement parts. In the southeastern United States, packaging supplies purchases are not exempt in Alabama, Arkansas, and North Carolina, and repair or replacement parts are not exempt in Alabama and Kentucky. In the consumable supplies segment, four southeastern states do not have any sales tax exemptions for these goods: Alabama, Arkansas, Florida, and South Carolina.

Less than half of the comparison group offers tax exemptions in the realm of packaging operations, including southeastern states Alabama, Arkansas, Kentucky, Mississippi, and South Carolina. Finally, tax exemptions on machinery clothing are rare. In addition to Georgia, Arizona and Wisconsin are the only comparison states that include this item in their manufacturing sales tax exemption. Material clothing here refers to support materials for equipment that aids in the operation of the equipment, such as stairs added to a vat that is used to combine ingredients.

Although it is important to have a general understanding of how other states are managing manufacturing sales tax exemptions, it is also important to highlight how states contiguous to Georgia manage these programs. A common practice in the site selection process is to compare multiple states within a region to determine which would provide the best opportunity. Tax policy is one factor that site selectors consider in this process. To see how Georgia compares in terms of manufacturing sales tax exemption benefits to its contiguous region, we examined the manufacturing tax exemption programs of Alabama, Florida, South Carolina, Tennessee, and North Carolina.

This segment of the analysis focused primarily on whether a sales tax exemption was offered in the category, not on the value of the exemption offered. This is because when companies make location decisions, they weigh a variety of operational and economic considerations. These factors can include but are not limited to scalability, capital costs, labor availability, infrastructure, access to utilities and transportation, cost of labor/available workforce, and financial incentives.⁴¹ State tax policy is only one factor, and many companies do not rank them as the most important.⁴²

Table 3: Contiguous States Offering Full or Partial Manufacturing Sales Tax Exemptions

	Manufacturing Machinery and Equipment	Repair to Industrial Machinery	Industrial Materials (component parts)	Energy Used in Manufacturing	Primary Material Handling Equipment
Alabama	Yes	No	Yes	Yes	No
Georgia	Yes	Yes	Yes	Yes	Yes
Florida	Yes	Yes	No	Yes	Yes
South Carolina	Yes	No	Yes	Yes	Yes
Tennessee	Yes	Yes	Yes	Yes	Yes
North Carolina	Yes	Yes	Yes	Yes	Yes

Source: CBAER Analysis

⁴¹ Brian Gallagher, "Ten Considerations when Choosing a Site for a Manufacturing Facility," *Business Xpansion Journal*, <http://bxjmag.com/ten-considerations-when-choosing-a-site-for-a-manufacturing-facility/>

⁴² Geraldine Gambale, "36th Annual Corporate Survey: Executives Focus on Labor, Energy, Shipping Costs," *Area Development Magazine*, (Halcyon Business Publications, Inc., Q1 2022), <https://www.areadevelopment.com/Corporate-Consultants-Survey-Results/q1-2022/36th-annual-corporate-survey.shtml>

Within this contiguous group, the vast majority of states offer general sales tax exemptions for products related to manufacturing. The only exceptions are South Carolina, which does not offer a sales tax exemption for repair to industrial machinery, and Florida does not exempt spending on industrial materials (component parts).

The next group of more specific items includes consumable supplies, machinery clothing, packing, and repair/replacement parts.

Table 4: Contiguous State Offering Specific Item Qualifications for the Manufacturing Sales Tax Exemption

	Consumable supplies (e.g., small tools - dies, jigs)	Machinery Clothing	Packaging Operations	Packaging Supplies	Repair or Replacement Parts
Alabama	No	No	No	No	No
Georgia	Yes	Yes	Yes	Yes	Yes
Florida	No	No	No	Yes	No
South Carolina	No	No	No	Yes	Yes
Tennessee	Yes	No	Yes	Yes	Yes
North Carolina	Yes	No	Yes	No	Yes

Source: CBAER Analysis

Within this group, packaging supplies and repair/replacement parts are the most commonly offered sales tax exemption. Looking across the states included in this grouping Alabama is the only state to offer no sales tax exemptions for these goods. While Florida only provides an exemption on packing supplies. In contrast, Tennessee offers all but one (machinery clothing), and North Carolina is only missing two categories (machinery clothing and packaging supplies).

Literature Review

This literature review investigates two factors influencing the use and purpose of the manufacturing sales tax exemption. First, we explore how companies have changed their operations over the past several years and how they manage their supply chain and production process. Then we examine how tax exemptions are administered, the incentive effect of the exemption, and how the exemption addresses problems of pyramiding sales taxes.

Trends Influencing the Manufacturing Industry

The COVID-19 pandemic has changed the trajectory of the manufacturing economy. In 2019, the industry entered a mild recession and became a drag on overall economic growth, although this downturn was not enough to push the entire economy into a recession. Total production in the U.S. declined in the first, second, and fourth quarters. It was the worst performance for this industry since 2015. Many analysts linked this drop in production to the trade war and a general slowing in global growth. Durable goods production was most impacted by this

slowdown in manufacturing activity.⁴³ For example, imposed tariffs increased steel prices,⁴⁴ which challenged manufacturers by increasing the cost of production.

These events were part of a longer-term trend that began at the end of the 2008 financial crisis. Between 2009 and 2020, overall industry capital investment spending (i.e., fixed equipment, machinery, building, etc.) was weak, which created an additional drag on the manufacturing industry. Capital investment spending made by companies in this timeframe peaked in 2012. This means that significant capital investment spending had been missing from the U.S. for almost a decade.⁴⁵ Employment has also been greatly affected by the slowing of the manufacturing industry. Although the industry has been regaining jobs lost during the financial crisis, total employment in this industry had not returned to the pre-recession peak by mid-2019.⁴⁶

The slow recovery in employment was partly due to the overall availability of qualified labor. In 2019, the industry added an average of 6,000 jobs a month, down from 22,000 jobs in 2018. The slowdown in hiring was partly due to a lack of qualified candidates and other business conditions in the industry. Further, U.S. trade policy had introduced added uncertainty and had begun to shift global trade flows. In turn, companies started examining ways to improve their supply chains using new technologies or suppliers from different parts of the world.⁴⁷ These business conditions may have prepared the manufacturing industry for the COVID-19 pandemic.

Moving into late 2020 and early 2021, the impact of the COVID-19 pandemic on the manufacturing industry became clear. Two of the most impactful issues were the global disruptions to supply chain networks and the additional tightness in the labor market. During this time, firms invested capital in new locations, logistics and supply chain networks, and/or technological systems to improve efficiencies.⁴⁸ Many companies are working to ensure that a slowdown in production due to a lack of goods is a temporary problem, not a long-term issue.

