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

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| **TAX EXPENDITURE TITLE** | Unequal Weighting of Sales, Payroll, and Property in the Apportionment Formula |
| **TAX EXPENDITURE NUMBER** | 2.401 |
| **TAX EXPENDITURE CATEGORY** | Unequal weighting of Sales, Payroll, and Property in apportionment of *corporate income* |
| **TAX TYPE** | Corporate excise tax |
| **LEGAL REFERENCE** | M.G.L. c. 63, § 38 (c), (k), (l), (m) |
| **YEAR ENACTED** | 1976 (Double-weighted sales), 1996 (Single sales for Section 38 manufacturers and mutual fund service corporations) |
| **REPEAL/EXPIRATION DATE** | None |
| **ANNUAL REVENUE IMPACT** | Tax loss of $397.8 – $439.4 million per year during FY18-FY22 |
| **NUMBER OF TAXPAYERS** | In tax year 2017, 7,049 taxpayers benefited from the current apportionment formulas. |
| **AVERAGE TAXPAYER BENEFIT** | About $78,000 per positively impacted filer (tax year 2017) |

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| **Description of the Tax Expenditure:**  Instead of an equal weighting of the property, payroll and sales factors in the corporate apportionment formula, Massachusetts generally gives double weight to the sales factor, and eliminates the property and payroll factors entirely for some types of corporations ( single-sales factor apportionment). | **Is the purpose defined in the statute?**  The statute does not explicitly state the purpose of this tax expenditure. With equal weighting of the property, payroll and sales factors, locating property or employees in a state increases a corporation’s apportionment in the state, thereby increasing its tax. Reducing or eliminating the impact of property and employees on apportionment encourages corporations to increase or maintain their physical plant and workforce in the state. |
| **What are the policy goals of the expenditure?**  To encourage corporations to increase or maintain property and workforce in Massachusetts by eliminating or diminishing the effect of the property and payroll factors on Massachusetts apportionment. | **Are there other states with a similar Tax Expenditure?**  The following are general rules – note that there are industry-specific exceptions in most states, including Massachusetts.  New York: sales factor only  Connecticut: sales factor only  Rhode Island: sales factor only  Maine: sales factor only  New Hampshire: double-weighted sales  Vermont: double-weighted sales |

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

**INTRODUCTION**

Apportionment formulas are used throughout the country to determine the share of a multistate corporation’s income that an individual state may tax. Massachusetts employs such formulas. Corporations with a presence both in Massachusetts and in other states generally apportion income to the Commonwealth using a three-factor apportionment formula. A corporation’s sales, payroll, and property in Massachusetts are compared to those outside Massachusetts and the resulting percentage is applied to total income to determine income taxable in the Commonwealth.

Double-Weighted Sales Factor

An apportionment calculation that counts the sales factor twice (so-called “double-weighted sales”) was adopted for most business corporations beginning with taxable years ending on or after December 31, 1976. Companies with property and payroll in Massachusetts and sales in other states tend to benefit from an apportionment formula that weights sales more heavily than the other factors. On the other hand, businesses located outside of the state with a large volume of sales into Massachusetts are hurt by double-weighted sales factor formula. On balance, apportionment with double-weighted sales factor is a tax expenditure.

Single-Sales Factor

Certain corporations are permitted to apportion their income using only the sales factor (so-called “single-sales factor” apportionment).

Eligible defense corporations were permitted to apportion using a single-sales factor formula starting in 1996. Single-sales factor apportionment was extended to other qualified manufacturers (referred to in this report as “section 38 manufacturers”) in 2000. Starting in 1997, corporations that perform services for a mutual fund are allowed to apportion their income to Massachusetts based solely on the percentage of the mutual fund’s shareholders that are Massachusetts residents.

As is the case with double-weighted sales factor, not all corporations that apportion using single-sales factor benefit from the rule, in particular those that are located outside of Massachusetts. However, on balance, single-sales factor apportionment is a tax expenditure.

**POLICY GOALS**

The statute does not explicitly state the purpose of this tax expenditure. The theory behind reducing or eliminating the consideration of property and payroll in determining a state apportionment formula is to encourage corporations to increase or maintain their physical footprint and employment in a state by giving those items less weight in the formula.

Arel-Bundock and Parinandi (2018) explain the characteristics of formulary apportionment as follows: A corporate income tax that is allocated using an additive apportionment formula can be seen as three separate taxes based on those factors. Increasing the sales weight results in turning the income measure of the corporate excise tax into a sort of sales tax. This could have regressive distributional effects, because sales taxes are regressive in general. The payroll and property weights can be viewed as similar to taxes on employment and capital respectively, which implies that high payroll and property formula weights could discourage ﬁrms from expanding their production operations in states that use an equal-weights formula, while increasing the sales weight and reducing the payroll and property weights could attract investment in capital and labor.

**DIRECT COSTS**

Higher sales factor weighting is generally associated with lower tax revenues, as confirmed by empirical studies (for example, Clausing (2016) and Arel-Bundock and Parinandi (2018)). For Massachusetts, the revenue loss resulting from formulas with a higher weighted sales factor (double-weighted sales factor or single-sales factor) is estimated to be $397.8 - $439.4 million annually during FY18-FY22. See Table 1. The estimates are based on several factors, including historical tax return data, economic forecasts, and the statutory provisions applicable to each year.

**Table 1. Tax Revenue Loss Estimates for Formulas with**

**Higher Weighted Sales Factor**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Estimated Revenue Loss  ($Million) | $397.8 | $407.8 | $418.2 | $428.7 | $439.4 |

**DIRECT BENEFITS**

Direct beneficiaries of this tax expenditure are corporations that owe less tax using formulas with higher weighted sales factor than using formulas weighting the factors equally. Note that, depending on other apportionment factors (generally property and payroll), some corporations may owe more tax using formulas with higher weighted sales factor. Also note that corporations that file financial institution tax returns must follow a three-factor formula with equal weighting, and therefore are not impacted by this tax expenditure.

