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| PROPOSED MASSACHUSETTS TAX EXPENDITURES EVALUATION SUMMARY  |
| EVALUATION YEAR: 2020 |

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| **TAX EXPENDITURE TITLE** | Exemption for Materials, Tools, Fuels and Machinery Used in Manufacturing |
| **TAX EXPENDITURE NUMBER** | 3.302 |
| **TAX EXPENDITURE CATEGORY** | Exempt Component of a Product or Consumed in Production |
| **TAX TYPE** | Sales and use tax |
| **LEGAL REFERENCE** | M.G.L. c. 64H, § 6(r) and (s) |
| **YEAR ENACTED** | 1967 (Chapter 757 of the Acts of 1967, § 1) |
| **REPEAL/EXPIRATION DATE** | None |
| **ANNUAL REVENUE IMPACT** | Tax loss of $630.5 - $643.3 million per year during FY18-FY22 |
| **NUMBER OF TAXPAYERS**  | Buyers and Sellers who buy and sell exempt items  |
| **AVERAGE TAXPAYER BENEFIT** | Annual tax saving of about $104,000 per business who buy exempt items  |

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| --- | --- |
| **Description of the Tax Expenditure:**Materials, tools, fuels and machinery, and replacement parts, used directly and exclusively in manufacturing are exempt from sales tax if they become components of a product to be sold, or are consumed or directly used in the manufacturing process. | **Is the purpose defined in the statute?**The statute does not explicitly state the purpose of this tax expenditure.  |
| **What are the policy goals of the expenditure?** To encourage industrial expansion in Massachusetts, spur economic development, and to ensure that tax is imposed only once, on consumers who purchase the finished retail product, rather than multiple times on companies during production.  | **Are there other states with a similar Tax Expenditure?**A large majority of the states that impose a sales tax exempt purchases of manufacturing machinery and equipment. Among these states are New York, Connecticut, Rhode Island, Pennsylvania, Virginia. However, it is less common for states to exempt materials, tools, fuel, and replacement parts. |

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| Conclusion/Recommendations: [To be Entered by TERC] |

**INTRODUCTION**

Materials, tools, fuels, machinery, and replacement parts, used in manufacturing, are exempt from sales tax if they (i) become components of a product to be sold or (ii) are consumed or are directly and exclusively used in the manufacturing process. The exemption relates to raw materials and property that is used to convert raw materials into a manufactured product. In order for property to fall within the manufacturing exemption, it must be used directly and exclusively in an industrial plant in the actual manufacture of tangible personal property to be sold.

**POLICY GOALS**

This tax expenditure aims to encourage industrial expansion and spur economic development in Massachusetts by reducing operating costs for manufacturers. It also seeks to avoid pyramiding of sales taxes. Without the exemption, the tax on items used in the manufacturing process will be reflected in the price of the product sold to the ultimate consumer, resulting in consumers bearing the burden of multiple layers of tax.

**DIRECT COSTS**

The revenue loss resulting from this tax expenditure is estimated to be $630.5 - $643.3 million per year during FY18-FY22. See Table 1.

**Table 1. Tax Revenue Loss Estimates for Sales Tax Exemption for**

 **Materials, Tools, Fuels, and Machinery Used in Manufacturing**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year  | 2018 | 2019 | 2020 | 2021 | 2022 |
|  Estimated Revenue Loss ($Million)  | $630.5 | $633.7 | $636.9 | $640.1 | $643.3 |

**DIRECT BENEFITS**

The Massachusetts businesses who buy and sell exempt products (Materials, Tools, Fuels, and Machinery) used in manufacturing are the direct beneficiaries of the sales tax exemption. Buyers benefit from the sales tax exemption in the form of paying a lower “after tax price” while sellers benefit from the sales tax exemption in the form of receiving a higher “before tax price”. The exact split of the direct benefits depends on the interaction of demand and supply and is often difficult to quantify. Out-of-state businesses who sell the exempt products to Massachusetts businesses also benefit from this sales tax exemption.

According to the U.S. Census Bureau, in 2017, Massachusetts had 6,143 manufacturing firms with 6,437 establishments. These firms employed 231,593 people generating $15.7 billion in annual payroll and $82.3 billion in annual sales. See Table 2 below. Please also see Appendix 1 for more facts about the manufacturing sector in Massachusetts.