⁴³ Heather Long and Andrew Van Dam, "U.S. Manufacturing Was in a Mild Recession During 2019, a Sore Spot for the Economy," *The Washington Post*, January 17, 2020, <https://www.washingtonpost.com/business/2020/01/17/us-manufacturing-was-mild-recession-during-2019-sore-spot-economy/>

⁴⁴ Heather Long, "Trump's Steel Tariffs Cost U.S. Consumers \$900,000 for Every Job Created, Experts Say," *the Washington Post*, May 7, 2019.

⁴⁵ "2021 Annual Economic Outlook: Aftershocks and Divergence in the Post-Pandemic Economy," *Wells Fargo*, (Readkong, December 2020), <https://www.readkong.com/page/2021-annual-economic-outlook-aftershocks-and-divergence-8106626>.

⁴⁶ Katelynn Harris, "Forty years of falling manufacturing employment," *Beyond the Numbers: Employment & Unemployment*, vol. 9, no. 16 (U.S. Bureau of Labor Statistics, November 2020), <https://www.bls.gov/opub/btn/volume-9/forty-years-of-falling-manufacturing-employment.htm>

⁴⁷ Paul Wellener, "2020 Manufacturing Industry Outlook," *Deloitte Development, LLC.*, 2019, <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/energy-resources/2020-manufacturing-industry-outlook.pdf>

⁴⁸ Kristin Broughton, "Companies Boost Capital Spending, Betting Demand Will Stay Strong," *The Wall Street Journal*, January 10, 2022, <https://www.wsj.com/articles/companies-boost-capital-spending-betting-demand-will-stay-strong-11641835208>

As participants in this industry chart a way forward, many are looking to bring production facilities back to the United States. Market forces and government action are encouraging the increase of domestic production.⁴⁹ Two goals driving these decisions are the avoidance of component parts shortages and decreasing the distance between production facilities and consumers. These actions can increase efficiencies by ensuring that inputs, distribution, and customers are closer together. This, in turn, can reduce costs in transportation, fuel, and other expenses, which overshadow the cheaper cost of overseas labor.⁵⁰ There are opportunities for U.S. based production to grow as the nation already meets 71 percent of its final demand and other countries prove that even more internal production can be achieved (Germany, 83 percent; Japan, 86 percent; and China, 89 percent).⁵¹

The manufacturing industry grew from mid-2021 into 2022, with total employment pushing past the 2008 level. Although there is near-term uncertainty due to inflation, the shortage of skilled workers, and continued supply chain disruptions, the long-term outlook remains strong.⁵² Positive movements in the manufacturing industry are influencing economic development in Georgia. Over the past two years major manufacturers have announced plans to develop production facilities in the State.

Electric car manufacturer Rivian was the first to announce, in 2021, plans to build a \$5 billion production facility that will create 7,500 jobs.⁵³ In 2022, Hyundai Motor Group also announced plans for a new regional electric vehicle manufacturing facility valued at \$5.54 billion that will support 8,100 jobs.⁵⁴ The announcement for a third new manufacturing facility in Georgia comes from a partnership between Hyundai Motor Group and battery manufacturer SK. These companies plan to invest \$4 to \$5 billion in a new electric vehicle battery plant which will create more than 3,500 jobs.⁵⁵ These project plans demonstrate that the Georgia manufacturing industry is successfully enticing large industry players. Rivian, Hyundai, and SK, along with several other manufacturers, will attract new suppliers to the region that will make significant investments in Georgia and continue to grow both the industry and the statewide economy.

⁴⁹ Kimberly Troncoso (September 2022), Industry Report 31-33 Manufacturing in the US, IBIS World

⁵⁰ Dan Rafter, "The promise of Onshoring: As Companies Bring Manufacturing Back to the U.S., Demand for Industrial Space Soars Even Higher," *REJournals*, July 8, 2022, <https://rejournal.com/the-promise-of-onshoring-as-companies-bring-manufacturing-back-to-the-u-s-demand-for-industrial-space-soars-even-higher/>

⁵¹ Carr, Chewning, Doheny, Madgavkar, Padhi, and Tingley, "Delivering the US Manufacturing Renaissance."

⁵² Dwivedi, Hardin, and Wellener, "2023 Manufacturing Industry Outlook."

⁵³ "Governor Kemp Welcomes Rivian for Single-Largest Economic Development Project in State History," *Georgia USA* (Georgia Department of Economic Development, accessed October 2022), <https://www.georgia.org/press-release/governor-kemp-welcomes-rivian-single-largest-economic-development-project-state>

⁵⁴ "Hyundai Motor Group and SK On To Build EV Battery Facility in Bartow County," *Georgia USA* (Georgia Department of Economic Development, accessed October 2022), <https://www.georgia.org/press-release/hyundai-motor-group-and-sk-build-ev-battery-facility-bartow-county>

⁵⁵ Ibid.

Overview of Tax Exemptions

State sales and use tax exemptions are widely available to taxpayers who manufacture, fabricate, or process tangible personal property for sale. Often, these incentives are provided to promote economic development⁵⁶ and to avoid the pyramiding of sales tax in the final cost of the product.⁵⁷ Tangible personal property is exempt as it becomes a component of an item manufactured for sale, assists in making a change in the product being manufactured, or is essential in the manufacturing process. Machinery or equipment that causes a physical or chemical change in a product in order to make it salable qualify for the exemption.⁵⁸

States that offer manufacturing exemptions normally follow one of two approaches: direct use or integrated plant theory. The direct use approach follows the concept that once a business activity qualifies as manufacturing, the taxpayer must then identify that the assets are "directly used" in the process.⁵⁹ This can be a difficult process as very few states clarify what this means.⁶⁰ In applying direct use, the taxpayer must first identify the points at which the manufacturing process begins and ends.

In integrated plant theory, exemptions are applied to machinery and equipment that are necessary and essential to the manufacturing process.⁶¹ Under this theory, many items qualify for the exemption, such as repair parts for equipment, hand tools, cutting and welding gas, consumables, safety supplies, uniforms, utilities, forklift leases and repairs, etc. Under this theory, all the components of the manufacturing process are viewed as a single unit and used directly in the process of manufacturing.

Most legislatures see the manufacturing exemption as an attempt to improve economic development and to make the state more competitive in interstate markets. The incentive offered has many positive effects on the cost of the manufacturing process that provides a benefit to not only the manufacturing company but also to the final consumer. From the state perspective, the effort to attract business investment is a path to improving fiscal conditions by expanding the tax base and improving job opportunities for residents.

From a research perspective, the question becomes one of how or if state and local taxes affect and attract investment. Research on factors affecting the choice of business location generally indicates that taxes have little effect on a business when choosing a location. Nontax factors

⁵⁶ M. DePaul Jr, and G. Thomas, "Sales Tax Exemptions for Manufacturers: An Overview," *J. St. Tax'n*, vol. 7, no. 255, (1988).