The tables below, which are based on a micro-simulation using 2017 corporate excise return data, show the profile of the corporations that owed more or less tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.[[1]](#footnote-1)

Looking at Table 2, in tax year 2017, about 16,689 corporations had a smaller or larger tax liability using formulas with higher weighted sales factor (double-weighted sales factor or single-sales factor) than they would have had using the formula with equal-weighted factors. Among them, 14.9%, or 2,486 corporations used single-sales factor apportionment (14.4% or 2,407 corporations were section 38 manufacturers, 0.5% or 79 were mutual fund services corporations), and 85.1% or 14,203 were other types of corporations applying a double-weighted sales factor formula. The impacted corporations’ tax liability decreased by a net amount of $393 million,[[2]](#footnote-2) with 87.0% of the tax savings going to section 38 manufacturers, 7.1% to mutual fund service corporations, and 5.9% to other corporations. Note that mutual fund service corporations have a much higher average net tax savings ($352,000 million) than other corporations (the average was $24,000 for all affected corporations).

See Appendix 1 for more details on those corporations that owed more tax or less tax using the formulas with higher weighted sales factor.

In table 2, we report the net impact on section 38 manufacturers and mutual fund services corporations when they use the single sales factor (SSF) instead of the equal-weighted factors. In Appendix 2, we provide revenue impact figures for how much the tax liability would change if section 38 manufacturers and mutual fund services corporations use the double weighted sales factor (DSF) instead of the single sales factor (SSF).

**Table 2. Net Tax Liability Change by Corporation Type** (1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Corporation Type | Number of Impacted Corporations | % of Total Number of Impacted Corporations | Net Tax Liability Change using Formulas with Higher Weighted Sales Factor ($000) (2) | % of Total Net Tax Liability Change | Net Tax Liability Change per Impacted Corporation ($000)(2) |
| Section 38 Manufacturers | 2,407 | 14.4% | -$342,005 | 87.0% | -$142 |
| Mutual Fund Services | 79 | 0.5% | -$27,846 | 7.1% | -$352 |
| All others | 14,203 | 85.1% | -$23,043 | 5.9% | -$2 |
| Total or average | 16,689 | 100.0% | -$392,894 | 100.0% | -$24 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Negative numbers indicate that taxpayers owed less tax using formulas with higher weighted sales factor; positive numbers indicate that taxpayers owed more tax using formulas with higher weighted sales factor.

Table 3 below shows that, in tax year 2017, about 33.0% of the impacted corporations had taxable income ranging between $0.1 million and $1 million, with those corporations representing 20.2% of the total net tax savings of all impacted corporations. About 1.8% of the impacted corporations had more than $10 million in taxable income, representing 26.9% of the total net tax savings of all impacted corporations and having the highest average net tax savings of all impacted corporations ($351,000 compared with $24,000 for all affected corporations).

**Table 3. Net Tax Liability Change by Taxable Income Level** (1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Taxable Income Range | Number of Impacted Corporations | % of Total Number of Impacted Corporations | Net Tax Liability Change using Formulas with Higher Weighted Sales Factor ($000) (2) | % of Total Net Tax Liability Change | Net Tax Liability Change per Impacted Corporation ($000) (2) |
| 0 to $9,999 | 2,563 | 15.4% | -$60,835 | 15.5% | -$24 |
| $10,000 to $99,999 | 6,122 | 36.7% | -$10,576 | 2.7% | -$2 |
| $100,000 to $999,999 | 5,511 | 33.0% | -$79,177 | 20.2% | -$14 |
| $1,000,000 to $9,999,99 | 2,192 | 13.1% | -$136,755 | 34.8% | -$62 |
| $10,000,000 or more | 301 | 1.8% | -$105,551 | 26.9% | -$351 |
| Total or average | 16,689 | 100.0% | -$392,894 | 100.0% | -$24 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Negative numbers indicate that taxpayers owed less tax using formulas with higher weighted sales factor; positive numbers indicate that taxpayers owe more tax using formulas with higher weighted sales factor

Table 4 shows that about 43.9% of the impacted corporations had fewer than 5 employees, and these corporations represented 3.7% of the total net tax savings of all impacted corporations. About 9.9% of all impacted corporations were corporations with 500 or more employees, representing 68.9% of the total net tax savings of all impacted corporations and having the highest average net tax savings of all impacted corporations($164,000 compared with $24,000 for all affected corporations).

**Table 4. Net Tax Liability Change by Number of Employees** (1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of Employees (2) | Number of Impacted Corporations | % of Total Number of Impacted Corporations | Net Tax Liability Change using Formulas with Higher Weighted Sales Factor ($000) (3) | % of Total Net Tax Liability Change | Net Tax Liability Change per Impacted Corporation ($000) (3) |
| Less than 5 | 7,320 | 43.9% | -$14,468 | 3.7% | -$2 |
| 5 to 49 | 3,809 | 22.8% | -$2,105 | 0.5% | -$1 |
| 50 to 99 | 1,494 | 9.0% | -$27,182 | 6.9% | -$18 |
| 100 to 199 | 1,225 | 7.3% | -$16,135 | 4.1% | -$13 |
| 200 to 499 | 1,194 | 7.2% | -$62,452 | 15.9% | -$52 |
| 500 or more | 1,647 | 9.9% | -$270,553 | 68.9% | -$164 |
| Total or average | 16,689 | 100.0% | -$392,894 | 100.0% | -$24 |

Source: Department of Revenue (2017 corporate excise return)

Notes: 1. The data are preliminary and subject to change.

2. Information is based on number of employees as reported by taxpayers.

3. Negative numbers indicate that taxpayers owed less tax using formulas with higher weighted sales factor; positive numbers indicate that taxpayers owed more tax using formulas with higher weighted sales factor.

By industry, Table 5 shows that the “Professional, Scientific, and Technical Services” industry represented about 18.5% of all impacted corporations and 23.4% of total net tax savings. The “Manufacturing”[[3]](#footnote-3) industry represented about 16.4% of total impacted corporations, 46.1% of total net tax savings, and had the highest average net tax savings of $66,000 compared with $24,000 for all positively affected corporations.

