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03hr_SC–EDJCH_CH_pt00

Committee Reports

03hr_SC–EDJCH_CR_pt00

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03hr_SC–EDJCH_CRule_03–

Executive Sessions

03hr_SC–EDJCH_ES_pt00

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**ECONOMIC IMPACT OF
SINGLE FACTOR
SALES APPORTIONMENT:
JOB CREATION AND
TAX REVENUES**

by

Austan Goolsbee and Edward Maydew
University of Chicago

John Healy and Michael Schadewald
University of Wisconsin-Milwaukee

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ECONOMIC IMPACT OF SINGLE FACTOR SALES APPORTIONMENT: JOB CREATION AND TAX REVENUES

EXECUTIVE SUMMARY

This study estimates the impact that switching to a single factor sales apportionment formula would have on job creation and tax revenue for the State of Wisconsin. The estimates we present are based on the actual experiences of other states that have modified their apportionment formulae from 1978 to 1995. The analysis controls for other factors that can affect employment, such as state corporate income tax rates, state trends, state personal income growth rates, national unemployment rates, and the actions of other states regarding their apportionment formulae. We find that increasing the weight on the sales factor has significant positive effects on in-state employment. Based on the analysis, we estimate that switching to single factor sales apportionment will have a long-run impact of increasing the number of manufacturing jobs in Wisconsin by about 2.9 percent, or 18,000 new jobs. We further estimate that the number of non-manufacturing jobs would grow by 2.4 percent, or 49,000 new jobs. Together these jobs would have significant positive impact on the individual income taxes collected by the State of Wisconsin, creating an estimated \$51 million in additional annual tax revenue. In sum, we find clear evidence that the adoption of a single factor sales apportionment formula should increase employment, generating additional personal income and individual income tax revenues for the State of Wisconsin. Coupled with neighboring states' aggressive modification of their own apportionment formulae, these results underscore the need for the State of Wisconsin to act promptly to remain competitive and avoid revenue and job losses to other states.

**ECONOMIC IMPACT OF SINGLE FACTOR SALES APPORTIONMENT:
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TABLE OF CONTENTS

What is Apportionment?	1
How Three-Factor Apportionment Penalizes In-State Investment.....	3
Criteria for a “Good” Tax.....	3
Disincentives Created by Property and Payroll Factors	4
Nationwide Trend Toward Emphasizing the Sales Factor	5
Preemptive Strikes by Border States	8
Benefits of Adopting Single Factor Sales Apportionment.....	11
Job Creation and Tax Revenues	11
Methodology and Sample Selection.....	11
Findings.....	13
Projected Benefits for Wisconsin	15
Tax Simplification.....	16
Caveats and Implementation Issues.....	17
Projected Economic Benefits Are Not a Sure Thing.....	17
The Fairness Issue	18
Some Businesses Will Experience Tax Increases	18
Most Small Businesses Will Not Be Affected	18
Implementation Issues.....	19
Summary	21

WHAT IS APPORTIONMENT?

Wisconsin corporate income tax collections totaled \$627 million in fiscal year 1998, or roughly 7 percent of the state's total tax collections.¹ Wisconsin taxes the entire taxable income of corporations that conduct business solely within the State of Wisconsin. For example, if a small retailer has stores and makes sales only in Wisconsin, all of that retailer's income is subject to Wisconsin taxation. On the other hand, if a corporation does business and is subject to taxation in two or more states, the Supreme Court has ruled that the taxpayer has the right to have its income fairly apportioned among the taxing states.² In such cases, neither Wisconsin nor any other state is entitled to tax the corporation's entire income. Instead, each state can tax only that portion of the corporation's income attributable to assets and activities located within its borders. Therefore, if a retailer has stores located in both Wisconsin and Minnesota, Wisconsin can not tax 100 percent of the retailer's income, but rather must settle for taxing that amount of income that can be fairly apportioned to Wisconsin.

States use apportionment formulae to compute the percentage of a multistate corporation's total income that is taxable in a particular state. Apportionment formulae vary from state-to-state, but are usually based on the relative amounts of property, payroll and sales that a corporation has in a state. Historically, the most common approach has been to equally weight these three "factors," such that the state apportionment percentage equals the average of the property, payroll and sales factors, as follows:

$$\text{Apportionment \%} = \left(\frac{\text{property in - state}}{\text{total property}} + \frac{\text{payroll in - state}}{\text{total payroll}} + \frac{\text{sales in - state}}{\text{total sales}} \right) / 3$$

To illustrate, consider a corporation that does business in two states, X and Y. Assume the corporation's total taxable income is \$10 million, and that it has 40 percent of its property, 30 percent of its payroll, and 20 percent of its sales in State X. If State X uses an equally-weighted three-factor formula, the corporation's State X apportionment

¹ Wisconsin Department of Administration, *1998 Annual Fiscal Report*.

² *Complete Auto Transit, Inc. v. Brady*, 430 U.S. 274, 1977.

HOW THREE-FACTOR APPORTIONMENT PENALIZES IN-STATE INVESTMENT

Criteria for a “Good” Tax

An essential first step in evaluating the pros and cons of any proposed change in tax policy is to clearly identify the government’s objectives with respect to taxation. Although different groups may suggest different criteria, there is general agreement regarding the following core criteria for what makes a good tax.