⁵⁷ R.J. Cline, J. L. Mikesell, T.S. Neubig, and A. Phillips, "Sales Taxation of Business Inputs: Existing Tax Distortions and the Consequences of Extending the Sales Tax to Business Services," *State Tax Notes*, vol. 35, no. 7 (2005).

⁵⁸ D. A. Hager, "Kansas' Sales and Use Tax Law: Exemptions for Manufacturing Machinery and Equipment and the Integrated Plant Theory," *Washburn Law Journal*, vol. 37, no. 3 (1998): 543-602.

⁵⁹ "TEI Issues Policy Statements Regarding the Sales Taxation of Business Inputs, Trailing Nexus, and the Confidentiality of Taxpayer Information," *Tax Executives Institute*, Accessed October 2022, <https://www.tei.org/advocacy/submissions/tei-issues-policy-statements-regarding-sales-taxation-business-inputs-trailing>

⁶⁰ Hager, "Kansas' Sales and Use Tax Law."

⁶¹ Ibid.

seem to play a much stronger role, such as the labor supply, the relative cost of the labor supply, the cost of energy and transportation, office and manufacturing space availability, and educational levels and opportunities within the community. However, the research also indicates that manufacturing operations are more sensitive to taxation than other industries because of the ultimate impact on the cost of production and pricing and that tax incentives are effective in increasing local economic activity.⁶²

Perhaps of greater importance is the impact of the taxation of business inputs on equity and transparency. The American sales tax is designed to tax the sale of tangible personal property at the time of retail sale. The sales tax is not designed to be collected at each stage of production (with rebates at succeeding levels) like the value-added tax used by the rest of the world. Yet more than 40 percent of national sales taxes (43.5 percent in Georgia) are collected on business inputs and are therefore included in the cost of production and final prices of goods which hides the imposition of the tax from the final purchaser (transparency) and may cause differences in taxation among taxpayers with similar circumstances (equity).⁶³

Equity is important since similarly situated taxpayers expect to be taxed similarly. Taxing business inputs, therefore, violates equity principles depending on the mix of products final consumers purchase and where those products were made. With respect to transparency, taxpayers should know that a tax exists as well as how and when the tax will be collected. Since the manufacturing company is exempt from paying sales taxes on the machinery and supplies used in the manufacturing process, the idea is that the added cost of the taxes is not included in the final price of the product. This enables the price of the product to be more affordable to consumers. Without the exemptions, a product sold at retail would include sales taxes added at every stage of the manufacturing process, a phenomenon known as pyramiding of the tax.⁶⁴ Pyramiding of tax is another phrase meaning the taxation of business inputs.

As noted, in the early stages of production and distribution, pyramiding imposes a sales tax on business-to-business sales. This also creates inequity for smaller businesses that have less ability to vertically integrate their operations and lower costs by doing so. Larger, vertically integrated businesses can avoid sales taxation of business inputs by essentially buying from themselves in an intercompany transaction that does not trigger a sales tax event or the need to provide an exemption certificate. The manufacturing exemption adds parity and places small businesses on an equal footing with respect to the impact of sales tax on cost. Pyramiding can also create distortions in how firms organize their operations, create differences in the effective sales tax rate for different goods and therefore distort consumer choices, and have a negative effect on a state's competitiveness.⁶⁵

⁶² Greenstone, Hornbeck, and Moretti, "Identifying Agglomeration Spillovers: Evidence from Winners and Losers of Large Plant Openings," *Journal of Political Economy* 118, no. 3 (2010): 536-598.

⁶³ Cline, Mikesell, Neubig, and Phillips, "Sales Taxation of Business Inputs."

⁶⁴ R. Cline, A. Phillips, and T. Neubig, "What's Wrong with Taxing Business Services?" *State Tax Notes*, 68 (2013).

⁶⁵ Cline, Mikesell, Neubig, and Phillips, "Sales Taxation of Business Inputs."

In general, pyramiding has been attacked as creating hidden regressive taxes that make the ultimate tax burden difficult to determine, which is a violation of the tax principle of transparency⁶⁶ and creates an environment ripe for inequities. In a 2007 study for the State of California, the author points out that the State's biggest challenge to exempting manufacturing purchases from the sales tax is its reliance on the revenue generated from taxing business inputs. Any exemptions that are granted tend to be large and represent a large revenue loss for a state that does not currently exempt manufacturing-related purchasing either in whole or in part. Regardless of the revenue loss, pyramiding is viewed as economically inefficient and non-neutral. The California study concludes that similarly situated taxpayers should be taxed in a similar fashion, and the sales tax rules should be transparent to create equity throughout the system.⁶⁷

Economic Activity

The economic activity linked to the manufacturing sales tax exemption is analyzed using three separate methods of analysis. First, the authors generated an economic contribution analysis based on estimated purchases made by manufacturers of goods exempted from sales tax under state law. Within this analysis, the direct transactions are funding the manufacturing industry spend to acquire the goods and personnel required to operate firms that make up this industry. Next, we prepared a but for analysis which assesses what would have happened if the sales tax break was not offered in Georgia. Third, we prepared an analysis that focused on what would have happened if the tax break was not offered and an equal amount of taxes had been used to fund state and local programs.

Economic Contribution Analysis

This section provides an analysis of the economic value generated by companies that used the manufacturing sales tax exemption. This calculation started with the intermediate goods, the difference between the output (all sales of goods and services) produced in selected industrial sectors and the gross domestic product (value of goods and services) in these same industrial sectors in Georgia.⁶⁸ We collected output data for 2016 through 2022 on a quarterly basis from the Federal Reserve Bank of Saint Louis Economic Data (FRED). This output included a total for all industries and a total for the industrial sectors covered in the manufacturing sales tax exemption. These industries are NAICS 31-33 Manufacturing, NAICS 21 Mining, Quarrying and Oil and Gas Extraction, NAICS 22111 Electric Power Generation, and NAICS 511110 Newspaper Publishers. Next, gross domestic product for Georgia (GSP) data was collected from FRED and JobsEQ by Chmura for both the U.S. and Georgia. The GSP data was then used to disaggregate the output of the tax exempt qualifying industries in the state of Georgia. This same GSP data

⁶⁶ "TEI Issues Policy Statements Regarding the Sales Taxation of Business Inputs," *Tax Executives Institute*.

⁶⁷ Nellen, A., "Sales and Use Tax Weaknesses & Possible Remedies: The Pyramiding Nature of the Tax," *San Jose State University*, 2007.

⁶⁸ Paul, "What's the Difference Between Economic Output and GDP?" *Impact DataSource*, September 26, 2014, <https://impactdatasource.com/economic-output-vs-gdp/>.

was used to calculate the value of intermediate goods present in these industries at the national and state level. Finally, the intermediate goods figures were proportionally allocated to each qualifying industry based on each industry's qualifying uses, which was determined by the Annual Survey of Manufactures data from the U.S. Census Bureau.

