



A Business Activities Tax for Minnesota

**A Report Prepared for the
Legislative Coordinating Commission**

**Laura Kalambokidis
University of Minnesota**

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Contact information: Department of Applied Economics
231 Classroom Office Building
1994 Buford Avenue
St. Paul, Minnesota 55108
email: kalam002@umn.edu

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To The Members of the Legislative Coordinating Commission Oversight Committee:

It is my pleasure to submit to you the report entitled A Business Activities Tax for Minnesota, as required under 1997 Minnesota Laws Ch. 321, Art. 5 § 18(1), as amended by 1998 Minnesota Laws Ch. 389, Art. 16 § 27. The purpose of this report is to analyze the effects of replacing the present corporate franchise tax (measured by the net income of C corporations) with a business activity tax (“BAT”) on value added.

This report shows the effects of substituting a BAT, apportioned by sales only, for the corporate franchise tax by sector and by business type (C corporations, S corporations, partnerships, and proprietorships). It also includes the estimates of the cost of a *de minimus* exemption to the BAT and analysis of the effect on C corporations of a revenue-neutral BAT apportioned according to current (1999) law.

The approximate cost of preparing this report was \$145,000.

Sincerely,

A handwritten signature in cursive script that reads "Laura Kalambokidis". The signature is written in black ink and is positioned above the printed name.

Laura Kalambokidis

Table of Contents

	Page
Executive Summary	1
Chapter 1: Introduction	5
Chapter 2: The Minnesota Business Tax Database.....	7
Chapter 3: Replacing Corporate Franchise Tax Revenue for Tax Year 1999.....	13
Chapter 4: Effects of a Minnesota BAT by Business Type	19
Chapter 5: The Effect of a Business Activities Tax by Industry	21
Chapter 6: Effects of a BAT Small Business Exemption	25
Chapter 7: Forecasting BAT Receipts	29

Executive Summary

A Business Activities Tax

This study analyzes the effects of a revenue-neutral replacement of the current Minnesota Corporate Franchise Tax (CFT) and minimum fee with a consumption-type Business Activities Tax (BAT) on all firms doing business in Minnesota. The BAT is a tax on the value-added of all firms, regardless of organizational form. The base of the BAT is equivalently equal to (1) the sum of the payments to factors of production (labor and capital) and (2) the difference between a firm's sales and its purchases from other businesses.¹ A "consumption-type" BAT allows full expensing for purchases of depreciable capital assets, and disallows depreciation allowances. As specified in the mandating legislation, in this study, the BAT for multi-state firms is apportioned according to the firm's share of total sales in Minnesota.

The Business Activities Tax Database

The Minnesota Business Activities Tax Database (hereafter, the database) was constructed under the assumption that all firms doing business in Minnesota would have nexus for the Minnesota BAT. Therefore, the database includes records for each firm that had nexus for any major Minnesota tax² during tax year 1999, the most recent year of federal tax data available at the time the study was begun. For each firm, the database record includes variables from the state tax filing, variables from the federal tax return (where available), and imputed variables that were necessary for simulating the base of a BAT, but which were available nowhere on the tax returns. The database is made up of 831,689 firms distributed by type of firm as shown below:

Firm type	Number of Records in the Database
Total C-corps	60,956
Total S-corps	59,815
Total Partnerships	34,051
Total Sole Props	420,498
Total Farms	84,431
Total rent-earners	169,619
Total other (FI, Coops, LLCs)	2,319
Total businesses	831,689

¹ A detailed discussion of a state value-added tax can be found in Michigan Department of Revenue, Office of Revenue and Tax Analysis. *The Michigan Single Business Tax 1999-2000*, August 2003.

² We did not explicitly include firms with MinnesotaCare tax liability, although many of those will likely be captured in the other categories.

Results

We estimate that replacing 1999 corporate franchise tax and minimum fee revenues with a broad-based BAT on all firms doing business in Minnesota would have required a BAT rate of 0.71 percent. Note that the 0.71 percent rate is revenue-neutral only for 1999. The revenue-neutral rate in other years would differ from 0.71 percent because of changes in CFT receipts and changes in the BAT base in those years.

For businesses that filed no entity-level taxes in 1999, but which would nevertheless be liable for the BAT, we had only sales tax and income tax withholding information, which was insufficient to impute the variables necessary to estimate the BAT base. Therefore, the estimated tax base for these entities is based on factors: gross sales for those companies with collecting general sales tax in 1999, and gross wages for those companies withholding income tax (and not remitting sales tax). Eliminating these 21,859 companies from the calculation would increase the required revenue neutral rate to 0.81%.

For C-corps filing a CFT return (Minnesota Form M-4), BAT liability calculated at the revenue-neutral rate is less than CFT liability, generating an overall tax cut for M-4 filers of \$391,569,608, and an average change in liability of -\$8,430. Of the 46,451 M-4 filers, 19,970 have a tax cut, with an average tax change of -\$26,374 and an average tax liability of \$7,020. 17,100 M-4 filers have a tax increase, with an average change of \$7,902 and an average tax liability of \$10,317. 9,381 M-4 filers have no change in tax.

A BAT that is revenue-neutral for M-4 filers only would require a rate on those taxpayers of 1.58%. Applying this increased rate to M-4 filers alone can illustrate the distribution of the effects of the BAT by industry. Under this simulation, the industries with aggregate tax cuts (in descending order of the percentage cut) would be management of companies, finance and insurance, utilities, manufacturing, information, and real estate. The industries with aggregate tax increases (in descending order of the percentage increase) would be health care, professional and technical services, mining, retail trade, construction, accommodation and food services, transportation, other services, agriculture, educational services, administrative and waste services, arts and entertainment, and wholesale trade.

Allowing each taxpayer, including each member of a unitary group, to exempt the first \$100,000 of its BAT base is estimated to raise the required revenue-neutral BAT rate to 0.86%. Under the exemption, 588,393 out of 831,639 total businesses (66,462 of which had liability for CFT or minimum fee in 1999) are exempt from the BAT. Ninety-two percent of the exempt firms (539,997) are Schedule C, E, and F filers (farm and nonfarm proprietors and rent-earners). At this level of exemption, 134,551 proprietors (Schedule C, E, or F filers) would pay BAT.

Chapter 1: Introduction

This study analyzes the effects of a revenue-neutral replacement of the current Minnesota Corporate Franchise Tax (CFT) and minimum fee with a consumption-type Business Activities Tax (BAT) on all firms doing business in Minnesota. The BAT is a tax on the value-added of all firms, regardless of organizational form. The base of the BAT is equivalently equal to (1) the sum of the payments to factors of production (labor and capital) and (2) the difference between a firm's sales and its purchases from other businesses.³ A "consumption-type" BAT allows full expensing for purchases of depreciable capital assets, and disallows depreciation allowances. As specified in the mandating legislation, in this study, the BAT for multi-state firms is apportioned according to the firm's share of total sales in Minnesota.

This study estimates the revenue-neutral tax rate for a Minnesota BAT. We also report how the revenue-neutral switch to a BAT would affect tax liability for firms doing business in Minnesota by type of firm (Chapter 4) and by industry (Chapter 5). In Chapter 6 we report the effects of a small business exemption from the BAT. The steps necessary to produce these analyses are listed in Figure 1.1. The first step, building the Business Activities Tax Database, is described in Chapter 2. Chapter 3 outlines the second step, simulating the BAT base for firms in the database.

As explained in Chapter 2, the Business Activities Tax Database includes records from tax year 1999, and Chapter 7 forecasts BAT receipts for future years.

³ A detailed discussion of a state value-added tax can be found in Michigan Department of Revenue (2003).