- **Raising revenues:** The purpose of taxation is to raise revenues to provide public services, the level of which is determined by elected officials. A good tax should provide adequate revenues to cover budgeted outlays.
- **Economic growth:** A good tax does not impede economic growth by distorting the incentives of taxpayers to work hard, save and invest. In a free-market economy, consumers and businesses are assumed to be the best judges of what goods and services should be produced, and how resources should be allocated. Taxes can interfere with this natural efficiency since taxing an activity will tend to reduce the level of that activity. Therefore, a good tax neither favors nor disfavors particular types of economic activity, but instead allows free market forces to shape the decisions of consumers and businesses.
- **Simplicity:** A good tax is easy for taxpayers to understand and compute. A bad tax is complex and administratively costly, causing taxpayers to expend undue amounts of time and money to compute and pay their taxes, and making it burdensome for state authorities to administer the tax.
- **Fairness:** A good tax distributes the total tax burden among taxpayers in an equitable manner. Unfortunately, the concept of tax equity is difficult to define or measure, and ultimately involves ethical issues and value judgements. Nevertheless, tax reforms always invoke discussions of equity and fairness, and the accompanying debate is often an emotional one for lawmakers and taxpayers alike.

Disincentives Created by Property and Payroll Factors

Wisconsin's economic future depends on the degree to which businesses are encouraged to locate, expand or retain their operations in Wisconsin. Businesses consider a number of factors when deciding where to locate their operations, including the quality and cost of labor, proximity to markets, transportation costs, the cost of utilities, and the quality of local schools and other public services. To a great extent, this is a cost-minimization decision, and therefore differential tax burdens can play a significant role in determining where a business chooses to locate or expand. Economists have done extensive research on this issue, and have found that corporate income taxes and other tax factors can have a significant effect on a region's economic development.⁴ The impact of differential tax burdens can be particularly strong when a business is choosing between alternative sites within the same regional area (e.g., the economic corridor that lies along Interstate 94 between Chicago and Milwaukee), since non-tax factors such as labor costs may be quite similar within that region.

A three-factor apportionment formula attempts to measure the contribution of a corporation's capital (property), labor (payroll) and market (sales) in generating its business profits, and apportions that contribution to the state in which the underlying property, payroll or sales are located. Unfortunately, by apportioning income to a state in direct proportion to the amount of property and payroll located in the state, the three-factor formula imposes a tax penalty on businesses that choose to add jobs or expand their facilities within that state. In effect, including property and payroll in an apportionment formula transforms a state corporate income tax into a direct tax on the amount of property and payroll located within the state.⁵

⁴ For reviews of this research, see Phillips and Goss, "The Effect of State and Local Taxes on Economic Development: A Meta-Analysis," *Southern Economic Journal*, October 1995; Bartik, "The Effects of State and Local Taxes on Economic Development: A Review of Recent Research," *Economic Development Quarterly*, February 1992; and Wasylenko, "Taxation and Economic Development: The State of the Economic Literature," *New England Economic Review*, March-April 1997.

⁵ Gordon and Wilson, "An Examination of Multijurisdictional Corporate Income Taxation Under Formula Apportionment," *Econometrica*, November 1986.

To illustrate, assume a large corporation is interested in locating a major new manufacturing plant, structured as a separate subsidiary, somewhere along Interstate 94 between Chicago and Milwaukee. This manufacturing company is expected to generate an annual profit of \$10 million and will be subject to taxation in several states. Assume 20 percent of the plant's output will be sold in Wisconsin. Under current law, the subsidiary's Wisconsin apportionment percentage will be 10 percent if the plant is located south of the Illinois-Wisconsin border,⁶ but increases to 60 percent if the plant is located north of the border.⁷ Given Wisconsin's 7.9 percent corporate tax rate, the 50 percentage point difference in the Wisconsin apportionment percentage results in an additional \$395,000 per year in Wisconsin corporate income taxes.⁸ In contrast, under a single factor sales apportionment formula, the taxpayer's Wisconsin apportionment percentage would equal its Wisconsin sales factor of 20 percent regardless of where the plant is located, in which case there is no tax penalty for locating the plant in Wisconsin as opposed to Illinois.

In sum, Wisconsin's current three-factor formula creates a disincentive for businesses that require large investments in tangible property and payroll to locate their facilities in Wisconsin. The solution to this problem lies in removing this negative from the site location decision by applying the Wisconsin corporate income tax equally to all businesses, regardless of whether they locate facilities in Wisconsin. Eliminating this bias will allow business location decisions to be based primarily on non-tax factors.

Nationwide Trend Toward Emphasizing the Sales Factor

Historically, most states have used an equally-weighted three-factor apportionment formula.⁹ In recent decades, however, a significant number of states have

⁶ $[0\% \text{ property in WI} + 0\% \text{ payroll in WI} + (2)(20\% \text{ sales in WI})] \div 4 = 10\%$.

⁷ $[100\% \text{ property in WI} + 100\% \text{ payroll in WI} + (2)(20\% \text{ sales in WI})] \div 4 = 60\%$.

⁸ $[\text{Taxable income of } \$10,000,000] \times [50 \text{ percentage point increase in the Wisconsin apportionment percentage}] \times [7.9\% \text{ tax rate}] = \$395,000$. Because state income taxes are deductible for federal tax purposes, any increase in Wisconsin taxes is partially offset by a corresponding decrease in federal income taxes.