**Table 2. Key Facts about Massachusetts Manufacturing Sector**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2017 NAICS Code | Number of Firms | Number of Establishments | Annual Payroll ($1,000) | Number of Employees | Sales, Value of Shipments, or Revenue ($1,000) | Value Added ($1,000) |
| 31-33 | 6,143 | 6,437 | $15,749,394 | 231,593 | $82,308,451 | $45,306,135 |

Source: U.S. Census Bureau, 2017 Economic Census

If we assume that the entire tax saving due to the sales tax exemption is passed on to buyers and on average 6,200 buyers used this tax exemption annually, the average tax saving would be about $104,000 in FY22 (=$643.3 million divided by 6,200).

**EVALUATION: COMPARING COSTS AND BENEFITS**

In the previous sections, we report the direct costs (to the Commonwealth, or to the residents and businesses who ultimately bear the costs when the Commonwealth cuts government spending or increases taxes to finance the sales tax exemption for materials, tools, fuels, and machinery used in manufacturing) and direct benefits (to buyers and sellers of exempt items) of this tax expenditure. Since the direct costs to the Commonwealth are the direct benefits to taxpayers, they are equal.

Besides the direct costs and benefits, there are indirect and induced costs and benefits associated with this tax expenditure. The indirect impact (cost or benefit) is felt by the chain of businesses that provide intermediate products and services to the directly impacted businesses. The induced impact (cost or benefit) results from any overall change in the economy derived from the tax expenditure, such as where a chain of businesses benefits when the employees working for the directly impacted businesses spend their additional wages and salaries attributable to the tax expenditure to buy goods and services. The total benefits or costs to the whole economy are larger than the initial direct impacts. This phenomenon is called the “Multiplier Effect”.[[1]](#footnote-1)

To measure these indirect and induced costs and benefits, economists often need to utilize complicated models, such as REMI (Regional Economic Models, Inc.) or IMPLAN (Impact Analysis for Planning) models. Appendix 2 shows one such attempt by DOR.

Besides the economic costs and benefits discussed so far, one may also want to consider the factor of negative externality when evaluating this tax expenditure. Negative externalities occur when the production and/or consumption of a [good](https://corporatefinanceinstitute.com/resources/knowledge/accounting/cost-of-goods-manufactured-cogm/) or service exerts a negative effect on a third party independent of the transaction. For example, manufacturing plants may cause noise and air pollution during the manufacturing process. By encouraging manufacturing activities, this tax expenditure may aggravate the problem of negative externality such as noise and pollution if there are no other policies to offset the impact.

Please note that the tax expenditure has a specific purpose. The goal is to encourage industrial expansion in Massachusetts, spur economic development, and to ensure that tax is imposed only once, on consumers who purchase the finished retail product, rather than multiple times on companies during production.

It is difficult to quantify how much this tax expenditure encourages industrial expansion in Massachusetts and spurs economic development in the state. However, given the size of tax savings to taxpayers and wide use of this exemption in other states[[2]](#footnote-2), the tax expenditure almost certainly helps improve the state’s business tax climate[[3]](#footnote-3) and helps maintain or increase the state’s competitiveness, thus helping attract new production facilities and retaining existing plants.

If a business must pay sales tax on manufacturing equipment and raw materials, then that tax becomes part of the price of manufactured goods produced with that equipment and materials. The business must then collect sales tax on its own products, with the result that a tax is being charged on a price that already contains taxes. This tax pyramiding invariably results in some industries being taxed more heavily than others, which violates the principle of neutrality and causes economic distortions. From the standpoint of avoiding tax pyramiding, this tax expenditure meets the policy goal.

**Similar Tax Expenditures Offered by Other States**

While most states exempt manufacturing machinery from their sales tax, Alabama, Hawaii, Kentucky, Mississippi, Nevada, New Mexico, North Dakota, South Dakota, and the District of Columbia are exceptions. Hawaii taxes not just the machinery businesses use to manufacture goods, but also the raw materials used in manufacturing. New Mexico and South Dakota tax a large number of business inputs compared to the rest of the country.