**Table 5. Net Tax Liability Change by Industry** (1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Industry | Number of Impacted Corporations | % of Total Number of Impacted Corporations | Net Tax Liability Change using Formulas with Higher Weighted Sales Factor ($000) (3) | % of Total Net Tax Liability Change | Net Tax Liability Change per Impacted Corporation ($000) (3) |
| 11 Agriculture, Forestry, Fishing and Hunting | 60 | 0.4% | $99 | 0.0% | $2 |
| 21 Mining, Quarrying, and Oil and Gas Extract | 12 | 0.1% | $0 | 0.0% | $0 |
| 22 Utilities | 32 | 0.2% | -$510 | 0.1% | -$16 |
| 23 Construction | 1,124 | 6.7% | $309 | -0.1% | $0 |
| 31-33 Manufacturing | 2,733 | 16.4% | -$181,090 | 46.1% | -$66 |
| 42 Wholesale Trade | 2,084 | 12.5% | $6,621 | -1.7% | $3 |
| 44-45 Retail Trade | 906 | 5.4% | -$6,021 | 1.5% | -$7 |
| 48-49 Transportation and Warehousing | 396 | 2.4% | $165 | 0.0% | $0 |
| 51 Information | 725 | 4.3% | -$29,105 | 7.4% | -$40 |
| 52 Finance and Insurance | 1,078 | 6.5% | -$27,982 | 7.1% | -$26 |
| 53 Real Estate and Rental and Leasing | 644 | 3.9% | -$2,816 | 0.7% | -$4 |
| 54 Professional, Scientific, and Technical Services | 3,085 | 18.5% | -$92,133 | 23.4% | -$30 |
| 55 Management of Companies and Enterprises | 624 | 3.7% | -$23,282 | 5.9% | -$37 |
| 56 Administrative and Support and Waste Management | 641 | 3.8% | -$1,207 | 0.3% | -$2 |
| 61 Educational Services | 97 | 0.6% | -$117 | 0.0% | -$1 |
| 62 Health Care and Social Assistance | 242 | 1.5% | $72 | 0.0% | $0 |
| 71 Arts, Entertainment, and Recreation | 148 | 0.9% | $162 | 0.0% | $1 |
| 72 Accommodation and Food Services | 228 | 1.4% | $102 | 0.0% | $0 |
| 81 Other Services (except Public Administration) | 219 | 1.3% | -$12 | 0.0% | $0 |
| Others or unmatched(2) | 1,611 | 9.7% | -$36,149 | 9.2% | -$22 |
| Total | 16,689 | 100.0% | -$392,894 | 100.0% | -$24 |

Source: Department of Revenue (2017 corporate excise return)

Notes: 1. The data are preliminary and subject to change.

2. Unmatched means that we could not find some taxpayers in one or more of data sets to match.

3. Negative numbers indicate that taxpayers owed less tax using formulas with higher weighted sales factor; positive numbers indicate that taxpayers owed more tax using formulas with higher weighted sales factor.

**EVALUATION: COMPARING COSTS AND BENEFITS**

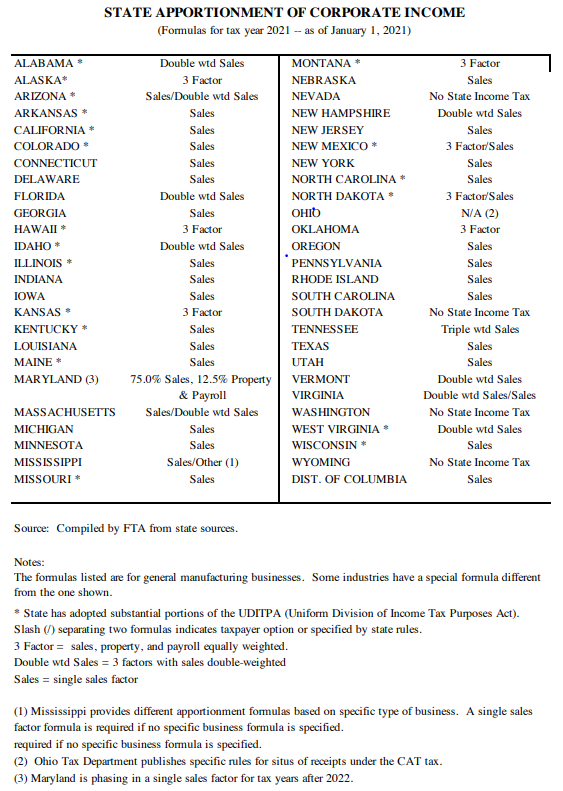
In the previous sections, we reported the direct costs (to the Commonwealth, or to the residents and businesses who ultimately bear the costs when the Commonwealth cuts government spending or increases tax to finance the apportionment formulas using higher weighted sales factor) and net direct benefits[[4]](#footnote-4) of this tax expenditure. Since the direct costs to the Commonwealth are the net 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.[[5]](#footnote-5) 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.[[6]](#footnote-6) The total benefits or costs to the whole economy are larger than the initial direct impacts. This phenomenon is called the “Multiplier Effect”.[[7]](#footnote-7)

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 3 shows one such attempt by DOR.

**Similar Tax Expenditures Offered by Other States**

All states with a corporate income tax have some form of apportionment formula. Single-sales factor is the most common formula used by states. New York, Connecticut, Rhode Island, and Maine all generally use a single-sales factor formula. Other states use a three-factor formula (taking into account property, payroll, and sales), with a subset of those states double-weighing the sales factor. New Hampshire and Vermont generally use a double weighted sales factor. Many states, like Massachusetts, have industry-specific apportionment formulas that are applied to specialized activities (e.g., telecommunications). See the table below for more details.



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

[FOR TERC TO COMPLETE]

# **References**

Clausing, K. A. (2016, June). The U.S. State Experience Under Formulary Apportionment: Are There Lessons for International Reform? *National Tax Journal, 69*(2), 353–386.

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**Appendix 1: Corporations that Owe More Tax and Corporations that Owe Less Tax using Formulas with Higher Weighted Sales Factor Compared with Formulas with Equal-Weighted Factors**

As discussed in the text, some corporations owe more tax using the formulas with higher weighted sales factor instead of the formula with equal-weighted factors while other corporations owe less tax. In the text, we report the net impact on all affected corporations. In this appendix, we report more details on the impacted corporations: impact figures for those corporations that owe more tax and impact figures for those corporations that owe less tax using the formulas with higher weighted sales factor than they would using equal-weighted factors.

1. ***Impact on corporations that owe less tax using the formulas with higher weighted sales factor:***

The tables below show the profile of the corporations that benefited from formulas with higher weighted sales factor.