⁹ Hellerstein and Hellerstein, *State Taxation, Volume I: Corporate Income and Franchise Taxes* (Warren Gorham and Lamont, 1993), ¶8.06.

amended their apportionment formulae to place more weight on the sales factor with a corresponding reduction in the weight placed on the property and payroll factors. State lawmakers are attracted to such formulae for a couple of reasons. First, as discussed above, a single factor sales apportionment formula removes a tax disincentive for business expansion. Locating additional property or payroll in a state that use a sales-only formula has no effect on the amount of income taxable in that state. Second, a single factor sales formula shifts a greater portion of the corporate income tax burden from in-state corporations that have large amounts of property and payroll in the state but with sales nationwide to out-of-state corporations that have relatively low proportions of property and payroll but with substantial sales in the state.

At present, 11 states and the District of Columbia use an equally-weighted three-factor formula, while 35 states use formulae that place more weight on the sales factor.¹⁰ Wisconsin adopted a double-weighted sales formula in 1973. The following states use formulae that emphasize the sales factor:

- **Single factor sales formula**
 - » **Iowa, Nebraska and Texas** currently use a single factor sales formula.
 - » **Connecticut** enacted legislation in 1998 which allows financial service companies to use a single factor receipts formula. In addition, corporations deriving income from businesses other than the manufacture, sale or use of tangible property may also use a single factor sales formula. Businesses deriving income from the manufacture, sale or use of tangible property use the double-weighted sales formula.
 - » **Illinois** currently uses a double-weighted sales formula, but law changes enacted in 1998 increase the weight placed on the sales factor to 66.67

¹⁰ Boucher and Healy, *1998 Multistate Corporate Tax Guide, Volume I* (Panel Publishers, 1998); and Donovan and Nakamura, 1160 T.M., *Income Taxes: State Formulary Apportionment Methods*. The 11 states that use an equally-weighted three-factor formula are Alabama, Alaska, Delaware, Hawaii, Kansas, Montana, North Dakota, Oklahoma, Rhode Island, Utah and Vermont. The remaining four states (Nevada, South Dakota, Washington and Wyoming) do not impose taxes measured by corporate income.

percent in 1999, 83.33 percent in 2000, and 100 percent (a single factor sales formula) starting in 2001.

- » **Massachusetts** amended its laws in 1996 to allow defense contractors to elect to use a single factor sales formula. Certain mutual fund service corporations may also use a sales-only formula. The formula used by manufacturers was also amended to weight the sales factor 60 percent in 1996, 70 percent in 1997, 80 percent in 1998, 90 percent in 1999, and 100 percent (a single factor sales formula) starting in 2000. Businesses other than defense contractors and manufacturers use a double-weighted sales formula.
- » **Mississippi** allows retailers, wholesalers and service companies to use a single factor sales formula. Manufacturers use either an equally-weighted three-factor formula or a double-weighted sales formula, depending on whether they sell their products principally at the wholesale or retail level.
- » **Missouri** offers businesses the option of using a single factor sales formula or an equally-weighted three-factor formula.
- » **South Carolina** permits companies other than manufacturers or dealers in tangible personal property to use a single factor sales formula. Manufacturers or dealers in tangible personal property use a double-weighted sales formula.
- **Double-weighted sales formula**
 - » **Arkansas, Arizona, California, Florida, Georgia, Idaho, Indiana, Kentucky, Louisiana, Maine, Maryland, New Jersey, New Mexico (through 1999), New York, North Carolina, Oregon, Pennsylvania, Tennessee (effective in 1999), Virginia (effective in 2000), West Virginia, and Wisconsin** all use a formula that weights the sales factor 50 percent, and the property and payroll factors 25 percent each.

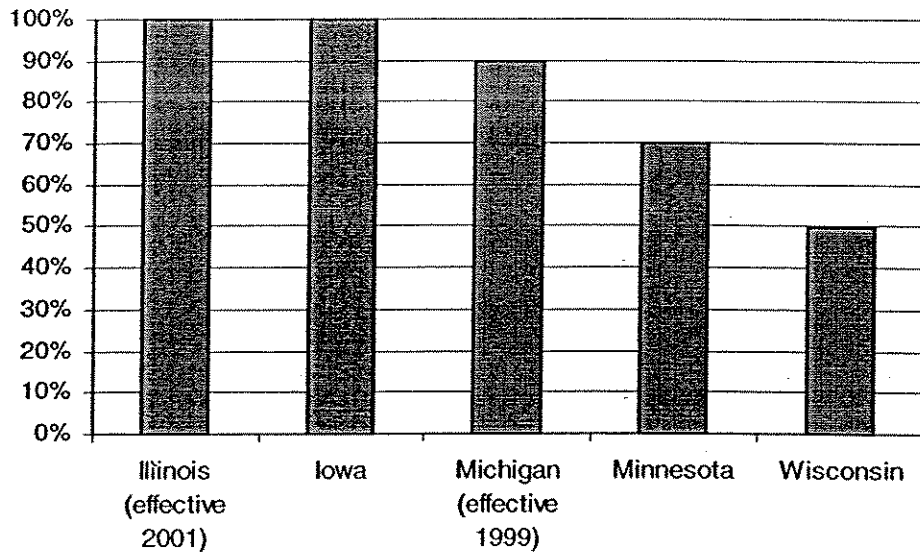
- **Other formulae that emphasize the sales factor**
 - » **Colorado** allows taxpayers to elect a two-factor formula that weights sales and property 50 percent each.
 - » **Michigan** used a double-weighted sales formula until 1996, when its formula was amended to increase the weight on the sales factor to 80 percent in 1997 and 1998, and 90 percent starting in 1999 (property and payroll will then be weighted 5 percent each).
 - » **Minnesota** uses a formula that weights sales 70 percent and property and payroll 15 percent each.
 - » **New Hampshire** uses a formula that weights sales 42.8 percent and property and payroll 28.6 percent each.
 - » **Ohio** currently uses a double-weighted sales formula. Effective in 1999, Ohio will use a formula that weights sales 60 percent and property and payroll 20 percent each.