Figure 1.1: Steps in Analyzing the BAT

- (1) Build a database that includes the population of firms doing business in Minnesota.
- (2) Identify the current CFT and minimum fee liability for these firms.
- (3) Simulate the BAT base for each of these firms from data elements included in the dataset.
- (4) Calculate the revenue-neutral BAT rate equal to current CFT and minimum fee liability divided by the aggregate BAT base.
- (5) Apply the revenue-neutral tax rate to the simulated BAT base and calculate the change in tax liability for each firm.
- (6) Tabulate the change in tax liability by type of firm and industry.
- (7) Re-simulate the BAT base for each firm with the small business exempt amount.
- (8) Re-calculate the revenue-neutral BAT rate equal to current CFT and minimum fee liability divided by the aggregate BAT base with the exemption.
- (9) Apply the new revenue-neutral tax rate to the re-simulated BAT base and calculate the change in tax liability for each firm.
- (10) Tabulate the change in tax liability by type of firm.

Chapter 2: The Minnesota Business Tax Database

The Minnesota Business Tax Database (hereafter, the database) was constructed under the assumption that all firms doing business in Minnesota would have nexus for the Minnesota BAT. Therefore, the database includes records for each firm that had nexus for any major Minnesota tax⁴ during tax year 1999, the most recent year of federal tax data available at the time the study was begun. For each firm, the database record includes variables from the state tax filing, variables from the federal tax return (where available), and imputed variables that were necessary for simulating the base of a BAT, but which were available nowhere on the tax returns. The distribution of these 831,689 firms by type of tax paid and by organizational form is given in Table 2.1. The categories of companies appearing in Table 2.1 are each described in turn.

The final section in this chapter explains the procedures for matching the records of Minnesota taxpayers with federal tax returns.

⁴ We did not explicitly include firms with MinnesotaCare tax liability, although many of those will likely be captured in the other categories.

**Table 2.1: The Minnesota Business Tax Database
Number of Firms and Tax Liability for Tax Year 1999**

	Number of Entities	Total Liability (\$ for CFT and Minimum Fee	Percent of Total Tax Liability	Average Tax (\$)
Current MN filers				
C-corps (M4) ⁵	46,451	\$708,177,185	0.98%	\$15,581
S-corps (M8)	57,468	12,670,783	0.02%	220
Partnerships (M3)	31,363	5,356,039	0.01%	171
Sole props (M1 w/ Sched C)	420,498	0	0.00%	0
Farms (M1 w/ Sched F)	84,431	0	0.00%	0
Rent-earners (M1 w/ Sched E rental income)	169,619	0	0.00%	0
Total current MN filers	808,830	\$726,204,007	1.00%	\$898
Businesses filing no entity return 1999; liable for sales tax or income tax withholding				
C-corps	14,505	\$0		\$0
S-corps	2,347	0		0
Partnerships	2,688	0		0
Finance and insurance ⁶	956	0		0
Coops	142	0		0
LLCs	1,221	0		0
Total non-entity tax businesses	21,859	\$0		\$0
Total businesses liable for BAT				
Total C-corps	60,956	\$708,177,185	0.98%	\$11,812
Total S-corps	59,815	12,670,783	0.02%	212
Total Partnerships	34,051	5,356,039	0.01%	157
Total Sole Props	420,498	0	0.00%	0
Total Farms	84,431	0	0.00%	0
Total rent-earners	169,619	0	0.00%	0
Total other (FI, Coops, LLCs)	2,319	0	0.00%	0
Total businesses	831,689	\$726,204,007	1.00%	\$874

Current Minnesota Filers

These companies were represented by state business entity or individual income tax returns in 1999. They include C-corporations that were liable for the Minnesota Corporate Franchise Tax (CFT) and filed a Minnesota Form M-4; S-corporations that were liable for the S-corp minimum fee and filed a Minnesota Form M-8; and partnerships that were liable for the

⁵ This is the count of non-unitary filers plus unitary groups. The total number of individual entity filings, including all of the members of each unitary group, is 54,164.

⁶ Legal organizational form unknown.

partnership minimum fee and filed a Minnesota Form M-3. The tax returns for all of these firms were identified as being filed for a tax year beginning in 1999, regardless of the calendar year in which they were filed. That is, we searched for these records in multiple years of tax collection files.

These 135,282 firms reported on their 1999 returns a combined tax liability of \$726,204,007. While the S-corps and partnerships are more numerous than the C-corp filers (66% of this group), their liability from the small minimum fee was only 3 percent of the total taxes reported by this group.

Also included in the database are records for all Minnesota individual income tax filers who reported business income on their federal tax returns. Individuals who earn business income in Minnesota are liable for the Minnesota individual income tax, and must file a Minnesota Form M-1. Their attached federal Form 1040 will report business income on Schedules C (sole proprietorship), E (rental real estate, royalties, partnerships, S-corps, estates, trusts, and REMICs), and F (farms). The database includes a record in the database for each of the Schedules C and F that were included with Minnesota Form M-1 filings. We also created records for each of the Schedules E that included rental income. This approach assumes that the business income reported on the federal schedules of M-1 filers is for firms doing business in Minnesota. We treated each Schedule C, E, or F as a separate taxpaying entity under the BAT, adding 674,548 records to the database.

Non-Entity-Level Filers

Companies that do not have nexus for any of the taxes described above will still have nexus for the BAT if they sell goods or services in Minnesota or if they have employees in the state. In order to capture these businesses, we include in the database all entities that either paid state sales taxes in 1999 or withheld Minnesota income taxes for their employees in 1999.

The Department of Revenue's Profile database includes information on all firms registered for any Minnesota state or local tax. From this database, we collected identifying information for each business that either paid state sales tax or income tax withholding in 1999.

The Profile database includes all businesses that are registered for the CFT, S-corp tax, and partnership tax. It also includes the sole proprietorships that either collect sales tax or withhold income tax. To avoid double-counting businesses, we took four steps to exclude from the Profile records any of the firms that were already accounted for in the database.

First, we only extracted from the Profile database records for those firms that were not registered for the CFT, the S-corp tax, or the partnership tax. Second, we assumed that any firm identified as a sole proprietorship or a farm in the Profile database was already captured through our inclusion of the Schedule C and F records. Therefore, we excluded those records from the Profile records. Third, we did not include in the database records whose legal form could not be identified (because we could not determine if they were already included), and those with legal forms that would not be liable for the BAT⁷. Finally, we used a unique identifier to match the Profile records with the database records, and added to the database only the new firms.

The addition of the Profile firms increased the size of the database by 21,859 records.

Excluded Businesses

Two classes of businesses that could have nexus for the BAT may be missing from the database: (1) firms protected from the state corporate income tax from PubL 86-272 and (2) firms that sell into Minnesota through mail order or e-commerce, but are not registered for the state sales tax.

While we know of no way to learn the identity of businesses in the second group, it is likely that we have captured the firms in the first group by including businesses that are registered for taxes other than the CFT, S-corp tax, and partnership tax. In particular, PubL 86-272 firms that have a sales force in Minnesota will need to withhold Minnesota income taxes for their employees, and therefore will be in the database.

Matching with Federal Data

The algorithm for calculating the BAT base (explained in Chapter 3) requires many data elements that do not appear on state tax filings, but which do appear on federal tax returns.

⁷ Includes the following business types: issued doc pro, farm assistance fund, government, nonprofit organization; nonprofit MN corp; nonprofit non-MN corp, other, spousal proprietorship, and use tax individual.

Therefore, to the extent possible, we linked firms' state tax returns to their federal returns using a unique index composed of the firms' Employer Identification Number (EIN) and the tax filing period. Where possible, M-8 returns were linked with the firms' federal S-corp return, Form 1120S, and M-3 returns were linked with the firms' federal partnership return, Form 1065. Schedule C, E, and F data elements were already included in M-1 database for individual taxpayers.