Looking at Table A1-1 below, in tax year 2017, about 7,049 corporations had a smaller tax liability using formulas with higher weighted sales factor than they would have had using the formula with equal-weighted factors. Among them, 13.1%, or 923 corporations used single-sales factor apportionment (12.7% or 897 corporations were section 38 manufacturers, 0.4% or 26 were mutual fund services corporations), and 86.9% or 6,126 were other types of corporations applying a double-weighted sales factor formula. Tax savings to these corporations totaled $552 million, with 78.1% of the savings going to section 38 manufacturers, 7.0% to mutual fund service corporations, and 14.9% to other corporations. Note that mutual fund service corporations have a much higher average tax savings ($1.5 million) than other corporations that benefited from the tax expenditure (the average was $78,000 for all positively affected corporations).

**Table A1-1. Tax Liability Decrease by Corporation Type (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Corporation Type | Number of Positively Impacted Corporations | % of Total Number of Positively Impacted Corporations | Tax Liability Decrease using Formulas with Higher Weighted Sales Factor ($000) (2) | % of Total Tax Liability Decrease | Tax Liability Decrease per Positively Impacted Corporation ($000) (2) |
| Section 38 Manufacturers | 897 | 12.7% | -$431,040 | 78.1% | -$481 |
| Mutual Fund Services | 26 | 0.4% | -$38,346 | 7.0% | -$1,475 |
| All others | 6,126 | 86.9% | -$82,304 | 14.9% | -$13 |
| Total or average | 7,049 | 100.0% | -$551,690 | 100.0% | -$78 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Negative numbers indicate that taxpayers owe less tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.

Table A1-2 below shows that, in tax year 2017, about 33.1% of the corporations that benefited from formulas with higher weighted sales factor had taxable income ranging between $0.1 million and $1 million, with those corporations representing 17.9% of the total tax savings of all positively impacted corporations. About 2.1% of the positively impacted corporations had more than $10 million in taxable income, representing 33.3% of the total tax savings of all positively impacted corporations and having the highest average tax savings of all beneficiaries of the tax expenditure ($1.2 million compared with $78,000 for all positively affected corporations).

**Table A1-2. Tax Liability Decrease by Taxable Income Level (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Taxable Income Range | Number of Positively Impacted Corporations | % of Total Number of Positively Impacted Corporations | Tax Liability Decrease using Formulas with Higher Weighted Sales Factor ($000) (2) | % of Total Tax Liability Decrease | Tax Liability Decrease per Positively Impacted Corporation ($000) (2) |
| 0 to $9,999 | 1,398 | 19.8% | -$61,058 | 11.1% | -$44 |
| $10,000 to $99,999 | 2,041 | 29.0% | -$13,484 | 2.4% | -$7 |
| $100,000 to $999,999 | 2,332 | 33.1% | -$98,847 | 17.9% | -$42 |
| $1,000,000 to $9,999,99 | 1,130 | 16.0% | -$194,764 | 35.3% | -$172 |
| $10,000,000 or more | 148 | 2.1% | -$183,537 | 33.3% | -$1,240 |
| Total or average | 7,049 | 100.0% | -$551,690 | 100.0% | -$78 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Negative numbers indicate that taxpayers owe less tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.

Table A1-3 below shows that about 32.9% of the positively impacted corporations had fewer than 5 employees, and these corporations represented 11.7% of the total tax savings of all positively impacted corporations. About 9.9% of the positively impacted corporations were corporations with 500 or more employees, representing 61.4% of the total tax savings of all positively impacted corporations and having the highest average tax savings of all beneficiaries of the tax expenditure ($487,000 compared with $78,000 for all positively affected corporations).

**Table A1-3. Tax Liability Decrease by Number of Employees (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of Employees (2) | Number of Positively Impacted Corporations | % of Total Number of Positively Impacted Corporations | Tax Liability Decrease using Formulas with Higher Weighted Sales Factor ($000) (3) | % of Total Tax Liability Decrease | Tax Liability Decrease per Positively Impacted Corporation ($000) (3) |
| Less than 5 | 2,321 | 32.9% | -$64,639 | 11.7% | -$28 |
| 5 to 49 | 2,101 | 29.8% | -$21,171 | 3.8% | -$10 |
| 50 to 99 | 798 | 11.3% | -$35,366 | 6.4% | -$44 |
| 100 to 199 | 579 | 8.2% | -$20,937 | 3.8% | -$36 |
| 200 to 499 | 555 | 7.9% | -$70,897 | 12.9% | -$128 |
| 500 or more | 695 | 9.9% | -$338,680 | 61.4% | -$487 |
| Total or average | 7,049 | 100.0% | -$551,690 | 100.0% | -$78 |

Source: Department of Revenue (2017 corporate excise return)

Notes: 1. The data are preliminary and subject to change.

2. Information is based on number of employees as reported by taxpayers.

3. Negative numbers indicate that taxpayers owe less tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.

By industry, Table A1-4 below shows that the “Professional, Scientific, and Technical Services” industry represented about 20.4% of positively impacted corporations and 18.1% of total tax savings. The “Manufacturing” industry represented about 13.9% of total positively impacted corporations, 44.0% of total tax savings, and had the highest average tax savings of $248,000 compared with $78,000 for all positively affected corporations.

**Table A1-4. Tax Liability Decrease by Industry (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Industry | Number of Positively Impacted Corporations | % of Total Number of Positively Impacted Corporations | Tax Liability Decrease using Formulas with Higher Weighted Sales Factor ($000) (3) | % of Total Tax Liability Decrease | Tax Liability Decrease per Positively Impacted Corporation ($000) (3) |
| 11 Agriculture, Forestry, Fishing and Hunting | 21 | 0.3% | -$92 | 0.0% | -$4 |
| 21 Mining, Quarrying, and Oil and Gas Extract | 4 | 0.1% | -$11 | 0.0% | -$3 |
| 22 Utilities | 17 | 0.2% | -$557 | 0.1% | -$33 |
| 23 Construction | 513 | 7.3% | -$803 | 0.1% | -$2 |
| 31-33 Manufacturing | 977 | 13.9% | -$242,756 | 44.0% | -$248 |
| 42 Wholesale Trade | 877 | 12.4% | -$14,255 | 2.6% | -$16 |
| 44-45 Retail Trade | 392 | 5.6% | -$10,062 | 1.8% | -$26 |
| 48-49 Transportation and Warehousing | 190 | 2.7% | -$935 | 0.2% | -$5 |
| 51 Information | 305 | 4.3% | -$38,829 | 7.0% | -$127 |
| 52 Finance and Insurance | 396 | 5.6% | -$44,387 | 8.0% | -$112 |
| 53 Real Estate and Rental and Leasing | 338 | 4.8% | -$4,116 | 0.7% | -$12 |
| 54 Professional, Scientific, and Technical Services | 1,436 | 20.4% | -$99,777 | 18.1% | -$69 |
| 55 Management of Companies and Enterprises | 265 | 3.8% | -$31,411 | 5.7% | -$119 |
| 56 Administrative and Support and Waste Management | 267 | 3.8% | -$2,230 | 0.4% | -$8 |
| 61 Educational Services | 44 | 0.6% | -$196 | 0.0% | -$4 |
| 62 Health Care and Social Assistance | 111 | 1.6% | -$385 | 0.1% | -$3 |
| 71 Arts, Entertainment, and Recreation | 43 | 0.6% | -$110 | 0.0% | -$3 |
| 72 Accommodation and Food Services | 115 | 1.6% | -$402 | 0.1% | -$3 |
| 81 Other Services (except Public Administration) | 111 | 1.6% | -$349 | 0.1% | -$3 |
| Others or unmatched (2) | 627 | 8.9% | -$60,028 | 10.9% | -$96 |
| Total | 7,049 | 100.0% | -$551,690 | 100.0% | -$78 |