Preemptive Strikes by Border States

The 1998 state business climate rankings of *Site Selection* magazine gave Wisconsin an overall ranking of 19th in the nation, whereas Michigan was ranked 3rd, Illinois 11th, Iowa 17th and Minnesota 18th.¹¹ It is worth noting that Wisconsin's border states have been particularly aggressive in changing their apportionment formulae to attract new business and expand economic growth with their borders. As Figure 1 indicates, Illinois, Iowa, Michigan and Minnesota all weight the sales factor more heavily than Wisconsin. Therefore, if Wisconsin were to increase the weight it places on the sales factor, it would merely be catching up with the competition.

¹¹ "1998's Business Climate Rankings: The Playing Field Levels," *Site Selection*, October/November 1998. The rankings are determined by the number of new and expanded facilities in a state, as well as a survey of corporate real estate executives.

Figure 1: Weighting of Sales Factor in Apportionment Formula



Increasing the weight assigned to the sales factor not only makes a state like Illinois a more attractive place to invest, it also has the effect of “exporting” the Illinois state tax burden from Illinois-based businesses to Wisconsin-based businesses. To illustrate, consider two corporations, Illinois Corp. and Wisconsin Corp. Each corporation does business only in Illinois and Wisconsin, has an annual profit of \$10 million, and has sales that are split 50-50 between Illinois and Wisconsin. The only difference between the two corporations is that Illinois Corp. has all of its property and payroll located in Illinois while Wisconsin Corp. has all of its property and payroll located in Wisconsin. Illinois and Wisconsin currently both use a double-weighted sales formula. Therefore, in 1998 Illinois Corp. apportions 75 percent of its income to Illinois,¹² while Wisconsin Corp. apportions 25 percent of its income to Illinois.¹³ Effective in 2001, Illinois will switch to a single factor sales formula. This will cause Illinois Corp.’s apportionment percentage to decrease from 75 percent to 50 percent, while Wisconsin Corp.’s apportionment percentage will increase from 25 percent to 50 percent. As the following table indicates, although Illinois’s adoption of a sales-only formula does not affect the total amount of Illinois tax paid by the two corporations,

¹² $[100\% \text{ property in IL} + 100\% \text{ payroll in IL} + (2)(50\% \text{ sales in IL})] \div 4 = 75\%$

\$182,500 of the total Illinois tax burden is exported from the Illinois-based corporation to the Wisconsin-based corporation.

	<u>1998 Illinois tax (3-factor formula)</u>	<u>2001 Illinois tax (sales-only formula)</u>	<u>Change in Illinois tax</u>
Illinois Corp.	\$547,500 ^a	\$365,000 ^c	-\$182,500
Wisconsin Corp.	<u>\$182,500^b</u>	<u>\$365,000^c</u>	+\$182,500
Totals	<u>\$730,000</u>	<u>\$730,000</u>	

^a Income of \$10 million × 75% apportionment percentage × 7.3% Illinois corporate tax rate

^b Income of \$10 million × 25% apportionment percentage × 7.3% Illinois corporate tax rate

^c Income of \$10 million × 50% apportionment percentage × 7.3% Illinois corporate tax rate

The only way for Wisconsin to mitigate this shifting of corporate tax burdens and thereby “level the playing field” is to also adopt a single factor sales apportionment formula.

¹³ $[0\% \text{ property in IL} + 0\% \text{ payroll in IL} + (2)(50\% \text{ sales in IL})] \div 4 = 25\%$

BENEFITS OF ADOPTING SINGLE FACTOR SALES APPORTIONMENT

Job Creation and Tax Revenues

Methodology and Sample Selection

Following earlier research conducted by Goolsbee and Maydew,¹⁴ we compile a panel data set on the apportionment formulae and corporate tax rates for states from 1978 to 1995. There have been approximately 20 different state apportionment formula changes over this period and this variation allows us to develop reasonably precise estimates of their economic effects. Because of the long time period, we are also able to control for economic factors that independently influence employment.