Table 3 below gives the state tax treatment of sales tax bases including manufacturing machinery and manufacturing raw materials, followed by a map on the next page.

**Table 3. State Sales Tax Bases: Exemptions for Business-to-Business Transactions (as of July 1, 2019)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| State | Specific Exemption | Farm Equipment | Office Equipment | **Manufacturing Machinery** | **Manufacturing Raw Materials** | Business Fuel and Utilities | Business Lease and Rentals | InformationServices |
| Alabama | *No* | *Taxable* | *Taxable* | ***Taxable*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |
| Alaska | *n.a.* | *n.a.* | *n.a.* | ***n.a.*** | ***n.a.*** | *n.a.* | *n.a.* | *n.a.* |
| Arizona | *No* | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Taxable* | *Taxable* | *Exempt* |
| Arkansas | *No* | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Taxable* | *Taxable* | *Exempt* |
| California | *No* | *Taxable* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Colorado | *No* | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Connecticut | *No* | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |
| Delaware | *n.a* | *n.a.* | *n.a.* | ***n.a.*** | ***n.a.*** | *n.a.* | *n.a.* | *n.a.* |
| Florida | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Georgia | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Taxable* | *Taxable* | *Exempt* |
| Hawaii | No | *Taxable* | *Taxable* | ***Taxable*** | ***Taxable*** | *Taxable* | *Taxable* | *Taxable* |
| Idaho | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Exempt* | *Exempt* |
| Illinois | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Indiana | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Iowa | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Kansas | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Kentucky | No | *Exempt* | *Taxable* | ***Taxable*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Louisiana | No | *Taxable* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Maine | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Maryland | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| **Massachusetts** | **No** | ***Exempt*** | ***Taxable*** | ***Exempt*** | ***Exempt*** | ***Exempt*** | ***Taxable*** | ***Exempt*** |
| Michigan | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Minnesota | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Mississippi | No | *Partial* | *Taxable* | ***Taxable*** | ***Exempt*** | *Taxable* | *Taxable* | *Exempt* |
| Missouri | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Montana | *n.a* | *n.a.* | *n.a.* | ***n.a.*** | ***n.a.*** | *n.a.* | *n.a.* | *n.a.* |
| Nebraska | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Exempt* | *Exempt* |
| Nevada | No | *Exempt* | *Taxable* | ***Taxable*** | ***Exempt*** | *Taxable* | *Taxable* | *Exempt* |
| New Hampshire | *n.a* | *n.a.* | *n.a.* | ***n.a.*** | ***n.a.*** | *n.a.* | *n.a.* | *n.a.* |
| New Jersey | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Taxable* | *Taxable* | *Taxable* |
| New Mexico | No | *Taxable* | *Taxable* | ***Taxable*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |
| New York | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |
| North Carolina | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| North Dakota | No | *Partial* | *Taxable* | ***Taxable*** | ***Exempt*** | *Taxable* | *Taxable* | *Exempt* |
| Ohio | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |
| Oklahoma | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Oregon | n.a | n.a. | n.a. | **n.a.** | **n.a.** | n.a. | n.a. | n.a. |
| Pennsylvania | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Rhode Island | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| South Carolina | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |
| South Dakota | No | *Taxable* | *Taxable* | ***Taxable*** | ***Exempt*** | *Taxable* | *Taxable* | *Taxable* |
| Tennessee | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Taxable* | *Taxable* | *Exempt* |
| Texas | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |
| Utah | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Vermont | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Virginia | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Washington | No | *Taxable* | *Taxable* | ***Exempt*** | ***Exempt*** | *Taxable* | *Taxable* | *Taxable* |
| West Virginia | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |
| Wisconsin | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| Wyoming | No | *Exempt* | *Taxable* | ***Exempt*** | ***Exempt*** | *Exempt* | *Taxable* | *Exempt* |
| District of Columbia | No | *Taxable* | *Taxable* | ***Taxable*** | ***Exempt*** | *Exempt* | *Taxable* | *Taxable* |

*Note: States with no sales tax (DE, MT, NH, and OR) are listed as “not applicable” (n.a.). Alaska has a local options sales tax.*

*Sources: Tax Foundation; Bloomberg Tax; state statutes.*



**IS THE INCENTIVE AS DESIGNED ACCOMPLISHING ITS PURPOSE?**

[FOR TERC TO COMPLETE]

**Appendix 1: 2019 Massachusetts Manufacturing Facts**

The following data are reproduced from the website of the National Association of Manufacturers:[[4]](#footnote-4)

Manufacturers in Massachusetts account for 9.39% of the total output in the state, employing 6.70% of the workforce. Total output from manufacturing was $53.26 billion in 2018. In addition, there were an average of 244,000 manufacturing employees in Massachusetts in 2018, with an average annual compensation of $101,933.54 in 2017.