Source: Department of Revenue (2017 corporate excise return)

Notes: 1. The data are preliminary and subject to change.

2. Unmatched means that we could not find some taxpayers in one or more of data sets to match.

3. Negative numbers indicate that taxpayers owe less tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.

1. ***Impact on corporations that owe more tax using the formulas with higher weighted sales factor:***

The tables below show the profile of the corporations that owe more tax using formulas with higher weighted sales factor.

Looking at Table A1-5 below, in tax year 2017, about 9,640 corporations had a larger tax liability using formulas with higher weighted sales factor than they would have had using the formula with equal-weighted factors. Among them, 16.2%, or 1,563 corporations used single-sales factor apportionment (15.7% or 1,510 corporations were section 38 manufacturers, 0.5% or 53 were mutual fund services corporations), and 83.8% or 8,077 were other types of corporations applying a double-weighted sales factor formula. The total tax increase for these corporations totaled $159 million, with 56.1% of the increase going to section 38 manufacturers, 6.6% to mutual fund service corporations, and 37.3% to other corporations. Note that mutual fund service corporations have a much higher average tax increase ($198,000) than other corporations that owe more tax (the average was $16,000 for all negatively affected corporations). Compared with positively impacted corporations (see Table A1-1), there were more negatively impacted corporations. But the average impact in absolute terms was smaller on negatively impacted corporations (|+$159M|) than on positively impacted corporations (|-552M|).

**Table A1-5. Tax Liability Increase by Corporation Type (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Corporation Type | Number of Negatively Impacted Corporations | % of Total Number of Negatively Impacted Corporations | Tax Liability Increase using Formulas with Higher Weighted Sales Factor ($000) (2) | % of Total Tax Liability Increase | Tax Liability Increase per Negatively Impacted Corporation ($000) (2) |
| Section 38 Manufacturers | 1,510 | 15.7% | $89,036 | 56.1% | $59 |
| Mutual Fund Services | 53 | 0.5% | $10,500 | 6.6% | $198 |
| All others | 8,077 | 83.8% | $59,261 | 37.3% | $7 |
| Total or average | 9,640 | 100.0% | $158,796 | 100.0% | $16 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Positive numbers indicate that taxpayers owe more tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.

Table A1-6 below shows that, in tax year 2017, about 33.0% of the corporations that owe more tax using formulas with higher weighted sales factor had taxable income ranging between $0.1 million and $1 million, with those corporations representing 12.4% of the total tax increase of all negatively impacted corporations. About 1.6% of the negatively impacted corporations had more than $10 million in taxable income, representing 49.1% of the total tax increase of all negatively impacted corporations and having the highest average tax increase of all negatively impacted corporations ($510,000 compared with $16,000 for all negatively affected corporations).

**Table A1-6. Tax Liability Increase by Taxable Income Level (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Taxable Income Range | Number of Negatively Impacted Corporations | % of Total Number of Negatively Impacted Corporations | Tax Liability Increase using Formulas with Higher Weighted Sales Factor ($000) (2) | % of Total Tax Liability Increase | Tax Liability Increase per Negatively Impacted Corporation ($000) (2) |
| 0 to $9,999 | 1,165 | 12.1% | $223.1 | 0.1% | $0 |
| $10,000 to $99,999 | 4,081 | 42.3% | $2,908.0 | 1.8% | $1 |
| $100,000 to $999,999 | 3,179 | 33.0% | $19,669.8 | 12.4% | $6 |
| $1,000,000 to $9,999,99 | 1,062 | 11.0% | $58,008.8 | 36.5% | $55 |
| $10,000,000 or more | 153 | 1.6% | $77,986.6 | 49.1% | $510 |
| Total or average | 9,640 | 100.0% | $158,796.3 | 100.0% | $16 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Positive numbers indicate that taxpayers owe more tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.

Table A1-7 below shows that about 51.9% of the negatively impacted corporations had fewer than 5 employees, and these corporations represented 31.6% of the total tax increase of all negatively impacted corporations. About 9.9% of the negatively impacted corporations were corporations with 500 or more employees, representing 42.9% of the total tax increase of all negatively impacted corporations and having the highest average tax increase of all negatively impacted corporations ($72,000 compared with $16,000 for all negatively affected corporations).

**Table A1-7. Tax Liability Increase by Number of Employees (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Number of Employees (2) | Number of Negatively Impacted Corporations | % of Total Number of Negatively Impacted Corporations | Tax Liability Increase using Formulas with Higher Weighted Sales Factor ($000) (3) | % of Total Tax Liability Increase | Tax Liability Increase per Negatively Impacted Corporation ($000) (3) |
| Less than 5 | 4,999 | 51.9% | $50,171.4 | 31.6% | $10 |
| 5 to 49 | 1,708 | 17.7% | $19,066.1 | 12.0% | $11 |
| 50 to 99 | 696 | 7.2% | $8,184.1 | 5.2% | $12 |
| 100 to 199 | 646 | 6.7% | $4,802.7 | 3.0% | $7 |
| 200 to 499 | 639 | 6.6% | $8,444.5 | 5.3% | $13 |
| 500 or more | 952 | 9.9% | $68,127.4 | 42.9% | $72 |
| Total or average | 9,640 | 100.0% | $158,796.3 | 100.0% | $16 |

Source: Department of Revenue (2017 corporate excise return)

Notes: 1. The data are preliminary and subject to change.