Identifying the Federal Parents of M-4 Filers:

Complexities arise when linking state and federal C-corp records, because a corporation may file a Minnesota Form M-4 as a unitary group, and they may file their federal tax return (Form 1120) on a consolidated basis. Moreover, the parent of the corporation's federal consolidated group may not be the same entity as the primary record on the unitary filing—indeed, the federal parent may not have nexus in Minnesota, and hence may not appear on the unitary M-4 at all. In order to make as many state-federal matches as possible, we needed to (1) identify the EINs of the federal parents of each member of each Minnesota unitary group and (2) obtain the federal tax returns for those parents. To do that, we took the following steps, the results of which are summarized in Table 2.2:

- (1) We linked Minnesota Form M-4s with the federal corporate tax returns available at the Minnesota Department of Revenue by matching both the federal EIN and the tax period. We did this for all non-unitary filers and for every firm listed on a unitary filing—which should be every member of the unitary group that has CFT nexus in Minnesota—because firms in the same unitary group might have different federal parents, and because non-unitary filers may also be members of a federal consolidated group.
- (2) For firms that did match with available federal tax returns, we obtained EINs of their federal parents from the “Parent-Sub File,” which includes data from corporations' federal Form 851, the corporate affiliations schedule. We accessed this file through the Statistics of Income Division (SOI) of the Internal Revenue Service.
- (3) We obtained the Form 1120 records for those federal parents.
- (4) For firms that did not appear on the Parent-sub File, we used the federal parent EIN listed on the Form M-4.
- (5) If no federal parent EIN was listed, we assumed that the taxpayer is a sole entity, and used the taxpayer's federal EIN listed on the Form M-4.

Table 2.2: M-4 Filers, C-Corps (tax year 1999)

Results of Matching with the Federal Parent-Sub File	Number of Records	Minnesota CFT Liability
Taxpayer is not listed as a sub, and the M4 EIN matches the federal EIN	40,839	\$359,131,330
No match with the parent-sub file was found. The federal EIN is assumed to be the federal consolidated parent EIN listed on the M4	196	1,155,117
The federal EIN was obtained from a match with the parent-sub file	81	4,270,179
No match with the parent-sub file was found, and no consolidated federal parent EIN is listed on the M4, so the taxpayer is assumed not to be a sub, and the M4 EIN is the federal EIN	13,048	343,620,559
Total M4 filers, tax year beginning in 1999	54,164	708,177,185
Number of taxpaying units	46,451	

Linking with Federal Tax Returns:

As shown in Table 2.3, we had three different sources from SOI for federal C-corp tax return data, each with a different set of data elements. Records that matched with the SOI Sample File had the most complete federal data. Records that matched with the Business Master File (BMF)—which formed the bulk of the C-corp records—had much less complete data, but nearly all the variables needed to simulate the BAT. Records that matched with the SOI Population File had very few data elements.

Table 2.3: M-4 Filers, C-Corps (tax year 1999)

Source of Federal Data	Number of Records	Minnesota CFT Liability
SOI corporation sample file	7,797	\$388,339,684
BMF/BRTF file	34,942	145,916,317
SOI corporation population file	3,021	3,377,304
No federal data found, federal data are imputed	8,404	170,543,880
Total M4 filers, tax year beginning in 1999	54,164	708,177,185
Number of taxpaying units	46,451	

Chapter 3: Replacing Corporate Franchise Tax Revenue for Tax Year 1999

As shown in Table 2.1, 1999 CFT and minimum fee liability for firms included in the database was about \$726.2 million. To estimate the BAT rate that would replace these revenues, we first calculated the hypothetical BAT base for each firm in the database using a microsimulation program. The basic formula for calculating the BAT base, beginning from federal taxable income, is shown in Figure 3.1.

Most of the data items appearing in the simulation formula came from federal tax filings. However, some of the necessary required data elements were unavailable from either state or federal tax sources, requiring that these data items be imputed. Because the number of available data elements varied by the type of firm and the source of the firm's data, the simulation and imputation methodologies also varied. Those methodologies are explained in turn.

Estimating the BAT Base for M-4 Filers

As explained in Chapter 2, the records with the most complete federal data were those that matched with the SOI Corporation Sample file. These records included all of the data elements in Figure 3.1, except income from partnerships and purchases of depreciable assets.

Imputing Data Elements for Incomplete Records:

We used data published by SOI to impute income from partnerships to corporate records. According to SOI's Table 5: 1999, Partnerships with Income or Loss Distributed to Partners, by Selected Industrial Groups⁸, transfers from partnerships to corporate partners primarily occur in the financial institutions and real estate (FIRE) industries (NAICS 52 and 53). Therefore, we only imputed income from partnerships to the C-corps records that were in the FIRE industry. We assumed that the ratio of income from partnerships to net income for these C-corps was the same as the ratio of income from other partnerships to net income for partnerships in the FIRE industry, as reported in SOI's Table 1: 1999, All Partnerships: Total Assets, Trade or Business Income and Deductions, Portfolio Income.⁹ We calculated the ratio, and applied it to net income for FIRE C-corps in the database to impute income from partnerships.

⁸ Available here <http://www.irs.gov/pub/irs-soi/99pa05ig.xls>.

⁹ Available here <http://www.irs.gov/pub/irs-soi/99pa01ig.xls>.

For the records that did not match with the corporate sample, we needed to impute the cost of labor and depreciation included in cost of goods sold. We did this by calculating the ratios of labor and depreciation costs included in cost of goods sold to total cost of goods sold, by industry, from the records that matched with the corporate sample. We then applied those industry-specific ratios to cost of goods sold for the remaining corporate records.

The records that matched only with the SOI Population File included the fewest data elements. We imputed the required data elements by calculating the ratios of those elements to total receipts or total deductions from the more complete C-corp records in the dataset, by industry. We then applied those industry-specific ratios to the population file records.

Figure 3.1: BAT Base Calculation for C-Corporations

BAT base =
Federal taxable income before NOL and statutory special deductions
+ Deductible taxes paid
+ Net depreciation
+ Depletion
+ Depreciation included in cost of goods sold
+ Interest paid
+ Compensation of officers
+ Salaries and wages
+ Contributions to pensions and profit sharing plans
+ Employee benefit programs
+ Cost of labor included in cost of goods sold
+ Charitable contributions
– Total dividends received
– Interest income received
– Royalties received
– Income from partnerships
– Purchases of depreciable assets.

Imputing Purchases of Depreciable Assets:

We took several steps to simulate a deduction for purchases of depreciable assets of depreciable assets under the BAT. First, we matched the EINs from our database records with the COMPUSTAT database of public corporations' financial filings for 1999. To ensure that the COMPUSTAT records were for the same entities that appeared in our database, we matched several variables that are common between the tax return and the financial record. For those 1,125 matches, we obtained the value of depreciable capital expenditures.

For 6,913 records that included data elements from the SOI Corporation Sample File, we were able to estimate purchases of depreciable assets from line items on the federal Form 4562. Finally, we ran a regression on COMPUSTAT firms with capital expenditure as the dependent variable, and several data elements that are common to the COMPUSTAT record and corporate tax return as the explanatory variables. We used those regression parameters to estimate capital purchases for the remaining 46,126 C-corps.

Imputing Data Elements to Records With No Federal Data:

As show in Table 2.3, 8,404 corporate members of the database did not match with any federal data. If an entity that was missing federal data was a member of a unitary group, and all of the other members of the group had the same federal parent, together with the same linked federal data, we assumed that this entity had that same federal parent and assigned them the same federal data elements. For the remaining records missing federal data, we imputed those data elements according to a "most similar neighbor" (MSN) methodology. We classified all matched records by size of total assets (three groups) and industry. For each unmatched record, we then searched within its group for the record that minimized the sum of the squared differences between the two firms' apportionment factors (Minnesota property, Minnesota sales, and Minnesota payroll). The federal data elements for this "most similar" record were then imputed to the unmatched record.

Simulating the BAT Base:

Once the necessary data elements were either obtained from federal tax returns or imputed, we simulated the BAT base for all C-corp records in the database with a microsimulation program that followed the algorithm in Figure 3.1.

Adjusting the BAT Base for Differences Between Unitary and Consolidated Groups:

For firms to be included in a consolidated federal filing, they must be 80% owned by a common parent, but for inclusion in a Minnesota unitary filing, they must only be 50% owned by a common parent. Therefore, the Minnesota unitary group filing a Form M-4 might not be the same group of companies that is represented on the federal consolidated tax return to which it was linked. Moreover, the Form M-4 will include apportionment information only for those members of the unitary group that have nexus in Minnesota. Because we use data elements from the linked federal return to simulate a firms' BAT base, and then use the apportionment data on the Form M-4 to apportion that base, we must adjust the estimated BAT base to account for possibly significant differences in the sizes of the federal and state groups. We do this by identifying data elements that are common between Form 1120 and Form M-4.