The manufacturing industry, which accounts for over 91 percent of the economy linked to tax exemption, can be volatile due to changes in the availability and costs of input goods and consumer demand. In the calendar years 2017 and 2018, the manufacturing industry grew due to changes in commodity prices and strong domestic demand. In contrast, 2019 had an increase in commodity prices and weaker demand for U.S.-made goods overseas.⁶⁹ Finally, the pandemic years of 2020, 2021, and 2022 presented unique challenges to the industries covered by the manufacturing sales tax exemption. These changes in overall production influenced the use of tax exemptions. Therefore, the changes in the economic contribution analysis are linked to these shifting economic factors.

CBAER used a five-year time frame, starting in Fiscal Year 2018 and ending in Fiscal Year 2022. These figures were calculated using the 4 percent state sales tax rate⁷⁰ and 3 percent rate at the local level because the tax exemption for energy does not always apply to school taxes.⁷¹ This means local governments are still collecting some school taxes on these transactions. A breakdown of the sales tax exemption data by year and by industry that was used to generate the figures in Table 5 is available in Appendix A.

Table 5: Total Amount of Sales Taxes Exempted **

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Total	\$5,663	\$5,374	\$6,065	\$6,028	\$6,842
...State	\$3,236	\$3,071	\$3,466	\$3,445	\$3,910
...Local	\$2,427	\$2,303	\$2,600	\$2,584	\$2,932

Source: CBAER calculations using FRED Data

*Dollars in million

+current year dollars

In Fiscal Year 2018, Georgia's sales tax exemption on qualified purchases linked to manufacturers resulted in lower sales tax collections of \$5.663 billion. The State of Georgia exempted \$3.236 billion from this total, while local governments exempted \$2.427 billion. Using the information in Table 5, the amount of sales taxes exempted increased at an annualized rate of 5.2% to \$6.842 billion in 2022. The State exemption hit \$3.910 billion in sales taxes, and local governments across Georgia exempted \$2.932 billion. Based on the information in Table 5, the corresponding amount of economic activity needed to support these figures is sizable.

⁶⁹ Kimberly Troncoso, "Manufacturing in the U.S."

⁷⁰ "Sales Tax Rates – General," *Georgia Department of Revenue*, <https://dor.georgia.gov/sales-tax-rates-general>.

⁷¹ Ga. Comp. R. & Regs. r. 560-12-2-.62, "Rules and Regulations of the State of Georgia."

CBAER began by calculating the intermediate goods purchased by the qualified manufacturers and the funds used to support required labor directly linked to these purchased goods. This is the difference between the output and gross domestic product variables. These intermediate goods are the supplies, materials and labor used in the production process. The total was used as the direct input in Table 6, which covers linked economic output. Output covers the monetary value of industrial production, which includes net sales and inventory changes estimated by using annual production estimators embedded in IMPLAN.⁷²

Table 6: Output – Economic Contribution of Intermediate Goods in Manufacturing Sales Tax Exemption**

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Direct	\$69,004	\$65,694	\$73,977	\$73,359	\$82,997
Indirect	\$28,844	\$27,734	\$31,224	\$30,921	\$35,124
Induced	\$17,533	\$16,944	\$19,051	\$18,827	\$21,237
Total	\$115,381	\$110,373	\$124,252	\$123,106	\$139,357

*Dollars in millions

+current year dollars

The analysis reveals that indirect spending (business-to-business) and induced contributions (consumer-to-business) transactions accounted for 40.2 percent of the related economic contribution. After the direct spending by the manufacturers, the indirect was the second largest contributor to the total economic impact. In 2021 the indirect transactions accounted for \$35.124 billion in economic output. Within the indirect transactions, the top five contributing sectors include wholesale trade, professional scientific and technical services, management of companies, utilities, and truck transportation. The categories illustrate that the purchases made by manufacturers are going to support industries that are producing/supplying goods to producers. Additionally, these manufacturers are also purchasing professional services to support their operations.

Next, CBAER examined value added closely which is related to gross domestic product for Georgia. It removes the intermediate inputs present in the Output category. Some of these intermediate goods that are not included in value added are the consumption of goods and services purchased from the state or out-of-state suppliers. Several other examples of other variables included in value added include employee compensation, proprietors' income, taxes on productions and imports, and other property income.⁷³ Table 7 presents the value added linked to the purchases made by manufacturers using the sales tax exemption.

⁷² Candi Clouse, "Output," *IMPLAN - Support*, Accessed October 10, 2022, <https://support.implan.com/hc/en-us/articles/115009668388-Output>.

⁷³ Candi Clouse, "Value Added," *IMPLAN - Support*, Accessed October 10, 2022, <https://support.implan.com/hc/en-us/articles/115009498847-Value-added>

**Table 7: Value Added – Economic Contribution of Intermediate Goods
Expenditures in Manufacturing Sales Tax Exemption ****

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Direct	\$22,908	\$21,749	\$24,528	\$24,396	\$27,366
Indirect	\$15,113	\$14,582	\$16,406	\$16,223	\$18,422
Induced	\$10,084	\$9,755	\$10,962	\$10,822	\$12,207
Total	\$48,105	\$46,086	\$51,896	\$51,441	\$57,995

* Dollars in millions

+ current year dollars

The direct sector is the largest single contributor to value added in this analysis which covers 47.2 percent of economic activity. This leaves the indirect and Induced categories of this analysis to cover the remaining value that will become part of the total impact. Within the analysis of value added, indirect transactions are outpacing induced spending. Across the data presented in Table 7, these indirect transactions accounted for 31.8 percent of economic activity linked to the manufacturing sales tax exemption. In contrast, the induced transactions covered 21.0 percent of linked economic activity.

Labor income is the final monetary variable included in this analysis. It consists of both employee compensation and proprietors' income. The figures displayed in Table 8 cover both wages paid and benefits provided to employees.⁷⁴

**Table 8: Labor Income – Economic Contribution of Intermediate Goods
Expenditures in Manufacturing Sales Tax Exemption****

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Direct	\$12,586	\$11,972	\$13,492	\$13,401	\$15,053
Indirect	\$9,204	\$8,867	\$9,974	\$9,858	\$11,190
Induced	\$5,731	\$5,525	\$6,217	\$6,155	\$6,943
Total	\$27,521	\$26,364	\$29,683	\$29,414	\$33,186

* Dollars in millions

+current year dollars

From 2018 to 2022, labor income increased at an average annual rate of 5.1 percent. Although the overall increase was positive, it was not a linear change, with the Fiscal Year 2019 and Fiscal Year 2021 being less than the preceding year. Within the labor income analysis, direct labor income hit its lowest point in the Fiscal Year 2019 at \$11.972 billion, while the highest was \$15.053 billion in the Fiscal Year 2022. The secondary impacts of indirect spending continued to outperform the induced transactions. Over the five-year timeframe, indirect spending was 33.7 percent, while induced transactions were 20.9 percent.