2. Information is based on number of employees as reported by taxpayers.

3. Positive numbers indicate that taxpayers owe more tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.

By industry, Table A1-8 below shows that the “Professional, Scientific, and Technical Services” industry represented about 17.1% of negatively impacted corporations and 4.8% of total tax increase. The “Manufacturing” industry represented about 18.2% of total negatively impacted corporations, 38.8% of total tax increase, and had the highest average tax increase of $35,000 compared with $16,000 for all negatively affected corporations.

**Table A1-8. Tax Liability Increase by Industry (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Industry | Number of Negatively Impacted Corporations | % of Total Number of Negatively Impacted Corporations | Tax Liability Increase using Formulas with Higher Weighted Sales Factor ($000) (3) | % of Total Tax Liability Increase | Tax Liability Increase per Negatively Impacted Corporation ($000) (3) |
| 11 Agriculture, Forestry, Fishing and Hunting | 39 | 0.4% | $190.9 | 0.1% | $5 |
| 21 Mining, Quarrying, and Oil and Gas Extract | 8 | 0.1% | $10.2 | 0.0% | $1 |
| 22 Utilities | 15 | 0.2% | $47.6 | 0.0% | $3 |
| 23 Construction | 611 | 6.3% | $1,112.4 | 0.7% | $2 |
| 31-33 Manufacturing | 1,756 | 18.2% | $61,666.0 | 38.8% | $35 |
| 42 Wholesale Trade | 1,207 | 12.5% | $20,876.4 | 13.1% | $17 |
| 44-45 Retail Trade | 514 | 5.3% | $4,041.6 | 2.5% | $8 |
| 48-49 Transportation and Warehousing | 206 | 2.1% | $1,100.1 | 0.7% | $5 |
| 51 Information | 420 | 4.4% | $9,723.3 | 6.1% | $23 |
| 52 Finance and Insurance | 682 | 7.1% | $16,405.2 | 10.3% | $24 |
| 53 Real Estate and Rental and Leasing | 306 | 3.2% | $1,299.8 | 0.8% | $4 |
| 54 Professional, Scientific, and Technical Services | 1,649 | 17.1% | $7,643.5 | 4.8% | $5 |
| 55 Management of Companies and Enterprises | 359 | 3.7% | $8,128.4 | 5.1% | $23 |
| 56 Administrative and Support and Waste Management | 374 | 3.9% | $1,023.4 | 0.6% | $3 |
| 61 Educational Services | 53 | 0.5% | $79.0 | 0.0% | $1 |
| 62 Health Care and Social Assistance | 131 | 1.4% | $456.5 | 0.3% | $3 |
| 71 Arts, Entertainment, and Recreation | 105 | 1.1% | $271.7 | 0.2% | $3 |
| 72 Accommodation and Food Services | 113 | 1.2% | $504.1 | 0.3% | $4 |
| 81 Other Services (except Public Administration) | 108 | 1.1% | $337.6 | 0.2% | $3 |
| Others or unmatched (2) | 984 | 10.2% | $23,878.5 | 15.0% | $24 |
| Total | 9,640 | 100.0% | $158,796.3 | 100.0% | $16 |

Source: Department of Revenue (2017 corporate excise return)

Notes: 1. The data are preliminary and subject to change.

2. Unmatched means that we could not find some taxpayers in one or more of data sets to match.

3. Positive numbers indicate that taxpayers owe more tax using formulas with higher weighted sales factor than using the formula with equal-weighted factors.

**Appendix 2: Change in Tax Liability for Section 38 Manufacturers and Mutual Fund Services Corporations Were They to Use Double-Weighted Sales Factor Apportionment Instead of Single-Sales Factor Apportionment**

In Table 2 of the text, we report the net impact on section 38 manufacturers and mutual fund services corporations of using single sales factor apportionment (SSF) instead of equal-weighted factors. In this appendix, we provide figures for how much the tax liability would change if section 38 manufacturers and mutual fund services corporations were to use double-weighted sales factor apportionment (DSF) instead of single-sales factor apportionment (SSF).

Looking at Table A2-1 below, in tax year 2017, about 2,487 corporations had a smaller or larger tax liability using the DSF formula than they would have had using the SSF formula. Among them, 96.9% or 2,409 corporations were section 38 manufacturers, and 3.1% or 78 were mutual fund services corporations. The impacted corporations’ tax liability increased by a net amount of $276 million,[[8]](#footnote-8) with 92.4% of the tax increase going to section 38 manufacturers and 7.6% to mutual fund service corporations. Looking at Table 2 in the text, the simulation results indicate that by using the SSF formula instead of the formula with equal-weighted factors, the section 38 manufacturers and mutual fund services corporations’ combined net tax saving was $370 million in 2017 ($342 million for section 38 manufacturers and $28 million for mutual fund services corporations). But if these same corporations were to use the DSF formula instead of SSF formula, their net tax liability would increase by $276 million ($255 million for section 38 manufacturers and $21 million for mutual fund services corporations).

**Table A2-1. Net Tax Liability Change by Corporation Type (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Corporation Type | Number of Impacted Corporations | % of Total Number of Impacted Corporations | Net Tax Liability Change using the DSF Formula ($000) (2) | % of Total Net Tax Liability Change | Net Tax Liability Change per Impacted Corporation ($000) (2) |
| Section 38 Manufacturers | 2,409 | 96.9% | $254,710 | 92.4% | $106 |
| Mutual Fund Services | 78 | 3.1% | $20,923 | 7.6% | $268 |
| Total or average | 2,487 | 100.0% | $275,633 | 100.0% | $111 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Positive numbers indicate that taxpayers owe more tax using the DSF apportionment than using SSF apportionment; negative numbers indicate that taxpayers owe less tax using the DSF apportionment than using SSF apportionment

Looking at Table A2-2 below, in tax year 2017, about 921 corporations had a larger tax liability using the DSF formula than they would have had using the SSF formula. Among them, 97.2% or 895 corporations were section 38 manufacturers and 2.8% or 26 were mutual fund service corporations. The tax increase to these corporations totaled $351 million, with 91.8% of the increase going to section 38 manufacturers and 8.2% to mutual fund service corporations. Note that mutual fund service corporations have a much higher average tax increase than section 38 manufacturers ($1.1 million vs $360,000).