Federal taxable income before NOL and special deductions (FTI) is one such variable. We assume that the ratio of unitary group BAT base to consolidated group BAT base is the same as the ratio of unitary group FTI to consolidated group FTI. To estimate the BAT base for the Minnesota unitary group, we multiply the BAT base calculated from data elements on the federal Form 1120 by the ratio between FTI reported on the Minnesota Form M-4 and FTI reported on the federal Form 1120.

Any federal tax data item, including FTI, appearing on the Minnesota Form M-4 should be the aggregate amount for the entire unitary group. However, the apportionment factors and the amount of Minnesota tax liability are reported only for those members of the unitary group that have nexus. We know of no variable that measures the relationship between the unitary group and the subset of the unitary group that has nexus for the corporate income tax in Minnesota. Some members of the unitary group that do not have nexus under the CFT would have nexus under the BAT, but we have no way of knowing which firms they are. Therefore, our method overstates the BAT base by the amount that the unitary group tax liability exceeds the liability for the members with nexus for BAT.

Apportioning the BAT Base:

Finally, BAT base for each corporation was apportioned according to the corporation's share of total sales in Minnesota, obtained from the Minnesota CFT Form M-4.

Estimating the BAT Base for Non-C-Corp Entity Filers (S-Corps, Partnerships, Schedule C, E, F Filers)

The datasets obtained from federal tax filings for these firms included very few data elements. In particular, these records did not include enough data to reliably impute purchases of depreciable assets. Therefore, we first calculated a gross, unadjusted BAT base for these firms from the available data elements according to this formula: Unadjusted BAT base = net income + labor costs – interest received + interest paid – depreciation. We then adjusted that base to account for the difference between depreciation to expensing.

We twice ran the BAT simulation for C-corps: first with the reported depreciation deduction and a second time replacing depreciation deductions with expensing of depreciable assets. We then computed the ratio of those two bases by industry. We multiplied the industry-specific ratios by the unadjusted BAT base for the non-C-corps to proxy the BAT base for those companies with expensing, instead of depreciation.

The Minnesota state tax filings for these firms did not include any information that could be used to apportion the BAT base to Minnesota. Therefore, we assumed that the entire base would be taxable in Minnesota.

Estimating BAT Base for Profile Records

Records that were obtained from the Profile database included vary few variables that could be used to simulate the BAT base: industry, taxable and gross sales, income tax withholding. Therefore, we modeled the BAT as a factor tax for these records, where BAT base = gross sales for companies remitting sales tax, and BAT base = gross payroll for companies remitting only income tax withholding. Because we had no information on depreciation deductions for these companies, we had no means to adjust the base for expensing, as we did for the non-C-corp entity-filers. Therefore, the base for these companies is gross of capital purchases.

Chapter 4: Effects of a Minnesota BAT by Business Type

Replacing corporate franchise tax and minimum fee revenues with a broad-based BAT on all firms doing business in Minnesota would have required a BAT rate of 0.71 percent in 1999. Note that the 0.71 percent rate is revenue-neutral only for 1999. The revenue-neutral rate in other years would differ from 0.71 percent because of changes in CFT receipts and changes in the BAT base in those years.

As explained in Chapter 3, for the businesses that filed no entity-level taxes in 1999, we had only sales tax and income tax withholding information, which was insufficient to impute the variables necessary to estimate the BAT base. Therefore, the estimated tax base for these entities is based on factors: gross sales for those companies with collecting general sales tax in 1999, and gross wages for those companies withholding income tax (and not remitting sales tax). Eliminating these 21,859 companies from the calculation would increase the required revenue neutral rate to 0.81 percent.

Table 4.1 shows that for M-4 filers, BAT liability calculated at the revenue-neutral rate is less than CFT liability, generating an overall tax cut for M-4 filers of \$391,569,608, and an average change in liability of -\$8,430. Of the 46,451 M-4 filers, 19,970 have a tax cut, with an average change of -\$26,374 and an average tax liability of \$7,020. 17,100 M-4 filers have a tax increase, with an average change of \$7,902 and an average tax liability of \$10,317. 9,381 M-4 filers have no change in tax.

All other entity types—other than C-corps—are estimated to receive a tax increase, with an average change in liability of about \$500.

Table 4.1: The Effect of a Revenue-Neutral (0.71%) BAT by Type of Business

Business Type	Number of Entities	1999 CFT and Minimum Fee			Simulated BAT Liability			Change in Tax			Number of Entities	
		Total Liability (\$)	Percent of Total	Average Tax (\$)	Total Liability	Percent of Total	Average Tax (\$)	Total Change in Liability (\$)	Percent of Total Change	Average Change (\$)	With a Tax Cut	With No Tax Cut
Current MN filers												
C-corps (M4)	46,451	\$708,177,185	0.98%	\$15,246	\$316,607,577	0.50%	\$6,816	-\$391,569,608	4.32%	-\$8,430	19,970	26,481
S-corps (M8)	57,468	12,670,783	0.02%	220	115,270,216	0.18%	2,006	102,599,433	-1.13%	1,785	4,758	52,710
Partnerships (M3)	31,363	5,356,039	0.01%	171	94,860,284	0.15%	3,025	89,504,245	-0.99%	2,854	7,842	23,521
Sole props (M1 w/ Sched C)	420,498	0	0.00%	0	73,637,929	0.12%	175	73,637,929	-0.81%	175	0	420,498
Farms (M1 w/ Sched F)	84,431	0	0.00%	0	7,475,151	0.01%	89	7,475,151	-0.08%	89	0	84,431
Rent-earners (M1 w/ Sched E rental income)	169,619	0	0.00%	0	27,635,113	0.04%	163	27,635,113	-0.30%	163	0	169,619
Total Current MN Filers	809,830	\$726,204,007	1.00%	\$897	\$635,486,270	1.00%	\$785	-\$90,717,737	1.00%	-\$112	32,570	777,260
Businesses liable for no entity tax in 1999, liable for sales tax or income tax withholding												
C-corps	14,505	\$0		\$0	\$71,053,338	0.78%	\$4,899	\$71,053,338	0.78%	\$4,899	0	14,505
S-corps	2,347	0		0	3,084,804	0.03%	1,314	3,084,804	0.03%	1,314	0	2,347
Partnerships	2,688	0		0	1,918,076	0.02%	714	1,918,076	0.02%	714	0	2,688
Finance and insurance	956	0		0	1,695,644	0.02%	1,774	1,695,644	0.02%	1,774	0	956
Coops	142	0		0	1,323,372	0.01%	9,320	1,323,372	0.01%	9,320	0	142
LLCs	1,221	0		0	11,642,474	0.13%	9,535	11,642,474	0.13%	9,535	0	1,221
Total Non-Entity Tax Businesses	21,859	\$0		\$0	\$90,717,709	1.00%	\$4,150	\$90,717,709	1.00%	\$4,150	0	21,859
Total businesses liable for BAT												
Total C-corps	60,956	\$708,177,185	0.98%	\$11,618	\$387,660,915	0.53%	\$6,360	-\$320,516,270		-\$5,258	19,970	40,986
Total S-corps	59,815	12,670,783	0.02%	212	118,355,020	0.16%	1,979	105,684,237		1,767	4,758	55,057
Total Partnerships	34,051	5,356,039	0.01%	157	96,778,360	0.13%	2,842	91,422,321		2,685	7,842	26,209
Total Sole Props	420,498	0	0.00%	0	73,637,929	0.10%	175	73,637,929		175	0	420,498
Total Farms (not listed above)	84,431	0	0.00%	0	7,475,151	0.01%	89	7,475,151		89	0	84,431
Total rent-earners	169,619	0	0.00%	0	27,635,113	0.04%	163	27,635,113		163	0	169,619
Total other (FI, coops, LLCs)	2,319	0	0.00%	0	14,661,491	0.02%	6,322	14,661,491		6,322	0	2,319
Total Businesses	831,689	\$726,204,007	1.00%	\$873	\$726,203,979	1.00%	\$873	-\$28		\$0	32,570	799,119