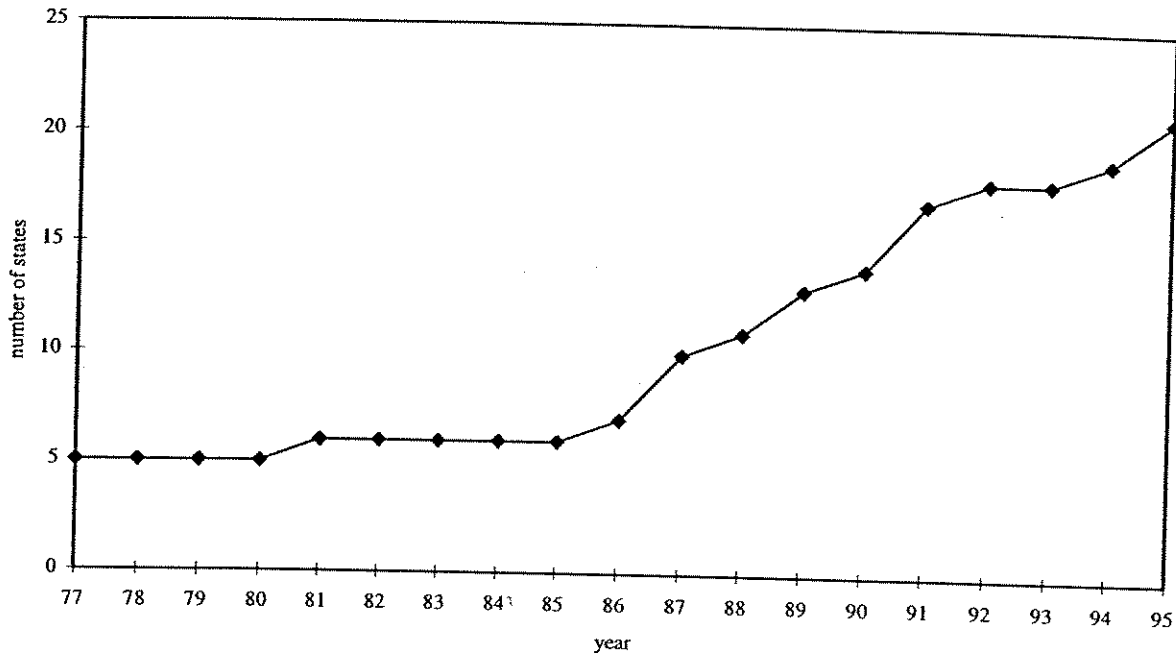
The data used in our study are as follows. First, the time series on the apportionment formulae cover all states with a corporate income tax. These data were gathered from Commerce Clearing House's *State Tax Handbook*, various state tax codes, issues of *Significant Features of Fiscal Federalism* (published by the Advisory Commission on Intergovernmental Relations) and discussions with selected state departments of revenue.

Figure 2 shows the number of states that have adopted more than the standard one-third weight on sales in their apportionment formulae over this sample, not counting states with optional apportionment formulae. There is a consistent upward trend that begins after 1978 with the *Moorman* case in which the Supreme Court ruled that Iowa's use of the single factor sales apportionment formula was constitutional.¹⁵

¹⁴ Goolsbee and Maydew, "Coveting Thy Neighbor's Manufacturing: The Dilemma of State Income Apportionment," 1998, NBER working paper No. 6614.

¹⁵ *Moorman Manufacturing Co. v. Bair*, 437 U.S. 267, 1978.

Figure 2: Number of States That Have Adopted an Increased Weighting on the Sales Factor



We match these apportionment formulae with state employment and earnings data compiled by the Bureau of Economic Analysis. These data include total private employment and total manufacturing employment by year for each state and are compiled from the ES-202 series of the Bureau of Labor Statistics and reported in the Bureau of Economic Analysis *State Personal Income* database. We also include the growth rate of average state personal income from the same source. For the national economy, we use data on the unemployment rate and the log of national employment. We allow the coefficient on the latter to vary by state in an attempt to control for population changes in a way that is not endogenous. The descriptive statistics for all the data in our sample are listed in Table 1.

Using these data, our basic empirical specification will regress the log of employment in state j in year t as follows:

$$\ln(EMPL_{jt}) = \alpha_j + \beta_1(Tax_{jt}) + \beta_1(\overline{Tax}_t) + \Gamma_1'Z_t + \Gamma_2'X_{jt} + \varepsilon_{jt}$$

where TAX_{jt} includes measures of the apportionment induced tax burden on payroll in the state, \overline{Tax}_t is the weighted average tax burden on payroll for all states in that year, the Z_t are

annual controls to account for macroeconomic factors that independently influence state employment (e.g., the national unemployment rate) or year dummies which absorb common macro variation, and the X_{jt} are state level controls as well as state specific time trends.

The basic approach is to estimate whether, conditional on the state of the economy and other variables, employment is higher when a state puts less weight on the payroll factor in its apportionment formula. The results below support the proposition.

Findings

Column (1) of Table 2 presents a basic panel regression for the log of manufacturing employment in a state on the tax terms, state fixed effects, state time trends, the state personal income growth rate, the national unemployment rate, and the log of national employment interacted with the state dummies to account for growth in the labor force. Following the theory presented above, our tax terms are the state corporate income tax rate interacted with the payroll weight in the apportionment formula and the weighted average of the same variable for all states in that year (states are weighted by average manufacturing employment over the sample).

In this basic specification, the coefficients are significant and have the predicted signs. The non-tax variables are unsurprising and the tax variables are statistically significant. Reducing the tax burden on payroll in the state by reducing the corporate rate or the payroll weight in the apportionment formula increases manufacturing employment significantly. When other states reduce their payroll tax burden it does the opposite. The magnitude of the own-tax coefficient indicates that for a state with the mean corporate tax rate, changing from a one-quarter to zero payroll weight (i.e., moving from double-weighted sales to single factor sales apportionment) increases manufacturing employment by 3.5 percent in the average state.