**Table A2-2. Tax Liability Increase by Corporation Type (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Corporation Type | Number of Negatively Impacted Corporations | % of Total Number of Negatively Impacted Corporations | Tax Liability Increase using the DSF Formula ($000) (2) | % of Total Tax Liability Increase | Tax Liability Increase per Negatively Impacted Corporation ($000) (2) |
| Section 38 Manufacturers | 895 | 97.2% | $322,257 | 91.8% | $360 |
| Mutual Fund Services | 26 | 2.8% | $28,759 | 8.2% | $1,106 |
| Total or average | 921 | 100.0% | $351,016 | 100.0% | $381 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Positive numbers indicate that taxpayers owe more tax using the DSF apportionment than using SSF apportionment.

Looking at Table A2-3 below, in tax year 2017, about 1,566 corporations had a smaller tax liability using the DSF formula than they would have had using the SSF formula. Among them, 96.7% or 1,514 corporations were section 38 manufacturers and 3.3% or 52 were mutual fund services corporations. Tax savings to these corporations totaled $75 million, with 89.6% of the savings going to section 38 manufacturers and 10.4% to mutual fund service corporations. Note that mutual fund service corporations have a much higher average tax savings than section 38 manufacturers ($151,000 vs $45,000).

**Table A2-3. Tax Liability Decrease by Corporation Type (1)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Corporation Type | Number of Positively Impacted Corporations | % of Total Number of Positively Impacted Corporations | Tax Liability Decrease using the DSF Formula ($000) (2) | % of Total Tax Liability Decrease | Tax Liability Decrease per Positively Impacted Corporation ($000) (2) |
| Section 38 Manufacturers | 1,514 | 96.7% | -$67,547 | 89.6% | -$45 |
| Mutual Fund Services | 52 | 3.3% | -$7,836 | 10.4% | -$151 |
| Total or average | 1,566 | 100.0% | -$75,383 | 100.0% | -$48 |

Source: Department of Revenue (2017 corporate excise return)

Note: 1. The data are preliminary and subject to change.

2. Negative numbers indicate that taxpayers owe less tax using the DSF apportionment than using SSF apportionment.

**Appendix 3: 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[[9]](#footnote-9)) and net direct benefits[[10]](#footnote-10) 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, as well as other 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 that 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. The opportunity cost to the state includes not only the impact on the businesses and their employees 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 in the reference. 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 A1 and A2 report the model results. The figures for 2018 and 2019 are estimates of forgone benefits (opportunity costs) that the Massachusetts economy experienced due to having the expenditure, and those for 2020, 2021 and 2022 are projections of forgone benefits that the Massachusetts economy will experience going forward. The effects are displayed as negative numbers as reduced spending has a negative impact on the state economy.

Tables A3-1 and A3-2 show that the reduction in state government spending results in lost economic activity, with real state GDP declining by $897 million-$968 million and total employment declining by 10,021 to 10,998 jobs annually. Lost economic activity results in further loss of state revenues,[[11]](#footnote-11) ranging from $19.1 million to $51.9 million annually. Note that the revenue impact reported in Table A3-1 does not include the estimated direct impact of the tax expenditure from Table 1, but only the additional indirect/induced impact.

**Table A3-1. Additional Revenue Impact due to Decreased Government Spending\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Additional revenue impact ($000) | -$19,121 | -$41,867 | -$46,977 | -$50,537 | -$51,917 |

\* This table reports the lost revenues from the foregone economic activity as the state reduced government spending to finance the apportionment formulas with higher weighted sales factor.

**Table A3-2. Economic Impacts due to Decreased Government Spending**

**by Selected Economic Measure\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Calendar Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Impact on total employment | -10,380 | -10,670 | -10,998 | -10,569 | -10,021 |
| Impact on private non-farm employment | -5,724 | -5,882 | -6,087 | -5,758 | -5,326 |
| Impact on GDP ($000), real dollars (2012) | -$897,000 | -$930,000 | -$968,000 | -$943,000 | -$906,000 |
| Impact on personal income ($000) | -$748,000 | -$853,000 | -$954,000 | -$992,000 | -$1,009,000 |

\*This table reports the lost economic activity as the state reduced government spending to finance the apportionment formulas with higher weighted sales factor.

*Indirect and Induced Benefits*

The cost savings due to the apportionment formulas with higher weighted sales factor encourage the directly affected businesses to invest, expand, hire additional workers in Massachusetts. 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 tax expenditure 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 this tax expenditure is reported in Table A3-3, and the economic benefit from this tax expenditure is reflected in Table A3-4 below. The figures for 2018 and 2019 are estimates of benefits that the Massachusetts economy experienced and those for 2020, 2021 and 2022 are projections of the benefits that the Massachusetts economy will experience going forward.

Tables A3-3 and A3-4 show that, the apportionment formula with higher weighted sales factor results in more economic activity, with real state GDP increasing by $719 million - $924 million and total employment increasing by 6,718 to 8,403 jobs annually. More economic activity results in more state revenues, ranging from $14.7 million to $47.8 million annually, which partially offsets the cost of this tax incentive.

**Table A3-3. Additional Revenue Impact of Formulas**

**with Higher Weighted Sales Factor**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Additional revenue impact ($000) | $14,658 | $33,413 | $40,055 | $45,097 | $47,818 |

**Table A3-4. Economic Impacts of Formulas with Higher Weighted Sales Factor**

**by Selected Economic Measure**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Calendar Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Impact on total employment | 6,718 | 7,607 | 8,403 | 8,358 | 8,078 |
| Impact on private non-farm employment | 6,459 | 7,187 | 7,754 | 7,693 | 7,430 |
| Impact on GDP ($000), real dollars (2012) | $719,000 | $816,000 | $906,000 | $924,000 | $919,000 |
| Impact on personal income ($000) | $513,000 | $639,000 | $764,000 | $826,000 | $861,000 |

**Comparison of costs and benefits**

Ignoring the opportunity cost of the tax expenditure, 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 expenditure 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 report net impacts of the tax expenditure in Tables A3-5 and A3-6 below under the balanced budget requirement, which are the combined effects in Tables A3-1 to A3-4.