Chapter 5: The Effect of a Business Activities Tax by Industry

Table 5.1 shows the effects on M-4 filers (excluding other firm types) of a BAT that is revenue neutral over all businesses. In this case, most M-4 industry groups will get an aggregate tax cut (because taxes would increase for other firm types, as shown in Table 4.1), making it difficult to see what is going on by industry. Table 5.2, therefore, gives results by industry of a BAT that is revenue-neutral for M-4 filers only. The required rate would be 1.58 percent. Applying this increased rate to M-4 filers alone can illustrate the distribution of the effects of the BAT by industry. Under this simulation, the industries with aggregate tax cuts (in descending order of the percentage cut) would be management of companies (68%), finance and insurance (56.8%), utilities (32.4%), manufacturing (16.3%), information (12.3%), and real estate (9.5%). The industries with aggregate tax increases (in descending order of the percentage increase) would be health care (348.7%), professional and technical services (152%), mining (110.1%), retail trade (96.4%), construction (43.6%), accommodation and food services (41.6%), transportation (37.4%), other services (36.3%), agriculture (33.3%), educational services (22.4%), administrative and waste services (19.8%), arts and entertainment (5.1%), and wholesale trade (1.4%).

The results in Tables 5.1 and 5.2 include the effects of both moving to a BAT base and shifting from the apportionment formula in place in 1999 (70 percent weighting on sales and 15 percent weighting on both payroll and property) to 100 percent sales apportionment. These two changes could affect industries differently. To separate out the two effects, Table 5.3 reports results of shifting to a BAT that is revenue-neutral for M-4 filers only, but is apportioned according to 1999 law. The distribution of tax changes under this simulation is similar to the distribution shown in Table 5.2, with the percentage change in tax (whether a cut or an increase) increasing for most industries. Industries with a larger tax change under current law apportionment than 100 percent sales apportionment are wholesale trade (going from a 1.4% tax increase to 5.4%), information (going from a 12.3% cut to 23.4%), educational service (going from a 22.4% increase to 39.8%), and other services (going from a 36.3% increase to 52.4%). One industry, arts and entertainment, switched from receiving a small tax increase (5.1%) to a tax cut (3.1%).

Table 5.1: The Effect on M-4 Filers of an Overall Revenue-Neutral (0.71%) BAT by Industry

Industry	Number of Entities	1999 CFT and Minimum Fee			Simulated BAT Liability			Change in Tax		
		Total Liability	Percent of Total	Average Tax	Total Liability	Percent of Total	Average Tax	Total Change in Liability	Average Change	Percentage Change
11 Agriculture, forestry, fishing	2,067	\$5,309,207	0.7%	\$2,569	\$3,163,544	1.0%	1,531	-\$2,145,663	-\$1,038	-40.4%
21 Mining	130	1,011,958	0.1%	7,784	950,358	0.3%	7,310	-61,600	-474	-6.1%
22 Utilities	101	26,337,937	3.7%	260,772	7,963,113	2.5%	78,843	-18,374,824	-181,929	-69.8%
23 Construction	4,552	24,513,756	3.5%	5,385	15,742,145	5.0%	3,458	-8,771,611	-1,927	-35.8%
31 Manufacturing	471	32,466,678	4.6%	68,931	8,129,206	2.6%	17,259	-24,337,472	-51,672	-75.0%
32 Manufacturing	1,324	48,574,903	6.9%	36,688	23,502,438	7.4%	17,751	-25,072,465	-18,937	-51.6%
33 Manufacturing	3,451	87,878,460	12.4%	25,465	31,598,591	10.0%	9,156	-56,279,869	-16,308	-64.0%
Subtotal Manufacturing	5,246	168,920,041	23.9%	32,200	63,230,235	20.0%	12,053	-105,689,805	-20,147	-62.6%
42 Wholesale trade	4,050	56,139,472	7.9%	13,862	25,457,189	8.0%	6,286	-30,682,283	-7,576	-54.7%
44 Retail trade	3,291	41,729,772	5.9%	12,680	51,019,206	16.1%	15,503	9,289,433	2,823	22.3%
45 Retail trade	1,850	33,278,479	4.7%	17,988	14,848,829	4.7%	8,026	-18,429,650	-9,962	-55.4%
Subtotal Retail Trade	5,141	75,008,251	10.6%	14,590	65,868,035	20.8%	12,812	-9,140,217	-1,778	-12.2%
48 Transportation and warehousing	1,466	14,320,331	2.0%	9,768	8,156,987	2.6%	5,564	-6,163,344	-4,204	-43.0%
49 Transportation and warehousing	62	350,309	0.0%	5,650	855,944	0.3%	13,806	505,635	8,155	144.3%
Subtotal Transportation and Warehousing	1,528	14,670,640	2.1%	9,601	9,012,931	2.8%	5,899	-5,657,709	-3,703	-38.6%
51 Information	1,199	58,630,100	8.3%	48,899	22,981,761	7.3%	19,167	-35,648,339	-29,732	-60.8%
52 Finance and insurance	2,990	47,865,091	6.8%	16,008	9,247,405	2.9%	3,093	-38,617,686	-12,916	-80.7%
53 Real estate and rental leasing	3,453	12,041,180	1.7%	3,487	4,871,293	1.5%	1,411	-7,169,886	-2,076	-59.5%
54 Prof. and tech. services	5,905	23,743,514	3.4%	4,021	26,752,600	8.4%	4,530	3,009,085	510	12.7%
55 Management of companies	1,138	121,990,835	17.2%	107,198	17,429,793	5.5%	15,316	-104,561,043	-91,881	-85.7%
56 Admin. and waste services	1,445	15,864,157	2.2%	10,979	8,498,201	2.7%	5,881	-7,365,956	-5,098	-46.4%
61 Educational services	210	801,185	0.1%	3,815	438,328	0.1%	2,087	-362,858	-1,728	-45.3%
62 Health care and social assistance	1,992	6,614,883	0.9%	3,321	13,269,040	4.2%	6,661	6,654,157	3,340	100.6%
71 Arts, entertainment, and rec.	746	4,629,734	0.7%	6,206	2,175,130	0.7%	2,916	-2,454,604	-3,290	-53.0%
72 Accommodation and food serv.	1,307	6,633,456	0.9%	5,075	4,198,198	1.3%	3,212	-2,435,258	-1,863	-36.7%
81 Other services	2,061	6,532,438	0.9%	3,170	3,980,839	1.3%	1,932	-2,551,599	-1,238	-39.1%
Missing and Not Classified	1,190	30,919,348	4.4%	25,983	11,377,438	3.6%	9,561	-19,541,911	-16,422	-63.2%
All Industries	46,451	708,177,185	100.0%	15,246	316,607,576	100.0%	6,816	-391,569,609	-8,430	-55.3%

Table 5.2: The Effect on M-4 Filers of a BAT That is Revenue Neutral for M-4 Filers Only (1.58% Rate)