**Manufacturing Output and Firms**

Total Manufacturing Output ($billions, 2018) $53.26

(Percent share of total gross state product) 9.39%

Manufacturing Firms in Massachusetts (2016) 6,239



**Employment and Compensation**

Manufacturing Employment (2018) 244,000

(Percent share of nonfarm employment) 6.70%

Average Annual Compensation (Manufacturing, 2017) $101,933.54

(Nonfarm Businesses, 2017) $61,980.83

Sources: U.S. Bureau of Economic Analysis and the U.S. Census Bureau

**Massachusetts Export Facts**

Manufacturers help to drive Massachusetts’s economy, with $25.42 billion in manufactured goods exports in 2018. That same year, $8.09 billion in exports was with the free trade agreement (FTA) partners. This helps create jobs in the state, and 30.90% of its employment stemmed from exports in 2011. Small businesses comprised 89.00% percent of all exporters in Massachusetts.

**Manufacturing Exports**

Manufactured Goods Exports ($billions, 2018) $25.42

(Percent share of total goods exports) 93.65%

Growth in Manufactured Goods Exports (2010–2018) 2.35%

U.S. Jobs Supported by Goods Exports (2016) 101,223

Employment from Manufacturing Exports

(Export share of manufacturing jobs, 2011) 30.90%

Small Business Share of Total Exporters (2015) 89.00%

Manufactured Goods to Free Trade Agreement

Partners ($billions, 2018) $8.09

(Percent of total exports, 2018) 31.82%

Total Manufactured Goods Exports to

Canada and Mexico (NAFTA, 2018) $4.99

Top Five Export Markets (Percent of total

manufactured goods exports, 2018) 19.65%

Canada 10.25%

China 9.88%

Mexico 9.76%

Germany 7.38%

Japan 5.69%

Sources: International Trade Administration, U.S. Census Bureau

**Appendix 2: Further Discussion on Costs and Benefits**

The text of the report discusses the direct costs (to the Commonwealth, or more specifically, to the Massachusetts residents or businesses who benefit from state expenditures[[5]](#footnote-5)) and direct benefits (to buyers and sellers of materials, tools, fuels and machinery, and replacement parts used directly and exclusively in manufacturing) of this tax expenditure. It also summarizes indirect and induced costs and benefits associated with this tax expenditure. This appendix will discuss the indirect and induced costs and benefits in more detail.

**Other costs and benefits: Indirect and Induced**

*Indirect and Induced Costs*

Regardless of its size, the existence of a specific tax incentive means less revenue for other spending given the Commonwealth’s balanced budget requirement, assuming no increase in state revenues. Reduced spending on other expenditure items means forgone benefits from those items. This is an **“opportunity cost”** to the Commonwealth. The opportunity cost to the state includes not only the impact on the individuals and the businesses that directly benefit from those expenditure items (this is called “direct impact”), but also the indirect impact on the chain of businesses that provide intermediate products and services to the directly impacted businesses (this is called “indirect impact”). In addition, there is the cost to the chain of businesses that benefit when the employees working for the directly impacted businesses spend their wages and salaries to buy goods and services (this is called “induced impact”). The total forgone benefits to the whole economy are larger than the initial forgone benefits. This phenomenon is called the “Multiplier Effect”.

To estimate the total forgone benefits of the reduced spending, we employed Tax-PI, an economic analysis tool for evaluating the total fiscal and economic effects of tax policy changes. Tax-PI is built on over 30 years of experience in modeling the economic effects of tax policy changes, according to MODELS: TAX-PI[[6]](#footnote-6). The popularity of the model has grown substantially since it was introduced. Note that while the tax incentive has a specific purpose, the reduced spending is assumed to be proportionally distributed across the Commonwealth’s current expenditures.