⁷⁴ Candi Clouse, "Labor Income," *IMPLAN - Support*, Accessed October 10, 2022, <https://support.implan.com/hc/en-us/articles/115009668468-Labor-Income>.

The final variable included in the economic contribution analysis is total employment linked to companies that are using the sales tax exemption. Employment includes all full-time, part-time, and temporary labor.

Table 9: Employment – Economic Contribution of Intermediate Goods Expenditures in Manufacturing Sales Tax Exemption

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Direct	171,742	162,458	179,637	171,923	193,855
Indirect	132,075	125,597	138,908	132,755	150,620
Induced	120,998	114,600	126,921	121,681	137,255
Total	424,815	402,655	445,467	426,359	481,730

CBAER examined the total employment impact in this analysis and identified the top five indirect and induced industrial sectors most impacted within this analysis. The top five included food manufacturing, administrative support services, wholesale trade, professional technical and scientific services, and eating and drinking places. These sectors illustrate that the secondary Industrial sectors plays a leading role in the total employment impact. Combined, the indirect and induced categories account for 58.8 percent of the total employment impact of this analysis.

But For Analysis

This report section examines the potential linkages between the manufacturing sales tax exemption and current/future economic activity. Using information from the Area Development Magazine 36th Annual Corporate Survey, when companies are making location decisions, economic factors outranked tax policy. According to this survey, the top five most important factors were labor costs, availability of skilled labor, energy availability/costs, inbound/outbound shipping costs, and highway accessibility. While tax policies are important, they were included at the bottom of the combined rating, with the corporate tax rate ranked seventh, state and local incentives reaching eighth, and tax exemptions being tenth. In this sample, 55 percent of respondents were manufacturers or in the energy industry.⁷⁵ These survey results illustrate that for many companies looking to make a location decision, tax exemption is an important factor, but other business-related factors rank higher in the decision-making process. It is important to note that these factors are important for location decisions by corporations generally, **but research shows that tax incentives are more important for manufacturing concerns than for businesses in other sectors.**⁷⁶

We calculated a but for percentage of economic activity based on the available literature. Among economic development professionals, tax incentives vary by state, but these incentives are typically tax breaks or grants that are provided to individual firms in targeted industries. Using meta-analysis, the location, expansions and retentions are influenced by tax incentive

⁷⁵ Geraldine Gambale, “36th Annual Corporate Survey.”

⁷⁶ Greenstone, Hornbeck, and Moretti, “Identifying Agglomeration Spillovers.”

policies 2 percent to 25 percent of the time. This means that but for the incentives in 25 percent of cases, the firm would have made a different decision.⁷⁷

**Table 10: Average Economic Contribution
Lost Without the Manufacturing Sales Tax Exemption**

	Output ^{*,†}		Value Added ^{*,†}		Labor Income ^{*,†}		Employment	
	Low	High	Low	High	Low	High	Low	High
Direct	\$1,460	\$18,253	\$484	\$6,049	\$266	\$3,326	3,423	42,781
Indirect	\$616	\$7,698	\$323	\$4,038	\$196	\$2,454	2,645	33,062
Induced	\$374	\$4,679	\$215	\$2,689	\$122	\$1,530	2,419	30,240
Total	\$2,450	\$30,631	\$1,022	\$12,777	\$585	\$7,310	8,487	106,083

Source: Upjohn Institute Working Paper and CBAER

* Dollars in millions

†current year dollars

Table 10 illustrates a low (2 percent) and a high (25 percent) scenario based on the average annual linked value of tax incentives. (See Appendix B for a breakdown by year.) From an economic development standpoint, the value of manufacturing sales tax exemptions range between \$1.460 billion and \$18.253 billion in direct output. It increased to \$2.450 or \$30.631 billion in total when consideration of indirect and induced output is included. These economic output findings support employment in both the low and high scenarios. In the low scenario, direct employment was 3,423, and total supported jobs reached 8,487. While in the high scenario, direct employment was 42,781, and total employment reached 106,083 jobs.

In addition to the economic development case, the manufacturing sales tax exemption also impacts tax equity by removing taxes charged during the intermediate stages of the production process. A sales tax is designed to be paid on tangible personal property at the point of the final sale. When intermediate goods used in the production process are taxed, additional costs are included in the cost of production and are added to the final prices of goods. These taxes are hidden from the final purchaser (transparency) and treat taxpayers differently depending on the manufacturing process used by the producer for the same goods (equity).⁷⁸ For example, many small manufacturers may not be able to vertically integrate their operations. This puts the small manufacturer at a disadvantage because they are paying sales taxes on intermediate goods, whereas a large manufacturer might be able to acquire these goods from a subsidiary and avoid paying sales taxes.

This is also called pyramiding of tax which is the tax of business inputs during the production process. In Georgia the manufacturing sales tax exemption addresses pyramiding issues by

⁷⁷ Timothy J. Bartik, "But For' Percentages for Economic Development Incentives: What Percentage Estimates are Plausible Based on the Research Literature?" *W.E. Upjohn Institute for Employment Research*, Upjohn Institute Working Paper (July 1, 2018): 18-289, <https://doi.org/10.17848/wp18-289>

⁷⁸ Cline, Mikesell, Neubig, and Phillips, "Sales Taxation of Business Inputs."

reducing the amount of sales tax charged to producers before the products are ready for final sale. Pyramiding can also influence the way the business operates by creating incentives that could reduce business productivity which can increase costs paid by consumers and reduce competitiveness both at the business and industry level.⁷⁹

Alternate Use Reduction Analysis

Following the economic contribution analysis and but for, CBAER generated an alternative use analysis. This analysis focused on the potential uses for tax revenue if the entire manufacturing sales tax exemption was eliminated and if the amount of the tax related to the exemption was collected as revenue. The team generated an average tax expenditure for the five-year period from 2018 to 2022. Following this format state and local governments in Georgia could have received an additional \$5.994 billion dollars in combined tax revenue. Table 11 displays the economic impact of these funds if they had been used by state and local governments for other purposes.

**Table 11: Combined State and Local Government–
Average Alternative Use Economic Impact**

	Output^{*+}	Value Added^{*+}	Labor Income^{*+}	Employment
Direct	\$5,994	\$1,987	\$1,092	14,049
Indirect	\$2,528	\$1,326	\$806	10,858
Induced	\$1,537	\$883	\$502	9,931
Total	\$10,059	\$4,196	\$2,401	34,838

* Dollars in millions

+ Current year dollars

In Table 11, CBAER assumes that the revenue from the exemption is collected and used in the direct category by state and local governments. If this had happened, state and local government would have reached 14,049 jobs which would have contributed 1.987 billion to value added. These jobs would have had pay and benefits packages close to \$77,728 in annual compensation. The indirect and induced spending linked to potential output totaled 4,064 billion, which is 40 percent of the total output. The value-added figures are similar to these secondary impacts of 2,209 or 53 percent of the total.