In column (2) we take federal corporate taxation into account, assuming that all states' corporate income taxes are deductible from the federal tax, for simplicity. We do this by replacing the state tax rate with the state rate times one minus the federal rate. Here again the evidence supports the view that higher payroll tax burdens within a state reduce employment and vice versa for the payroll tax burden in other states. The magnitudes are

also very similar. Moving from one-quarter weighting to zero weighting on payroll increases manufacturing employment by 2.4 percent for the average state.

While these specifications seem to indicate that the apportionment formula is important, both specifications impose that the apportionment formula and the corporate tax rate have identical effects. The apparent effect of apportionment changes, however, might be caused by spurious correlation with some other variable. Firms may respond only to the corporate rate, for example, and by including only an interaction term this makes the payroll weight look significant. On the other hand, if the true marginal tax rate facing the firm differs from the statutory rate, this will tend to reduce the estimated effect of the apportionment formula in the interaction term.

Columns (3) and (4), therefore, repeat the specifications of (1) and (2), but break the income tax induced payroll burden into two components: the payroll weight and the corporate tax rate. In both specifications, the corporate tax rate does not reduce the importance of the payroll weight. Indeed, in both cases the coefficient on the tax rate is not significantly different from zero while the coefficient on the payroll weight is both significant and the estimated effect is quite large.

Thus there probably is error in the true tax rate facing firms which reduces the coefficient on taxes and by separating the two components we can isolate the effect of the formula directly. In all four regressions, the state tax rate has no significant impact and the payroll weight does. Columns (5) and (6) simply verify that excluding state tax rates does not change the statistical significance of the payroll weight. The magnitude of the effect does increase, giving an upper-bound estimate of a 9.5 percent long-run increase in manufacturing employment from switching from double-weighted sales apportionment to single factor sales apportionment.

Finally, in column (7), we examine the impact on non-manufacturing employment. We expect the results to be proportionally smaller here than in the manufacturing sector. The coefficient on the tax rate shows that, indeed, apportionment changes do have a smaller effect on non-manufacturing but the effect is still statistically significant. For the average state, changing from one-quarter to zero payroll weight increases non-manufacturing employment by approximately 1.9 percent.

Projected Benefits for Wisconsin

In this section we look in detail at the employment effects on Wisconsin and the consequent revenue implications for the state. Since the specific estimates vary with the empirical specification, we present our most conservative point estimates, which are those presented in Table 2 column (2). Based on this analysis, we estimate that switching to a single factor sales apportionment formula will have a long-run impact of increasing the number of manufacturing jobs in Wisconsin by about 2.9 percent. At Wisconsin's base of about 619,000 manufacturing jobs (1995 estimate), this translates into about 18,000 new jobs just in manufacturing. Outside of manufacturing, the same data gives Wisconsin's employment at 2,035,000. The results in column (7) suggest that for Wisconsin, changing to single factor sales would raise non-manufacturing employment 2.4 percent, or 49,000 new jobs.

In addition to the obvious benefits of greater employment, there are also important tax revenue implications from the new jobs. Using 1995 Bureau of Economic Analysis data, we find that the average worker in Wisconsin made \$20,700 per year with manufacturing workers averaging \$31,400 and non-manufacturing \$17,500. If the jobs created by the apportionment change are like these average jobs, we estimate that this will generate on the order of \$51 million in individual income tax revenue. There is also likely to be a positive dynamic effect on other tax revenues such as sales and property tax but we do not have data on the magnitudes of these effects.

Overall, we find clear evidence that the adoption of single factor sales apportionment should increase employment, generating additional personal income and individual income tax revenues for the State of Wisconsin. Any estimate of the corporate tax revenue losses caused by the adoption of single factor sales apportionment needs to be balanced against the gains in individual tax revenue from job creation. Failing to consider this dynamic effect may result in a significant underestimation of the revenue aspects of this policy.

Tax Simplification

The costs incurred by taxpayers to comply with the tax laws represent a significant diversion of resources from other, more productive, economic activities. Compliance costs include the costs of gathering and interpreting the information needed to calculate the tax, documentation and record-keeping to support such computations, filing returns, and resolving disputes with tax authorities. A 1992 survey of large U.S. corporations found that these taxpayers spent an average of \$1.5 million per year to comply with federal, state and local corporate income taxes. The study also found that, on average, the costs of complying with state and local taxes comprise 30 percent of total compliance costs. The complexity of the apportionment formula was identified as an important factor contributing to the state and local compliance burden.¹⁶ Removing the property and payroll factors from the Wisconsin apportionment formula would ease the compliance burden by eliminating the need to compute and maintain records regarding these two factors. It would also make it easier for state tax authorities to administer the tax laws by reducing the amount of information state tax authorities must analyze to determine the appropriate amount of tax.

¹⁶ Slemrod and Blumenthal, "The Income Tax Compliance Cost of Big Business," *Public Finance Quarterly*, October 1996.

CAVEATS AND IMPLEMENTATION ISSUES

Projected Economic Benefits Are Not a Sure Thing

A valid concern regarding any proposed tax reform is that the predicted economic benefits may be overstated. This study predicts that a single factor sales apportionment formula will enhance future job growth in Wisconsin. This prediction is not based on a theoretical model of job growth, but rather the actual experiences of other states that have modified their apportionment formulae from 1978 to 1995. Nevertheless, the past does not always predict the future, in part because circumstances can change over time. For example, Wisconsin's unemployment rate is currently at one of its lowest levels in decades and many Wisconsin businesses are experiencing a shortage of skilled labor.¹⁷ This robust job market may limit the ability of a single factor sales formula to impact job growth, at least in the short-run.