Industry	Number of Entities	1999 CFT and Minimum Fee			Simulated BAT Liability			Change in Tax		
		Total Liability	Percent of Total	Average Tax	Total Liability	Percent of Total	Average Tax	Total Change in Liability	Average Change	Percentage Change
11 Agriculture, forestry, fishing	2,067	\$5,309,207	0.7%	\$2,569	\$7,076,110	1.0%	\$3,423	\$1,766,903	\$855	33.3%
21 Mining	130	1,011,958	0.1%	7,784	2,125,729	0.3%	16,352	1,113,771	8,567	110.1%
22 Utilities	101	26,337,937	3.7%	260,772	17,811,624	2.5%	176,353	-8,526,313	-84,419	-32.4%
23 Construction	4,552	24,513,756	3.5%	5,385	35,211,500	5.0%	7,735	10,697,745	2,350	43.6%
31 Manufacturing	471	32,466,678	4.6%	68,931	18,183,135	2.6%	38,605	-14,283,542	-30,326	-44.0%
32 Manufacturing	1,324	48,574,903	6.9%	36,688	52,569,464	7.4%	39,705	3,994,561	3,017	8.2%
33 Manufacturing	3,451	87,878,460	12.4%	25,465	70,678,668	10.0%	20,481	-17,199,792	-4,984	-19.6%
Subtotal Manufacturing	5,246	168,920,041	23.9%	32,200	141,431,267	20.0%	26,960	-27,488,774	-5,240	-16.3%
42 Wholesale trade	4,050	56,139,472	7.9%	13,862	56,941,786	8.0%	14,060	802,314	198	1.4%
44 Retail trade	3,291	41,729,772	5.9%	12,680	114,118,046	16.1%	34,676	72,388,273	21,996	173.5%
45 Retail trade	1,850	33,278,479	4.7%	17,988	33,213,362	4.7%	17,953	-65,117	-35	-0.2%
Subtotal Retail Trade	5,141	75,008,251	10.6%	14,590	147,331,408	20.8%	28,658	72,323,157	14,068	96.4%
48 Transportation and warehousing	1,466	14,320,331	2.0%	9,768	18,245,274	2.6%	12,446	3,924,943	2,677	27.4%
49 Transportation and warehousing	62	350,309	0.0%	5,650	1,914,547	0.3%	30,880	1,564,238	25,230	446.5%
Subtotal Transportation and Warehousing	1,528	14,670,640	2.1%	9,601	20,159,822	2.8%	13,194	5,489,182	3,592	37.4%
51 Information	1,199	58,630,100	8.3%	48,899	51,404,832	7.3%	42,873	-7,225,268	-6,026	-12.3%
52 Finance and insurance	2,990	47,865,091	6.8%	16,008	20,684,285	2.9%	6,918	-27,180,806	-9,091	-56.8%
53 Real estate and rental leasing	3,453	12,041,180	1.7%	3,487	10,895,945	1.5%	3,156	-1,145,235	-332	-9.5%
54 Prof. and tech, services	5,905	23,743,514	3.4%	4,021	59,839,317	8.4%	10,134	36,095,802	6,113	152.0%
55 Management of companies	1,138	121,990,835	17.2%	107,198	38,986,375	5.5%	34,259	-83,004,460	-72,939	-68.0%
56 Admin. and waste services	1,445	15,864,157	2.2%	10,979	19,008,491	2.7%	13,155	3,144,335	2,176	19.8%
61 Educational services	210	801,185	0.1%	3,815	980,437	0.1%	4,669	179,251	854	22.4%
62 Health care and social assistance	1,992	6,614,883	0.9%	3,321	29,679,743	4.2%	14,899	23,064,860	11,579	348.7%
71 Arts, entertainment, and rec.	746	4,629,734	0.7%	6,206	4,865,258	0.7%	6,522	235,524	316	5.1%
72 Accommodation and food serv.	1,307	6,633,456	0.9%	5,075	9,390,388	1.3%	7,185	2,756,932	2,109	41.6%
81 Other services	2,061	6,532,438	0.9%	3,170	8,904,207	1.3%	4,320	2,371,769	1,151	36.3%
Missing and Not Classified	1,190	30,919,348	4.4%	25,983	25,448,671	3.6%	21,385	-5,470,677	-4597	-17.7%
All Industries	46,451	\$708,177,185	100.0%	\$15,246	\$708,177,195	100.0%	\$15,246	\$11	0	0.0%

**Table 5.3: The Effect on M-4 Filers of a BAT That is Revenue Neutral for M-4 Filers only,
Current Law Apportionment (1.45% Rate)**

Industry	Number of Entities	1999 CFT and Minimum Fee			Simulated BAT Liability			Change in Tax		
		Total Liability	Percent of Total	Average Tax	Total Liability	Percent of Total	Average Tax	Total Change in Liability	Average Change	Percentage Change
11 Agriculture, forestry, fishing	2,067	\$5,309,207	0.7%	\$2,569	6,650,385	0.9%	3,217	1,341,177	649	25.3%
21 Mining	130	1,011,958	0.1%	7,784	1,968,645	0.3%	15,143	956,687	7,359	94.5%
22 Utilities	101	26,337,937	3.7%	260,772	17,534,544	2.5%	173,609	-8,803,393	-87,162	-33.4%
23 Construction	4,552	24,513,756	3.5%	5,385	32,577,325	4.6%	7,157	8,063,570	1,771	32.9%
31 Manufacturing	471	32,466,678	4.6%	68,931	19,996,926	2.8%	42,456	-12,469,751	-26,475	-38.4%
32 Manufacturing	1,324	48,574,903	6.9%	36,688	51,254,518	7.2%	38,712	2,679,615	2,024	5.5%
33 Manufacturing	3,451	87,878,460	12.4%	25,465	91,328,136	12.9%	26,464	3,449,676	1,000	3.9%
Subtotal Manufacturing	5,246	168,920,041	0.24	32,200	162,579,580	23.0%	30,991	-6,340,460	-1,209	-3.8%
42 Wholesale trade	4,050	56,139,472	7.9%	13,862	59,158,877	8.4%	14,607	3,019,405	746	5.4%
44 Retail trade	3,291	41,729,772	5.9%	12,680	102,989,824	14.5%	31,294	61,260,052	18,614	146.8%
45 Retail trade	1,850	33,278,479	4.7%	17,988	31,486,607	4.4%	17,020	-1,791,871	-969	-5.4%
Subtotal Retail Trade	5,141	75,008,251	0.11	14,590	134,476,432	19.0%	26,158	59,468,180	11,567	79.3%
48 Transportation and warehousing	1,466	14,320,331	2.0%	9,768	17,438,455	2.5%	11,895	3,118,124	2,127	21.8%
49 Transportation and warehousing	62	350,309	0.0%	5,650	1,746,033	0.2%	28,162	1,395,724	22,512	398.4%
Subtotal Transportation and Warehousing	1,528	14,670,640	0.02	9,601	19,184,488	2.7%	12,555	4,513,848	2,954	30.8%
51 Information	1,199	58,630,100	8.3%	48,899	44,883,339	6.3%	37,434	-13,746,761	-11,465	-23.4%
52 Finance and insurance	2,990	47,865,091	6.8%	16,008	22,788,898	3.2%	7,622	-25,076,193	-8,387	-52.4%
53 Real estate and rental leasing	3,453	12,041,180	1.7%	3,487	10,927,535	1.5%	3,165	-1,113,645	-323	-9.2%
54 Prof. and tech, services	5,905	23,743,514	3.4%	4,021	57,179,035	8.1%	9,683	33,435,520	5,662	140.8%
55 Management of companies	1,138	121,990,835	17.2%	107,198	44,039,288	6.2%	38,699	-77,951,548	-68,499	-63.9%
56 Admin. and waste services	1,445	15,864,157	2.2%	10,979	19,106,743	2.7%	13,223	3,242,586	2,244	20.4%
61 Educational services	210	801,185	0.1%	3,815	1,120,363	0.2%	5,335	319,178	1,520	39.8%
62 Health care and social assistance	1,992	6,614,883	0.9%	3,321	28,637,863	4.0%	14,376	22,022,980	11,056	332.9%
71 Arts, entertainment, and rec.	746	4,629,734	0.7%	6,206	4,487,669	0.6%	6,016	-142,065	-190	-3.1%
72 Accommodation and food serv.	1,307	6,633,456	0.9%	5,075	8,705,951	1.2%	6,661	2,072,495	1,586	31.2%
81 Other services	2,061	6,532,438	0.9%	3,170	9,952,384	1.4%	4,829	3,419,946	1,659	52.4%
Missing and Not Classified	1,190	30,919,348	4.4%	25,983	22,217,837	3.6%	21,385	-5,470,677	-4597	-17.7%
All Industries	46,451	\$708,177,185	100.0%	\$15,246	708,177,181	100.5%	15,246	-4	0	0.0%

Chapter 6: Effects of a BAT Small Business Exemption

Tables 6.1 and 6.2 illustrate the effects of a \$100,000 exempt amount for all businesses: each firm, including each member of a unitary group, would be allowed to exempt the first \$100,000 of its BAT base. This exemption is estimated to raise the required revenue-neutral BAT rate to 0.86 percent.