*Quantifying total costs (direct, indirect and induced)*

The period of study is limited to the five years from 2018 through 2022, for which we prepared input data to run the model. Tables A2-1 and A2-2 report the model results. The figures are estimates or projections of forgone benefits (opportunity costs) that the Massachusetts economy experiences due to having the expenditure. The effects are displayed as negative numbers as reduced spending has a negative impact on the state economy.

Tables A2-1 and A2-2 show that the reduction in state government spending results in lost economic activities, with real state GDP declining by $1,401 million-$1,492 million and total employment declining by 15,492 -16,953 jobs annually. Lost economic activities result in further loss of state revenues[[7]](#footnote-7), ranging from $30.2 million to $80.4 million annually. Note that the revenue impact reported in Table A2-1 does not include the estimated direct impact of the tax expenditure from Table 1, but only the additional indirect/induced impact.

**Table A2-1. Additional Revenue Impact due to Decreased Government Spending\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Additional revenue impact ($000) | -$30,192 | -$66,279 | -$73,684 | -$78,431 | -$80,425 |

\* This table reports the lost revenues from the foregone economic activities as the state reduced government spending to finance the sales tax exemption for certain products used in manufacturing.

**Table A1-2. Economic Impacts due to Decreased Government Spending**

**by Selected Economic Measure\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Calendar Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Impact on total employment | -16,646 | -16,864 | -16,953 | -16,331 | -15,492 |
| Impact on private non-farm employment | -9,175 | -9,294 | -9,385 | -8,893 | -8,220 |
| Impact on GDP ($000), real dollars (2012) | -$1,439,000 | -$1,470,000 | -$1,492,000 | -$1,457,000 | -$1,401,000 |
| Impact on personal income ($000) | -$1,198,000 | -$1,350,000 | -$1,477,000 | -$1,536,000 | -$1,560,000 |

\*This table reports the lost economic activities as the state reduced government spending to finance the sales tax exemption for certain products used in manufacturing.

*Indirect and Induced Benefits*

The tax savings to buyers and sellers of exempt products used in manufacturing encourage directly affected buyers and sellers to expand business activities, hire additional employees, rent or purchase additional office or production facility, or make other investments, etc. Such decisions would increase demand for goods and services provided by other individuals and businesses in the economy, or put another way, generate a “Multiplier Effect” (see discussion in the previous section) from the initial or direct benefits as reported in the text. As a result, the total benefits of this sales tax would be larger than the initial or direct benefits.

*Quantifying total benefits (direct, indirect and induced)*

To quantify the total benefits, including indirect/induced benefits, we again employed Tax-PI. A summary of the revenue impact of the sales tax exemption for materials, tools, fuels and machinery, and replacement parts used directly and exclusively in manufacturing is reported in Table A2-3, and the economic benefit from this sales tax exemption is reflected in Table A2-4 below. The figures are estimates or projections of benefits that the Massachusetts economy experiences.

Tables A2-3 and A2-4 show that, the sales tax exemption for materials, tools, fuels and machinery, and replacement parts used directly and exclusively in manufacturing results in more economic activities, with real state GDP increasing by $1,455 million - $1,764 million and total employment increasing by 13,162-15,539 jobs annually. More economic activities result in more state revenues, ranging from $28.1 million to $89.0 million annually, which partially offsets the cost of this tax incentive.

**Table A2-3. Additional Revenue Impact of Sales Tax Exemption**

**for Certain Products used in Manufacturing**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Additional revenue impact ($000) | $28,061 | $64,361 | $76,159 | $84,274 | $88,985 |

**Table A2-4. Economic Impacts of Sales Tax Exemption for Certain Products**

**used in Manufacturing by Selected Economic Measure**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Calendar Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Impact on total employment | 13,162 | 14,730 | 15,539 | 15,429 | 14,879 |
| Impact on private non-farm employment | 12,645 | 13,902 | 14,519 | 14,305 | 13,708 |
| Impact on GDP ($000), real dollars (2012) | $1,455,000 | $1,629,000 | $1,735,000 | $1,764,000 | $1,751,000 |
| Impact on personal income ($000) | $1,004,000 | $1,239,000 | $1,423,000 | $1,533,000 | $1,594,000 |

**Comparison of costs and benefits**

Ignoring the opportunity cost of the tax incentive, total benefits are greater than costs. Considering the opportunity cost means asking what benefits would be reaped if the Commonwealth used the dollars spent on the tax incentive for other purposes. Those dollars could be spent in many other ways, and examining them is beyond the scope of the current evaluation report. Nonetheless, we reported net impacts of the tax incentive in Tables A2-5 and A2-6 below under the balanced budget requirement, which are the combined effects in Tables A2-1 to A2-4.