This study also predicts that a single factor sales formula will raise an additional \$51 million in individual income tax revenues per year. All revenue estimates should be approached with a degree of caution, however.¹⁸ It is simply not possible to know with certainty how much revenue will be raised or lost by adopting a single factor sales formula. For example, increasing the weight placed on the sales factor may lead to corporate income tax revenue losses. In fact, based on a static model of revenue-estimation (which assumes that economic growth is unaffected by the law change), a 1994 Wisconsin Department of Revenue study estimated that the adoption of a single factor sales formula would result in an annual loss of \$22 million in corporate tax revenues.¹⁹ However, any estimate of the corporate tax revenue losses caused by the adoption of single factor sales apportionment needs to be balanced against the gains in individual tax revenue from job creation, which are estimated to be up to \$51 million.

¹⁷ Bureau of Labor Statistics, *Local Area Unemployment Statistics*, 1998.

¹⁸ Auerbach, "Dynamic Revenue Estimation," *Journal of Economic Perspectives*, Winter 1996.

¹⁹ Division of Research and Analysis, Wisconsin Department of Revenue, *Background Paper on Corporate Apportionment Formula*, November 10, 1994.

The Fairness Issue

Some Businesses Will Experience Tax Increases

X Any change in tax policy typically creates both winners and losers, particularly in the short run. A single factor sales apportionment formula is no exception. The winners will be companies with large amounts of property and payroll in Wisconsin but with sales nationwide. They will experience substantial reductions in their Wisconsin income tax liabilities. The losers will be companies that have substantial sales in Wisconsin but which have the majority of their employment and investment located out-of-state. They will end up paying more Wisconsin income taxes. In a 1994 Department of Revenue study (see footnote 19), it was estimated that while a single factor sales formula would reduce the taxes of approximately 1,800 corporations, nearly 3,000 corporations would see their taxes increase. According to this study, industries that would benefit the most include manufacturers of food, paper, chemicals, fabricated metal products, and electronic instruments, as well as wholesale and retail traders. Industries that would experience tax increases include construction companies, tobacco and petroleum manufacturers, and various service industries. The negative impact of a single factor sales formula on selected businesses and industries may raise concerns about the fairness of this proposed tax law change.

Most Small Businesses Will Not Be Affected

It is likely that a relatively small number of corporations with large amounts of property and payroll in-state will benefit disproportionately from the adoption of a single factor sales formula. In contrast, most of Wisconsin's small businesses will not be affected by a change in apportionment formulae. Two factors explain this discrepancy. First, the activities of Wisconsin's small businesses typically do not extend beyond the state's borders. As a result, they do not apportion their income for tax purposes. Second, a relatively small number of large corporations pay the lion's share of Wisconsin corporate income taxes, and therefore any change in corporate income tax policy will tend to have a disproportionate effect on these corporations. For example, in 1994 the largest 1 percent of corporate taxpayers (those with Wisconsin taxable income of \$1 million or

X

more) paid about \$412 million in Wisconsin income taxes, or roughly 78 percent of total Wisconsin corporate income tax collections in 1994.²⁰ Nevertheless, the disparate effects of this proposed tax law change on large versus small businesses may also raise equity concerns.²¹

Implementation Issues

Adopting an apportionment formula based solely on sales would significantly increase the importance of how "sales" are defined, measured and attributed to Wisconsin. Therefore, the adoption of a single factor sales formula would necessitate a thorough analysis of the current rules for computing the ratio of in-state sales to sales everywhere. One example is the so-called "throw-back" provision found in current law. Under this rule, if a Wisconsin-based company sells goods to a customer located in a state in which the Wisconsin company is not taxable, 50 percent of those sales are thrown back into the numerator of the Wisconsin sales factor. Throw-back does not apply if the customer is located in a foreign country.²² With the increased importance of the sales factor, lawmakers may wish to consider alternative approaches to throw-back, such as requiring throw back of 100 percent of a sale or eliminating throw back altogether.

Over the next 25 years, employment in the service sector of the Wisconsin economy is expected to grow faster than manufacturing employment.²³ Therefore, the adoption of a single factor sales formula should also prompt a re-evaluation of the rules for attributing sales of services to Wisconsin. Under current law, sales of services are attributed to Wisconsin to the extent the underlying income-producing activity is performed in Wisconsin.²⁴ As a consequence, if employee salaries are a significant cost in providing a service, the computation of the sales factor tends to mimic that of a payroll

²⁰ Wisconsin Legislative Fiscal Bureau, *Corporate Income Tax*, 1997.

²¹ As a comparison, when Illinois enacted its single factor sales apportionment formula, a local newspaper quoted Illinois state tax officials as stating that while the change would save about 7,000 Illinois corporations \$217 million in state taxes annually, \$60 million of those savings would go to just five corporations. *The State Journal-Register*, July 10, 1998.

²² Wis. Sec. 71.25(9)(a)-(c).

²³ Division of Research and Analysis, Wisconsin Department of Revenue, *Wisconsin Long-Term Economic Forecast*, 1998.

factor. For this reason, some states, such as Minnesota, attribute sales of services based on the location of the customer receiving the service rather than the location of the costs incurred in performing the service.²⁵

Finally, the adoption of a single factor sales formula should also trigger a re-evaluation of the industry-specific apportionment formulae used by air carriers, motor carriers, railroads, pipeline companies, finance companies, and public utilities.²⁶ For example, under current Wisconsin law, interstate banks use a special two-factor formula that includes a gross receipts and a payroll factor. Likewise, interstate motor carriers use a special two-factor formula that includes a gross receipts and a ton miles factor. If a single factor sales formula is adopted, lawmakers may wish to extend the concept to banks, motor carriers, and other industries that are currently required to use specialized formulae.