Under the exemption, 588,393 out of 831,639 total businesses (66,462 of which had liability for CFT or minimum fee in 1999) are exempt from the BAT. Ninety-two percent of the exempt firms (539,997) are Schedule C, E, and F filers (farm and nonfarm proprietors and rent-earners). At this level of exemption, 134,551 proprietors (Schedule C, E, or F filers) would pay BAT.

Table 6.1: The Effect on the BAT Base of a \$100,000 Exemption by Business Type

Business Type	All Entities				With a Small Business Exemption = \$100,000				Number of Exempt Entities
	Number of Entities	Simulated BAT Base			Number of Entities Above Threshold	Simulated BAT Base			
		Total BAT Base (\$)	Percent of Total	Average Base (\$)		Total BAT Base (\$)	Percent of Total	Average Base (\$)	
Current MN filers									
C-corps (M4)	46,451	\$44,808,860,231	0.50%	\$964,648	32,691	\$42,355,887,121	0.59%	\$3,078,189	13,760
S-corps (M8)	57,468	16,313,971,520	0.18%	283,879	38,485	13,062,816,928	0.18%	526,662	18,983
Partnerships (M3)	31,363	13,425,393,142	0.15%	428,065	24,626	12,969,589,691	0.18%	526,662	6,737
Sole props (M1 w/ Sched C)	420,498	10,421,834,228	0.12%	24,785	81,404	3,399,274,147	0.05%	10,025	339,094
Farms (M1 w/ Sched F)	84,431	1,057,943,757	0.01%	12,530	43,956	184,662,803	0.00%	4,201	40,475
Rent-earners (M1 w/ Sched E rental income)	169,619	3,911,144,243	0.04%	23,058	9,191	135,266,132	0.00%	14,717	160,428
Total current MN filers	809,830	\$89,939,147,121	1.00%	\$111,059	230,353	\$72,107,496,822	1.00%	\$153,711	579,477
Businesses liable for no entity tax in 1999, liable for sales tax or income tax withholding									
C-corps	14,505	\$10,056,041,987	0.78%	\$693,281	8,864	\$9,602,874,833	0.79%	\$1,083,357	5,641
S-corps	2,347	436,586,384	0.03%	186,019	1,363	383,000,379	0.03%	280,998	984
Partnerships	2,688	271,461,614	0.02%	100,990	1,323	227,798,854	0.02%	172,184	1,365
Finance and insurance	956	239,981,294	0.02%	251,026	531	210,519,400	0.02%	396,458	425
Coops	142	187,294,353	0.01%	1,318,974	88	182,993,001	0.01%	2,079,466	54
LLCs	1,221	1,647,736,889	0.13%	1,349,498	774	1,616,318,668	0.13%	2,088,267	447
Total non-entity tax businesses	21,859	\$12,839,102,519	1.00%	\$587,360	12,943	\$12,223,505,133	1.00%	\$944,411	8,916
Total businesses liable for BAT									
Total C-corps	60,956	\$54,864,902,218	0.53%	\$900,074	41,555	\$51,958,761,954	0.62%	\$2,296,621	19,401
Total S-corps	59,815	16,750,557,904	0.16%	280,039	39,848	13,445,817,307	0.16%	337,428	19,967
Total Partnerships	34,051	13,696,854,756	0.13%	402,245	25,949	13,197,388,545	0.16%	508,589	8,102
Total Sole Props	420,498	10,421,834,228	0.10%	24,785	81,404	3,399,274,147	0.04%	10,025	339,094
Total Farms	84,431	1,057,943,757	0.01%	12,530	43,956	184,662,803	0.00%	4,201	40,475
Total rent-earners	169,619	3,911,144,243	0.04%	23,058	9,191	135,266,132	0.00%	14,717	160,428
Total other (FI, Coops, LLCs)	2,319	2,075,012,535	0.02%	894,788	1,393	2,009,831,068	0.02%	1,442,808	926
Total businesses	831,689	\$102,778,249,640	1.00%	\$123,578	243,296	\$84,331,001,955	1.00%	\$174,941	588,393

Table 6.2: The Effect on BAT Liability of a \$100,000 Exemption by Type of Business

Business Type	Number of Entities	Number with CFT/Fee	1999 CFT and Minimum Fee			Simulated BAT Liability			Change in Tax			Number of Entities	
			Total Liability	Percent of Total	Average Tax	Total Liability	Percent of Total	Average Tax	Total Change in Liability	Percent of Total Change	Average Change	With a Tax Cut	With No Tax Cut
Current MN filers													
C-corps (M4)	46,451	31,781	\$708,177,185	0.98%	\$22,283	\$359,548,537	0.58%	\$7,740	-\$348,628,648	3.36%	-\$7,505	23,426	23,025
S-corps (M8)	57,468	24,634	12,670,783	0.02%	514	110,886,987	0.18%	1,930	98,216,204	-0.95%	1,709	9,063	48,405
Partnerships (M3)	31,363	10,047	5,356,039	0.01%	533	110,095,604	0.18%	3,510	104,739,565	-1.01%	3,340	8,746	22,617
Sole props (M1 w/ Sched C)	420,498	0	0	0.00%	0	28,855,588	0.05%	69	28,855,588	-0.28%	69	0	420,498
Farms (M1 w/ Sched F)	84,431	0	0	0.00%	0	1,567,556	0.00%	19	1,567,556	-0.02%	19	0	84,431
Rent-earners (M1 w/Schedule E rental income)	169,619	0	0	0.00%	0	11,487,538	0.02%	68	11,487,538	-0.11%	68	0	169,619
Total current MN filers	809,830	66,462	\$726,204,007	1.00%	\$10,927	\$622,441,811	1.00%	\$769	-\$103,762,195	1.00%	-\$128	41,235	768,595
Businesses liable for no entity tax in 1999, liable for sales tax or income tax withholding													
C-corps	14,505	0	\$0		\$0	\$81,516,404	0.79%	\$5,620	\$81,516,404	0.79%	\$5,620	0	14,505
S-corps	2,347	0	0		0	3,251,194	0.03%	1,385	3,251,194	0.03%	1,385	0	2,347
Partnerships	2,688	0	0		0	1,933,728	0.02%	719	1,933,728	0.02%	719	0	2,688
Finance and insurance	956	0	0		0	1,787,047	0.02%	1,869	1,787,047	0.02%	1,869	0	956
Coops	142	0	0		0	1,553,382	0.01%	10,939	1,553,382	0.01%	10,939	0	142
LLCs	1,221	0	0		0	13,720,525	0.13%	11,237	13,720,525	0.13%	11,237	0	1,221
Total non-entity tax businesses	21,859	\$0	\$0		\$0	\$103,762,279	1.00%	\$4,747	103,762,279	1.00%	\$4,747	0	21,859
Total businesses liable for BAT													
Total C-corps	60,956	31,781	\$708,177,185	0.98%	\$11,618	\$441,064,941	0.61%	\$7,236	-\$267,112,244		-\$4,382	23,426	37,530
Total S-corps	59,815	24,634	12,670,783	0.02%	212	114,138,182	0.16%	1,908	101,467,399		1,696	9,063	50,752
Total Partnerships	34,051	10,047	5,356,039	0.01%	157	112,029,332	0.15%	3,290	106,673,293		3,133	8,746	25,305
Total Sole Props	420,498	0	0	0.00%	0	28,855,588	0.04%	69	28,855,588		69	0	420,498
Total Farms (not listed above)	84,431	0	0	0.00%	0	1,567,556	0.00%	19	1,567,556		19	0	84,431
Total rent-earners	169,619	0	0	0.00%	0	11,487,538	0.02%	68	11,487,538		68	0	169,619
Total other (FI, Coops, LLCs)	2,319	0	0	0.00%	0	17,060,953	0.02%	7,357	17,060,953		7,357	0	2,319
Total businesses	831,689	66,462	\$726,204,007	1.00%	\$873	\$726,204,090	1.00%	\$873	\$84		\$0	41,235	790,454

Chapter 7: Forecasting BAT Receipts

The Business Activities Tax Database (hereafter, the database) includes business entities that filed tax returns for tax year 1999, regardless of the year those returns were received. We used 1999 returns, because that was the most recent year of federal tax data available at the time the study began. Therefore, the previous chapters report BAT liabilities for tax year 1999, not for any particular calendar or fiscal year. This chapter forecasts BAT liabilities to future tax years, and converts those liabilities to tax receipts for calendar years 2004 to 2009 and fiscal years 2005 to 2009.