Next, the team split the state and local governments into two separate potential average economic impacts. The estimated potential revenue impact for state government is listed in Table 12.

⁷⁹ Ibid.

Table 12: State Government Only – Average Alternative Use Economic Impact

	Output^{*+}	Value Added^{*+}	Labor Income^{*+}	Employment
Direct	\$3,425	\$1,135	\$624	8,028
Indirect	\$1,445	\$758	\$461	6,204
Induced	\$878	\$505	\$287	5,675
Total	\$5,748	\$2,398	\$1,372	19,907

* Dollars in millions

+ Current year dollars

If the exempted sales tax had been used to support state government operations, the alternative use of these funds would have produced 8,028 indirect jobs. This change would have also directly added \$1.135 billion dollars to direct value added in Georgia. As this direct spending worked through the economy, The indirect and induced spending would have reached \$1.263 billion in support value added and \$748 million in labor income. Across the state, the total economic impact would have been \$5.7 billion dollars.

Additionally, the team also examined the potential revenue impact for local government. The local governments included in this part of the analysis included but were not limited to county, municipal, special districts, and local school districts. The result of this analysis is displayed in table 13.

Table 13: Local Government Only – Average Alternative Use Economic Impact

	Output^{*+}	Value Added^{*+}	Labor Income^{*+}	Employment
Direct	\$2,569	\$851	\$468	6,021
Indirect	\$1,083	\$568	\$345	4,653
Induced	\$659	\$379	\$215	4,256
Total	\$4,311	\$1,798	\$1,029	14,930

* Dollars in million

+current year dollars

The exempted sales tax expenditure for all local governments in Georgia would have directly supported 6,021 direct jobs and 14,930 jobs in total. Using the total labor income, these jobs would have had pay and benefits packages that totaled \$68,922 in compensation. The supported economic activities are led by indirect (business-to-business) transactions, which were 31 percent of total employment, followed by induced (consumer-to-business) transactions at 29 percent of total employment.

Next, CBAER estimated the amount of tax revenue that would have been collected following the alternate use case assumptions. Table 14 presents the average annual new tax collections for both state and local governments in Georgia from the alternate use activities for the Fiscal Years 2018 through 2022.

**Table 14: Combined State and Local Governments –
Average Alternative Use Tax Collections Without the Subsidy*+**

	State	Local Taxes
Georgia Income Tax Estimate	\$79	
Sales Tax Estimates	\$44	\$42
Georgia All Other Taxes (estimated at 22% of total GA tax)	\$35	
Property	\$0	\$80
Total State and Local Tax Estimate	\$158	\$122

* Dollars in million

+ current year dollars

Based on the alternate use economic impact analysis, the total state tax collection of new taxes would have reached \$158 million with \$122 million in local tax collections. The tax collection linked to this analysis is based on the secondary impact of individuals paying state and local taxes on their income from the activities. The largest category for state government in terms of revenue is the income tax estimate which totaled \$79 million or 50 percent of the total. Sales taxes and other Georgia taxes were \$44 million and \$35 million, respectively. The local tax collections were most represented by property taxes which made-up 66 percent of the total collections for this category, with local sales taxes contributing \$42 million. However, our estimates show that the manufacturing sector of the economy of Georgia generates \$73.014 billion in direct output on average during Fiscal Years 2018 through 2022. The fiscal analysis section presents estimates of the impact of the sales tax exemption for manufacturing on tax collections between Fiscal Years 2018-2022.

Fiscal Analysis

The fiscal impact of the exemptions for manufacturing activities is determined by comparing the cost to the state of providing the exemption to the increased revenue to state and local governments resulting from the incentives that the exemptions provided. Table 15 summarizes the average annual economic impact of the exemptions, as discussed above, from 2018 to 2022. An average across this timeframe was used as opposed to one single year in order to account for the effects of the COVID-19 pandemic. Prior to the pandemic, industrial development activity was more subdued than it has been since. Additionally, no estimate of future growth is provided in this report. The rapid pace of growth within the industries qualifying for the manufacturing sales tax exemption would likely cause a forecast to materially underestimate the actual outcome.

Table 15: Average Economic Impact of the Manufacturing Sales Tax Exemption^{*+}

Impact	Output ^{*+}	Value Added ^{*+}	Labor Income ^{*+}	Employment
Direct	\$73,014	\$24,196	\$13,305	171,125
Indirect	\$30,793	\$16,153	\$9,816	132,247
Induced	\$18,716	\$10,758	\$6,119	120,961
Total	\$122,523	\$51,108	\$29,240	424,333

* Dollars in millions

+ current year dollars

The economic impact of the manufacturing exemptions has an impact on state and local government tax collections which partially offset the revenue loss from the provision of the exemptions. Companies will pay sales tax on non-exempt items purchases in-state, employees pay income tax on their wages, and companies pay corporate taxes on their profits. The impact of this economic activity on state and local tax receipts is summarized in Table 16.

Table 16: New Tax Revenue from Economic Activity^{*+}

Type of Tax	Average			Total (FY 2018 – 2022)		
	State Impact	Local Impact	Total	State Impact	Local Impact	Total
Sales tax	\$839	\$491	\$1,330	\$4,214	\$2,467	\$6,681
Corporate profits tax	\$103	\$0	\$103	\$514	\$0	\$514
Personal income tax	\$663	\$0	\$663	\$3,320	\$0	\$3,320
Property taxes	\$0	\$1,212	\$1,212	\$0	\$6,088	\$6,088
Other taxes	\$140	\$95	\$235	\$703	\$475	\$1,178
Total tax receipts	\$1,745	\$1,798	\$3,543	\$8,751	\$9,030	\$17,781

*Dollars in millions

+ current year dollars

To calculate the net revenue loss due to the manufacturing exemptions, the cost of the exemptions in terms of lower sales tax receipts from manufacturing purchases is offset by the net of the new tax revenue generated by the economic activity spurred by the provision of the

exemptions less the tax revenue lost from the fiscal impact of alternative government spending. The net revenue loss due to manufacturing exemptions is presented in Table 17.