²⁴ Wis. Sec. 71.25(9)(d).

²⁵ Minn. Sec. 290.191.5(j).

²⁶ Wisconsin Admin. Code 2.46, 2.47, 2.475, 2.48, 2.49, and 2.50.

SUMMARY

This study estimates the impact that switching to a single factor sales apportionment formula would have on job creation and tax revenue for Wisconsin. Our estimates are based on the actual experiences of states that have modified their apportionment formula over the period 1978 to 1995. The analysis controls for other factors that can affect employment, such as state trends, changes in national unemployment rates, and the actions of other states regarding their apportionment formulae. Our results establish two important facts about state tax policy.

First, we provide evidence that the apportionment formula has a large and significant effect on a state's economy. The payroll weight is a significant determinant of state employment. We find that reducing the payroll weight from one-quarter to zero increases manufacturing employment by approximately 2.4 percent for the average state during the sample period. The same change increases non-manufacturing employment approximately 1.9 percent. Second, we show that these significant employment effects imply that although increasing the sales weight in a state may lead to corporate income tax revenue losses, the increased employment generates additional individual income tax revenue. Failing to consider this dynamic effect may result in a significant underestimation of the revenue aspects of this policy.

Applying these results to the State of Wisconsin, we find that increasing the sales weight in Wisconsin from 50 percent to 100 percent would have a long-run impact of increasing manufacturing employment by about 18,000 jobs and non-manufacturing employment by as many as 49,000 jobs. These new jobs would have a significant positive impact on individual income tax revenue for the State of Wisconsin, creating an estimated \$51 million in additional tax revenue per year. Coupled with neighboring states' aggressive modification of their own apportionment formulae, these results underscore the need for the State of Wisconsin to act promptly to remain competitive and avoid revenue and job losses to other states.

Table 1
Descriptive Statistics for State Panel from 1978-95

Variables ^a	Mean	Standard deviation
<i>Payroll weight</i>	0.314	0.047
<i>State payroll burden</i>	0.013	0.004
<i>State corporate tax rate</i>	0.073	0.022
<i>Federal corporate tax rate</i>	0.406	0.058
<i>Ln(national employment)</i>	4.688	0.079
<i>State personal income growth rate</i>	0.017	0.022
<i>National unemployment rate</i>	0.069	0.012
<i>Share of national manufacturing</i>	0.023	0.023
<i>Ln(manufacturing employment)</i>	12.432	1.095
<i>Ln(total employment)</i>	14.135	0.95
<i>Ln(real manufacturing wage)</i>	3.33	0.161
<i>Number of Observations</i>	732	

^a *Payroll weight* is the payroll weight in the apportionment formula (e.g., 33 percent, 50 percent, or 100 percent).

State payroll burden is the payroll weight x (state corporate tax rate)(1 - federal corporate tax rate).

State corporate tax rate is the top corporate statutory rate imposed by the state.

Federal corporate tax rate is the top corporate statutory rate.

Ln(national employment) is the log of national total employment

State personal income growth rate is the state's growth rate in per capita personal income.

National unemployment rate is the national unemployment rate in percent.

Share of national manufacturing is the state's share of national manufacturing employment.

Ln(manufacturing employment) is the log of manufacturing employment.

Ln(total employment) is the log of total employment.

Ln(real manufacturing wage) is the log of the state's real manufacturing wage.

Table 2
Regressions of Manufacturing Employment, Total Employment, Real Manufacturing Wages and Non-Manufacturing Employment on the Weight on Payroll in the Apportionment Formula and Control Variables

Dependent variables ¹	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Independent variables							
<i>State payroll burden</i>	-1.920 (0.794)						
<i>State corporate tax rate</i>			-0.229 (0.308)				
<i>State payroll burden (incl. federal)</i>		-2.231 (1.331)					-1.852 (0.806)
<i>State corporate tax rate (incl. federal)</i>				-0.059 (0.519)			
<i>Payroll weight</i>			-0.366 (0.116)	-0.309 (0.127)	-0.367 (0.116)	-0.379 (0.115)	
<i>Mean of all states' payroll burden</i>	6.252 (2.961)		5.721 (2.967)		5.367 (2.927)		
<i>Mean of all states' payroll burden (incl. fed.)</i>		10.439 (3.683)		8.111 (3.863)		7.651 (3.496)	-0.741 (1.903)
<i>State personal income growth rate</i>	0.380 (0.082)		0.390 (0.082)	0.447 (0.084)	0.391 (0.082)	0.445 (0.083)	0.170 (0.052)
<i>National unemployment rate</i>	-2.092 (0.286)		2.005 (0.288)	-1.899 (0.284)	-2.018 (0.287)	-1.987 (0.280)	-2.587 (1.765)
<i>(Nat'l employment) x (state dummy variables)</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>State fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>State trends</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R²	0.793	0.795	0.794	0.797	0.794	0.797	0.794
Number of observations	732	732	732	732	732	732	732

standard errors in parentheses

¹ See Table 1 for variable definitions.