Tables A3-5 and A3-6 show that the apportionment formula with higher weighted sales factor combined with a cut in state government spending in general results in less economic activity, with real state GDP changing by -$178 million to +$13 million. The net impact on total employment is negative with total employment decreasing by 1,943 to 3,662 jobs annually. The impact on state revenues is also negative, decreasing by $4.5 million to $8.5 million annually.

**Table A3-5. Net Additional Revenue Impact of Formulas**

**with Higher Weighted Sales Factor\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Net additional revenue impact ($000) | -$4,463 | -$8,454 | -$6,922 | -$5,440 | -$4,099 |

\* assuming state government spending is cut by the same amount as the revenue loss due to the apportionment formulas with higher weighted sales factor to balance budget.

**Table A3-6. Net Economic Impacts of Formulas with Higher Weighted Sales Factor**

**by Selected Economic Measure\***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Calendar Year | 2018 | 2019 | 2020 | 2021 | 2022 |
| Impact on total employment | -3,662 | -3,063 | -2,595 | -2,211 | -1,943 |
| Impact on private non-farm employment | 735 | 1,305 | 1,667 | 1,935 | 2,104 |
| Impact on GDP ($000), real dollars (2012) | -$178,000 | -$114,000 | -$62,000 | -$19,000 | $13,000 |
| Impact on personal income ($000) | -$235,000 | -$214,000 | -$190,000 | -$166,000 | -$148,000 |

\* assuming state government spending is cut by the same amount as the revenue loss due to the apportionment formulas with higher weighted sales factor to balance budget.

Because the tax expenditure has its own specific purpose, the net negative impacts do not necessarily imply that the tax expenditure is not desirable. The statute does not explicitly state the purpose of this tax expenditure; however, we assume that the purpose is to encourage corporations to increase their physical footprint, including capital and employment, in Massachusetts as described above. It seems that this tax expenditure has negative impact on employment contrary to the assumed purpose. However, please keep in mind that this conclusion is reached under the balanced budget requirement. If considering only the net tax savings to taxpayers, this tax expenditure results in more economic activity. See Tables A3-3 and A3-4. Some empirical studies, such as Clausing (2016), found that “economic activity is not sensitive to U.S. state corporate tax policy choices” (in contrast to some early studies of this question cited in that paper) but “tax revenues are sensitive to tax policy choices regarding tax rates, sales weights, and throwback rules.”

**Other unquantified costs and benefits**

Besides the additional costs and benefits quantified in the previous sections, there are other costs and benefits that are hard to quantify due to lack of data or other challenges. In this section we will enumerate some of these costs and benefits.

Ihlanfeldt and Sjoquist (2001), a published study for the state of Georgia, summarizes some of the other costs and benefits as follows:

*Loss of competitiveness.* Providing tax incentive such as credits to selected firms may diminish the competitiveness for existing similar firms.

*Compliance costs.* They think that the costs to the firm may be substantial.

*Improved business climate.* Tax incentive improves the perception of the business climate in the state and is used by site location specialists in screening alternative sites.

*Synergistic or clustering effects.* Tax incentive may attract a firm in an industry new to the state, which then serves as a magnet for attracting additional firms in the industry.

Another hard to quantify cost is the administrative cost. The administrative cost attributable to this tax expenditure should be relatively small because the Department of Revenue administers this tax expenditure with existing staff as part of its overall mission.

**Other issues related to costs and benefits**

The burden of a tax does not necessarily fall on those responsible for remitting the tax. It is known through economic theories that corporate taxes change the allocation of capital between corporations and noncorporate businesses and among states because capital would flee from states of higher corporate taxes if all other considerable factors are not significantly different.

Felix (2009) finds that labor bears a significant burden from the state corporate tax in the form of lower wages. Her study further suggests that a one-percentage-point increase in the marginal state corporate tax rate reduces wages by 0.14% to 0.36%, that labor’s burden from the state corporate tax has trended upward over time due to increased global competition and increased competition among states to attract businesses, and that state corporate taxes reduce the wages of highly educated workers more than that of less-educated workers.

As discussed in the report, the apportionment formulas with higher weighted sales factor reduces the effective tax rate of the direct beneficiaries. The findings imply that the incentive may have benefited workers who were employed by these corporations in the form of higher wages. The incentive may have further benefited the shareholders and clients due to the growth of businesses.

1. We exclude a few filers with particularly large impact, which are assumed to be outliers in the simulation. [↑](#footnote-ref-1)
2. This amount is the decrease in tax liability for taxpayers who owe less tax partially offset by the increase in tax liability for taxpayers who owe more tax. [↑](#footnote-ref-2)
3. Based on self-reported NAICS sector 31-33, not the “section 38 manufacturer” classification. The self-reported NAICS may differ from the “section 38 manufacturer” classification for many reasons. For example, a non-manufacturing corporation or its subsidiaries may still conduct substantial manufacturing activities that meet the requirements of the “section 38 manufacturer” classification, or a “section 38 manufacturer” may report the NAICS of its parent company. [↑](#footnote-ref-3)
4. The reduction in tax liability for the taxpayers who are positively impacted by a higher weighted sales factor formula is partially offset by the increase in tax liability for the taxpayers who are negatively impacted. [↑](#footnote-ref-4)
5. For example, physical plant in Massachusetts requires services that would not otherwise be required (e.g., cleaning, security, information technology services, etc.). Some of these services may be procured from other businesses, thus increasing business activity in the state. [↑](#footnote-ref-5)
6. The tax expenditure may encourage employment in Massachusetts. Persons thus employed will earn and spend money in the Commonwealth, some of which would not otherwise be earned or spent. [↑](#footnote-ref-6)
7. For an illustration of “Multiplier Effect”, see Slide 4 of: <https://www.ilw.com/seminars/JohnNeillCitation.pdf> [↑](#footnote-ref-7)
8. This amount is the increase in tax liability for taxpayers who owe more tax offset by the decrease in tax liability for taxpayers who owe less tax. [↑](#footnote-ref-8)
9. 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-9)
10. The reduction in tax liability for the taxpayers who are positively impacted by a higher weighted sales factor formula is partially offset by the increase in tax liability for the taxpayers who are negatively impacted. [↑](#footnote-ref-10)
11. Including both tax and non-tax revenues but excluding the revenue loss reported in Table 1. [↑](#footnote-ref-11)