**Table 17: Estimated Net State and Local Revenue Loss
from Manufacturing Sales Tax Exemptions^{*,+}**

Type of Tax	Combined State and Local Impact - Average	Combined State and Local Impact – Total (FY 2018 – 2022)
Sales tax foregone on manufacturing exemptions	(\$5,994)	(\$29,972)
New sales tax receipts	1,330	6,681
New corporate profits tax	103	514
New personal income tax	663	3,320
New property taxes	1,212	6,088
New other taxes	235	1,178
Foregone sales tax receipts from alternate spending	(86)	(430)
Foregone income tax receipts from alternate spending	(79)	(395)
Foregone property tax receipts from alternate spending	(80)	(400)
Foregone other tax receipts from alternate spending	(35)	(175)
Net revenue loss from manufacturing sales tax exemption	(\$2,731)	(\$12,471)

*1,000,000 Dollars

+ current year dollars

The net revenue loss from the provision of the exemptions for manufacturing purchases yields an average cost per job created of \$25,888 for the years 2018 through 2022. The annual return on investment from the net new tax revenue is 54.6 percent per year.

Finally, the cost to administer these programs is minimal based on the information provided by the Georgia Department of Revenue. Sales and use taxes are not “specifically accounted for by DOR.” Two units manage sales and Use taxes in DOR that are part of the Taxpayer Services Division (this include) Business Operation Trust Tax and Business Verification.” Combined use has “17 TSD staff that work on all eight trust and excise taxes and fees.” This makes the total staffing cost \$1.14 million in salaries and benefits, and no equipment or operational cost was provided.⁸⁰ Following this information, the cost of managing the manufacturing sales tax exemption program appears minimal.

⁸⁰ Georgia Department of Revenue, Taxpayer Services & Processing Center Division, Administrative Costs of Trust Excise.

Public Benefit

The sales tax exemptions for manufacturing activities provide a number of benefits for the citizens of Georgia, the most important of which are not monetary. As noted in the fiscal and economic analyses presented in this report, manufacturing generates annual average output of more than \$122 billion, value added of \$51 billion and provides employment for more than 424,000 people. This represents 8 percent of state employment and 11 percent of state GSP. A vibrant and growing manufacturing industry is an important asset for the state. The provision of the exemptions for manufacturing operations creates an environment conducive to expansion of manufacturing in Georgia by companies already located here, and perhaps an inviting environment for new operations moving into the state. At the very least the provision of the exemption keeps the state competitive with its neighbors.

The provision of the exemption for manufacturing operations represents good tax policy. When a consumer purchases a product and pays the sales tax, they expect that the average seven percent they pay is the complete amount of sales tax paid. They expect transparency, not hidden taxes included in the cost of the product. When business inputs are taxed the consumer's expectation with respect to transparency is not met. Consider the case of a consumer purchasing product in example A made entirely from components produced in Georgia and assume that business inputs are taxed. Table 18 shows the results.

Table 18: EXAMPLE
Sales Tax Collected on Product A When Business Inputs are Taxed

Intermediate and Retail Sales – Product A	Cost	Tax Collected	Tax Expected by Consumer
Component parts supplied to manufacturer	\$100,000	\$7,000	\$0
Manufacturer – buys computers used in manufacturing – amount allocated to this sales batch	\$200,000	\$14,000	\$0
Manufacturer – buys materials and supplies used in manufacturing	\$50,000	\$3,500	\$0
Labor	\$50,000	\$0	\$0
Markup to retail	\$200,000	\$0	\$0
Retail sales of products	\$600,000	\$42,000	\$42,000
Total sales taxes collected		\$66,500	\$42,000
Effective sales tax rate on products sold		11.1%	7%

The taxes levied on business inputs will generally be passed through as additional cost by the manufacturer to the retailer and ultimately to the consumer. So, when the consumer purchases product A, they are effectively paying a tax of 11.1 percent rather than the expected 7 percent. This is a violation of the principle of transparency.

Assume that another manufacturer produces products with a different mix of business inputs as indicated in Table 19.

Table 19: EXAMPLE

Sales Tax Collected on Product B When Business Inputs are Taxed

Intermediate and Retail Sales – Product B	Cost	Tax Collected	Tax Expected by Consumer
Component parts supplied to manufacturer	\$250,000	\$17,500	\$0
Manufacturer – buys computers used in manufacturing – amount allocated to this sales batch	\$350,000	\$24,500	\$0
Manufacturer – buys materials and supplies used in manufacturing	\$100,000	\$7,000	\$0
Labor	\$50,000		
Markup to retail	\$200,000		
Retail sales of products	\$950,000	\$66,500	\$66,500
Total sales taxes collected		\$115,500	\$66,500
Effective sales tax rate on products sold		12.2%	7%

When the consumer purchases product B, they are effectively paying a sales tax of 12.2 percent rather than the expected tax of 7 percent. This is again an example of a violation of the principle of transparency, but it is also a violation of the principle of equity. The taxation of business inputs results in consumers paying a range of different tax rates for products based on the taxation of the mix of inputs required to produce the product. This is a violation of equity. The sales tax levied on a particular product will never equal the statutory rate and consumers will be taxed based on their product preferences.

States want their tax systems to be trusted by citizens. To achieve this result, adherence to the principles of transparency and equity are of primary importance. The exemption for machinery, equipment, materials, supplies, and other items directly related to manufacturing is critical for maintaining a trusted and effective tax system that does not create economic distortion.

Conclusion

The sales tax exemptions for manufacturing equipment, industrial materials, packing supplies, and energy (manufacturing sales tax exemption) make an economic contribution to Georgia. Businesses in the manufacturing, mining, electric power generation, and newspaper publishing industries have used this sales tax exemption to support an average annual impact of \$122.523 billion in total economic output (revenue) and \$51.108 billion in value added (gross domestic product) activity during the Fiscal Year 2018 – 2022. This spending also supports 424,333 jobs in Georgia.

In terms of tax revenue, the manufacturing sales tax exemption reduced state and local tax revenue by \$5.994 billion on an average annual basis between the Fiscal Year 2018 – 2022. The revenue reduction for the State of Georgia averaged \$3.236 billion and local governments exempted \$2.427 billion. However, the economic activity discussed in the economic contribution section also generated tax revenue. The average tax collection for this source hit \$3.543 billion in linked tax revenue. Next, the team examined the additional tax revenue linked to an alternative use analysis. In the alternative use case, the sales tax exemption is collected and used by state and local governments. This use of these funds would have generated 280 million in tax revenue. When all of these factors are considered, total net revenue losses reach \$2.731 billion on an average annual basis between the Fiscal Year 2018 – 2022.

The total net revenue loss only tells part of the impact of this sales tax exemption. From an economic development standpoint, without the sales tax exemption, two percent to 25 percent of the overall economic impact would not have been retained by or relocated to Georgia over the analyzed timeframe. Using the data from the but for analysis, there would be 3,423 to 42,781 fewer direct jobs in Georgia. This loss of these direct jobs would have reduced total employment by 8,487 or 106,083. In addition, the total value added (gross domestic product) would have been reduced by \$1,022 billion or \$12,777 billion between Fiscal Year 2018 – 2022.