Tables A2-5 and A2-6 show that the sales tax exemption for materials, tools, fuels and machinery, and replacement parts used directly and exclusively in Manufacturing combined with a cut in state government spending results in more economic activity, with real state GDP increasing by $13 million-$347 million. The net impact on total employment is negative, decreasing by 645 – 3,520 jobs annually. However, the net impact on private non-farm employment is positive, increasing by 3,438-5,460 jobs annually. The net additional impact on state revenues is mixed, from a decrease of $2.2 million to an increase of $8.3 million annually.

Note that in general the tax expenditure has a positive net impact on economic activities (real GDP) though it has net negative impacts on some economic variables for some years like employment and personal income. In addition, the tax expenditure has a specific purpose (in this case, the goal is to encourage industrial expansion in Massachusetts, spur economic development, and to ensure that tax is imposed only once, on consumers who purchase the finished retail product, rather than multiple times on companies during production) that we should consider when evaluating this tax expenditure.

**Table A2-5. Net Additional Revenue Impact of Sales Tax Exemption**

**for** **Certain Products used in Manufacturing\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Net additional revenue impact ($000) | -$2,230 | -$2,126 | $2,256 | $5,618 | $8,319 |

\* assuming state government spending is cut by the same amount as the revenue loss due to the sales tax exemption for certain products used in manufacturing to balance budget.

**Table A2-6. Net Economic Impacts of Sales Tax Exemption for Certain Products**

**used in Manufacturing by Selected Economic Measure\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Calendar Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Impact on total employment | -3,520 | -2,168 | -1,447 | -933 | -645 |
| Impact on private non-farm employment | 3,438 | 4,578 | 5,104 | 5,384 | 5,460 |
| Impact on GDP ($000), real dollars (2012) | $13,000 | $155,000 | $240,000 | $304,000 | $347,000 |
| Impact on personal income ($000) | -$198,000 | -$115,000 | -$58,000 | -$7,000 | $29,000 |

\* assuming state government spending is cut by the same amount as the revenue loss due to the sales tax exemption for certain products used in manufacturing to balance budget.

**Appendix 3: State Business Tax Climate Index**

According to the Tax Foundation[[8]](#footnote-8) 2021 State Business Tax Climate Index report, Massachusetts sales tax is ranked 12th, and income tax is ranked 11th. See the following chart and tables from that report. The competitive Massachusetts sales tax climate index may attract new production facilities and retain existing plants, which may mitigate the impact of tax distortions and foster economic growth.



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1. For an illustration of “Multiplier Effect”, see Slide 4 of: <https://www.ilw.com/seminars/JohnNeillCitation.pdf> [↑](#footnote-ref-1)
2. See Table 3 in next section. [↑](#footnote-ref-2)
3. See Appendix 3 for State Business Tax Climate Index developed by the Tax Foundation. [↑](#footnote-ref-3)
4. <https://www.nam.org/state-manufacturing-data/2019-massachusetts-manufacturing-facts/> [↑](#footnote-ref-4)
5. Spending on a specific tax incentive means less spending on other expenditure items for the Commonwealth under balanced budget requirement if there is no increase in state revenues. Reduced spending on other expenditure items means forgone benefits from those items. This is an opportunity cost to the Commonwealth, which, more specifically, is borne by the Massachusetts residents or businesses who benefit from those expenditure items. [↑](#footnote-ref-5)
6. <https://www.remi.com/model/tax-pi/> [↑](#footnote-ref-6)
7. Including both tax and non-tax revenues but excluding the revenue loss reported in Table 1. [↑](#footnote-ref-7)
8. <https://taxfoundation.org/> [↑](#footnote-ref-8)