One way to forecast tax receipts is with an econometric model that recognizes that future year tax receipts are a function of receipts in past years and certain economic variables, such as personal income and corporate profits. Having no history with the BAT, we cannot know the relationship between BAT receipts and macroeconomic variables, or the relationship between one year's BAT receipts and the receipts in previous years.

An alternative method takes advantage of the fact that the database is built from tax return data for individual firms. For each future tax year, the variables in each database record that are used to calculate the BAT base are grown by the growth rates in relevant macroeconomic variables. The result is a set of simulated tax databases for each of the forecast years. The BAT simulation program is run on those new records, generating BAT liability estimates for those tax years.

One advantage of this second method is that it retains the unique relationships among the elements of the BAT base for each firm. For example, if a firm has a high ratio of labor to capital costs, that relationship is retained as the elements of the BAT base are "grown." A second advantage is that this method results in a micro-level database for future years that can be used to simulate alternative versions of the BAT, for example, with different exempt amounts or with changes to the base.

One disadvantage to this method is that one of the data elements that must be forecast is federal taxable income (FTI), a value that for many firms is negative. It is not clear whether loss firms should be forecast to continue as loss firms over time, or if their FTI should be forecast to

turn positive. Another challenge is whether or not to change the number of firms in the database over time, so that the future year databases reflect not only changes in economic variables over time, but also changes in business demographics.

We chose to use this second method to forecast BAT receipts for C-corporations, the firms for which the database contains the richest data. We also chose to grow the data elements for positive and negative FTI firms the same way, so that firms that have losses in the base year, 1999, remain loss firms throughout the forecast period, and vice versa. We did not attempt to forecast changes in the population of businesses, but if the forecast values of the macroeconomic variables reflect increases or decreases in the number of firms, the aggregate simulation results arising from the forecast databases should reflect them as well.

As explained in Chapter 2, the database includes only very limited data elements for non-C-corp businesses. Therefore, we chose not to forecast the individual records for these firms. Instead, the total BAT liability generated by these companies is simply increased by the growth rate in the largest component of the BAT base: labor compensation. This method does not lead to future year micro-level databases for these firms.

For all of the forecasts, we apply to the estimated BAT base the BAT rate that we estimated to be revenue-neutral in 1999, 0.71 percent, and the base allows no small business exemption. Note that the 0.71 percent rate is revenue-neutral only for 1999. The revenue-neutral rate in other years would differ from 0.71 percent because of changes in CFT receipts and changes in the BAT base in those years.

Forecasting BAT Liabilities for Tax Years 2002-2007:

For C-corporations in the database, each variable in the BAT base simulation algorithm (Figure 7.1) was grown according to forecasts in the *February 2005 Economic Forecast* (Minnesota Department of Finance, February 2005) and the *U.S. Economic Outlook February 2005* (Global Insight 2005). The growth factors by business type, classified as they are in Chapter 2, are shown in Tables 7.1-7.3.

Figure 7.1: Calculating the BAT Base for C-Corps

BAT base =	
	Federal taxable income before NOL and statutory special deductions
	+ Deductible taxes paid
	+ Net depreciation
	+ Depletion
	+ Depreciation included in cost of goods sold
	+ Interest paid
	+ Compensation of officers
	+ Salaries and wages
	+ Contributions to pensions and profit sharing plans
	+ Employee benefit programs
	+ Cost of labor included in cost of goods sold
	+ Charitable contributions
	- Total dividends received
	- Interest income received
	- Royalties received
	- Income from partnerships
	- Purchases of depreciable assets.

Table 7.1: Growth Factors for C-Corp Data Elements

Variable	Forecast Method/Growth Factor
Net Income	Federal Corporate Tax Receipts
Taxes Paid	State Corporate Tax Receipts
Net Depreciation	Book Value of Depreciation
Depletion	Constant
Depreciation from Schedule A	Book Value of Depreciation
Interest Paid	Long Term Interest Rate Growth
Compensation of Officers	MN Wage & Salary Disbursement
Salaries & Wages	MN Wage & Salary Disbursement
Pension, Profit Sharing Plans	Other Labor Income
Employee Benefit Programs	Other Labor Income
Cost of Labor included in COGS	MN Wage and Salary Disbursement
Charitable Contributions	Corporate Profits
Dividends Received	Dividends Forecast
Interest Received	Long Term Interest Rate Growth
Royalties Received	Corporate Profits
Income from Partnerships	Non Farm Proprietors' Income
Purchases of Business Property	Business Fixed Investment

Table 7.2: Growth Factors for the BAT Base of Business Filers Other than C-Corps

Filers	Growth Factor
S-Corps(M8)	MN Wage & Salary Disbursement Growth
Partnerships(M3)	MN Wage & Salary Disbursement Growth
Sole Proprietorships (M1 w/Sched C)	MN Proprietors' Income
Farms (M1 w/Sched F)	National Farm Proprietors' Income
Rent-earners (M1 w/Sched E)	MN Proprietors' Income

Table 7.3: Growth Factors for the BAT Base of Businesses Filing No Entity

Filers	Growth Factor
All business types	MN Wage & Salary Disbursement Growth

Converting Liability Forecasts into Receipts Forecasts

The month and year a corporate tax return was received by the Minnesota Department of Revenue appears in the firms' database record. Examining the year variables reveals that approximately 82 percent of the tax year 1999 records were received in calendar year 2000, and 18 percent were received during calendar year 2001. Similarly, the month variables reveal that 86 percent of tax year 1999 corporate returns were received in during the state's fiscal year 2000 (ending June 30, 2000), 10 percent in fiscal year 2001, and 4 percent in fiscal year 2002. We assume that this basic relationship between tax years and filing date remains constant over time, and that the same relationship applies to non-C-corp businesses. Therefore, we convert the tax year liability estimates into calendar year receipts estimates according to the following formulas:

- (1) $CYR_t = 0.82(TYL_{t-1}) + 0.18(TYL_{t-2})$ and
- (2) $FYR_t = 0.86(TYL_{t-1}) + 0.10(TYL_{t-2}) + 0.04(TYL_{t-3})$,
 where TYL_t = tax year t tax liabilities, CYR_t = calendar year t tax receipts, and
 FYR_t = fiscal year t tax receipts.

Results

We report our results in Table 7.4. We forecast that BAT liabilities would grow from \$708.2 million in tax year 1999 to \$832 million in tax year 2002 and to \$1,094.1 million in tax year 2008. Converting these liabilities to tax receipts, we forecast the 0.71%, broad-based BAT with no exemptions to yield \$1,084.5 million in both calendar year and fiscal year 2009.

Table 7.4: BAT Liabilities and Receipts (\$ thousands)

	2002	2003	2004	2005	2006	2007	2008	2009
Tax year liabilities	\$832,048.8	\$860,854.3	\$905,622.8	\$940,744.1	\$987,130.7	\$1,040,970.6	\$1,094,080.6	
Fiscal year receipts				898,203.0	934,036.4	979,231.7	1,031,577.5	\$1,084,491.6
Calendar year receipts			855,669.3	897,564.5	934,422.2	978,781.1	1,031,279.4	1,084,520.8