This manufacturing sales tax exemption also helps the State avoid the pyramiding of sales tax paid by the ultimate consumer. During the production process, when goods are purchased by the manufacturer, any sales taxes paid are passed on to the consumer. When this happens, the cost of manufactured goods increases. A sales tax is designed to be paid on tangible goods at the point of the final sale. When sales taxes are paid on goods used in production, these costs are hidden from the final purchaser, making the tax less transparent. It also treats consumers differently depending on where the product was manufactured. This helps to make the tax system less equitable for the consumer.

Avoiding the pyramiding of sales taxes in whole or in part has an impact on the cost of production and the final price of goods in the market.⁸¹ The increased cost could result in losing sales to competitors in other states that utilize the exemption to keep their prices lower. If this

⁸¹ For example, see industry testimony in State of Ohio, “November 2018 Report,” *Tax Expenditure Review Committee*, <https://www.ohiosenate.gov/Assets/Global/TERCReportNovember.pdf>.

additional cost is not able to be reflected in final goods prices, other actions might be taken by producers. This could include but is not limited to reducing investment and jobs within Georgia, canceling plans for expansion, and ultimately lowering wages.⁸²

Therefore, while growth in the manufacturing industry within Georgia is not totally dependent upon the provision of the exemption for manufacturing-related purchases, the exemptions are an important consideration in choosing where to locate new facilities and whether or not a business should expand within Georgia or look elsewhere for expansion plans. In this sense, the growth of manufacturing is still highly dependent on having the exemption to reduce costs and maintain competitiveness. At the very least, one can conclude that without the exemptions for manufacturing, the Georgia manufacturing sector would differ from what it is currently.

⁸² Cline, Mikesell, Neubig, and Phillips, "Sales Taxation of Business Inputs."

Appendix A: Total Exempted Sales Taxes by Industry

Table 20: Total Exempted Sales Taxes by Industry

		Manufacturing (NAICS 31-33)	Mining (NAICS 21)	Electric Power Generation (22111)	Newspaper Publishers (511110)	Total
FY 18	Total	\$5,206.52	\$114.15	\$280.66	\$61.26	\$5,662.59
	State	2,975.20	65.2	160.4	35	3,235.76
	local	2,231.40	48.9	120.3	26.3	2,426.82
FY19	Total	\$4,980.18	\$107.67	\$227.53	\$58.67	\$5,374.06
	State	3,193.78	78.11	158.75	\$35.35	3,070.89
	local	2,365.24	63.91	127.09	\$27.34	2,303.17
FY 20	Total	\$5,589.12	\$136.69	\$277.82	\$61.86	\$6,065.49
	State	3,153.65	85.21	169.45	\$36.45	3,465.99
	local	2,687.07	76.76	148.99	\$19.32	2,599.50
FY 21	Total	\$5,518.89	\$149.12	\$296.53	\$63.79	\$6,028.34
	State	3,153.65	85.21	169.45	36.45	3,444.76
	local	2,365.24	63.91	127.09	27.34	2,583.57
FY 22	Total	\$6,269.83	\$179.11	\$347.65	\$45.09	\$6,841.68
	State	3,582.76	102.35	198.66	25.76	3,909.53
	local	2,687.07	76.76	148.99	19.32	2,932.15

Appendix B: Annual Economic Contribution Without the Manufacturing Sales Tax Exemption

**Table 21: 2018 Average Economic Contribution
Without the Manufacturing Sales Tax Exemption**

	Output**		Value Added**		Labor Income**		Employment	
	Low	High	Low	High	Low	High	Low	High
Direct	\$1,380	\$17,251	\$458	\$5,727	\$252	\$3,147	3,435	42,936
Indirect	\$577	\$7,211	\$302	\$3,778	\$184	\$2,301	2,642	33,019
Induced	\$351	\$4,383	\$202	\$2,521	\$115	\$1,433	2,420	30,250
Total	\$2,308	\$28,845	\$962	\$12,026	\$550	\$6,880	8,496	106,204

* Dollars in millions

**current year dollars

**Table 21: 2019 Average Economic Contribution
Without the Manufacturing Sales Tax Exemption**

	Output**		Value Added**		Labor Income**		Employment	
	Low	High	Low	High	Low	High	Low	High
Direct	\$1,314	\$16,424	\$435	\$5,437	\$239	\$2,993	3,249	40,615
Indirect	\$555	\$6,934	\$292	\$3,646	\$177	\$2,217	2,512	31,399
Induced	\$339	\$4,236	\$195	\$2,439	\$111	\$1,381	2,292	28,650
Total	\$2,207	\$27,593	\$922	\$11,522	\$527	\$6,591	8,053	100,664

* Dollars in millions

**current year dollars

**Table 21: 2020 Average Economic Contribution
Without the Manufacturing Sales Tax Exemption**

	Output**		Value Added**		Labor Income**		Employment	
	Low	High	Low	High	Low	High	Low	High
Direct	\$1,480	\$18,494	\$491	\$6,132	\$270	\$3,373	3,593	44,909
Indirect	\$624	\$7,806	\$328	\$4,102	\$199	\$2,494	2,778	34,727
Induced	\$381	\$4,763	\$219	\$2,741	\$124	\$1,554	2,538	31,730
Total	\$2,485	\$31,063	\$1,038	\$12,974	\$594	\$7,421	8,909	111,367

* Dollars in millions

**current year dollars

**Table 21: 2021 Average Economic Contribution
Without the Manufacturing Sales Tax Exemption**

	Output**		Value Added**		Labor Income**		Employment	
	Low	High	Low	High	Low	High	Low	High
Direct	\$1,467	\$18,340	\$488	\$6,099	\$268	\$3,350	3,438	42,981
Indirect	\$618	\$7,730	\$324	\$4,056	\$197	\$2,465	2,655	33,189
Induced	\$377	\$4,707	\$216	\$2,706	\$123	\$1,539	2,434	30,420
Total	\$2,462	\$30,777	\$1,029	\$12,860	\$588	\$7,354	8,527	106,590

* Dollars in millions

**current year dollars

**Table 21: 2022 Average Economic Contribution
Without the Manufacturing Sales Tax Exemption**

	Output**		Value Added**		Labor Income**		Employment	
	Low	High	Low	High	Low	High	Low	High
Direct	\$1,660	\$20,749	\$547	\$6,842	\$301	\$3,763	3,877	48,464
Indirect	\$702	\$8,781	\$368	\$4,606	\$224	\$2,798	3,012	37,655
Induced	\$425	\$5,309	\$244	\$3,052	\$139	\$1,736	2,745	34,314
Total	\$2,787	\$34,839	\$1,160	\$14,499	\$664	\$8,297	9,635	120,433

* Dollars in millions

**current year dollars