2015 Minnesota Tax Incidence Study

(Using November 2014 Forecast)

An analysis of Minnesota's household and business taxes.

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MINNESOTA · REVENUE
Tax Research Division

March 9, 2015

The *Tax Incidence Study* is available on the Department of Revenue's Internet web site at
www.revenue.state.mn.us/research_stats/Pages/Tax_Incidence_Studies.aspx

March 9, 2015

To the Members of the Legislature of the State of Minnesota:

I am pleased to transmit to you the thirteenth Minnesota Tax Incidence Study undertaken by the Department of Revenue in response to Minnesota Statutes, Section 270C.13 (Laws of 1990, Chapter 604, Article 10, Section 9; Laws of 2005, Chapter 151, Article 1, Section 15).

This version of the incidence study report builds on past studies and provides new information regarding tax incidence. Previous studies have estimated how the burden of state and local taxes was distributed across income groups from a historic perspective. This study does that by displaying the burden of state and local taxes across income groups in 2012. It includes over 99 percent of Minnesota taxes paid, those paid by business as well as those paid by individuals. The study addresses the important question: "Who pays Minnesota's taxes?"

The report also estimates tax incidence across income groups for state and local taxes for 2017. By forecasting incidence into the future, it is possible to give policymakers a view of the state and local tax system that reflects tax law changes enacted into law to date. Studies that concentrate only on history would not reflect the most recent changes to Minnesota's tax system. The 2017 projections also reflect the impact of the forecast for economic growth and expected changes in the distribution of income on the tax system. This version of the 2017 projections is based on the November 2014 economic forecast from the Department of Management and Budget.

The information presented here can be used to evaluate Minnesota's tax system. It should also be valuable in considering any future changes in Minnesota's tax structure.

Minnesota Statutes, Section 3.197, specifies that a report to the Legislature must include the cost of its preparation. The approximate cost of preparing this report was $95,000.

Sincerely,

Cynthia Bauerly
Commissioner

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Executive Summary

This study reports the distribution of calendar year 2012 Minnesota state and local taxes in relation to taxpayer income, along with projections for calendar year 2017. It answers the question, "Who pays Minnesota's state and local taxes?" The major objective is to provide taxpayers and policymakers with important information on the equity or fairness of the overall distribution of Minnesota taxes. This is the thirteenth biennial tax incidence study prepared in response to the statutory requirement enacted in 1990.

The report estimates 1) how the total Minnesota state and local tax burden on Minnesota households varies by income range, and 2) how the burden of each component of the overall state and local tax system is distributed across Minnesota households. Aggregating the impact of each component yields an estimate of the distribution of the total state and local tax burden.[1]

The estimates include taxes with an initial impact on businesses, such as the corporate franchise tax and the sales tax on business purchases, as well as taxes imposed directly on households. The initial impact of taxes imposed on Minnesota households and businesses is discussed first. The analysis then proceeds to estimate the final incidence of taxes on Minnesota households, after taxes imposed on businesses have been shifted to those who bear the final burden.

The report:

- Analyzes $27.0 billion in taxes collected in 2012, a total that represents over 99 percent of all state and local taxes.
- Identifies the shares paid initially by households (63.1 percent by Minnesota residents and 3.7 percent by nonresidents) and the share paid initially by business (33.2 percent).
- Estimates the extent to which the business taxes are shifted to consumers (in higher prices) or labor (in lower wages), rather than being borne by owners of capital (in lower rates of return). Also estimates the extent to which the ultimate burden is "exported" to nonresident owners of capital or nonresident consumers.
- Calculates average household tax burden by income range. That burden consists of taxes imposed directly on households, such as the income tax or consumer sales tax, plus the household share of taxes initially imposed on business but shifted to households, the ultimate payers. Income is defined to include all forms of cash income, both taxable and nontaxable.
- Presents results by population decile, each decile including one-tenth of all households (the lowest-income 10 percent in decile 1 and highest-income 10 percent in decile 10).
- Projects the 2012 results forward to 2017, accounting for the effects of both law changes and economic growth on the mix and level of state and local taxes.

[1] Throughout this study, the phrase "tax burden" refers to the burden of Minnesota's state and local taxes on Minnesota residents. The study includes no analysis of either federal taxes or taxes imposed in other states.

Conclusions of the research are:

- Of the total $27.0 billion in 2012 taxes, 82.7 percent of the burden ultimately falls on Minnesota residents ($22.3 billion). The remaining $4.8 billion of the tax burden is exported to nonresident consumers or nonresident owners of capital.
- In 2012, the state and local tax burden on Minnesota households averaged 11.5 percent of income, up from 11.3 percent in 2010.
- The local tax share of tax revenue fell from 31.5 percent in 2010 to 29.7 percent in 2012 but is projected to fall to 27.8 percent in 2017. The state tax share rose from 68.5 percent in 2010 to 70.3 percent in 2012 and is projected to rise to 72.2 percent in 2017.
- The share of state and local revenue derived from taxes on income rose from 33.5 percent in 2010 to 36.5 percent in 2012 and is projected to rise to 39.5 percent in 2017. The property tax share fell from 34.6 percent in 2010 to 32.4 percent in 2012 and is projected to fall to 29.7 percent in 2017. The consumption tax share also fell between 2010 and 2012, from 31.9 percent to 31.1 percent, and is projected to fall to 30.8 percent in 2017.
- The business tax share of total tax revenue rose from 33.1 percent in 2010 to 33.2 percent in 2012 but is projected to fall to 32.0 percent in 2017.
- After allowing for the shifting of business taxes, the Minnesota tax system in 2012 was somewhat regressive (as it had been in 2010). The full-sample Suits index, a measure of the progressivity or regressivity of a tax or tax system, rose (toward zero) from -0.057 in 2010 to -0.052 in 2012. This change reflects a decrease in overall regressivity.
- Minnesota's refundable income tax credits and property tax refunds for homeowners and renters substantially reduce overall regressivity. In their absence, the 2012 Suits index would fall from -0.052 to -0.075.
- Total Minnesota income is expected to grow by 25 percent between 2012 and 2017. Tax receipts and tax burdens on Minnesotans are each forecast to grow more slowly (at 22 and 24 percent), so the overall effective tax rate is projected to fall from 11.5 percent to 11.4 percent of income.
- The full-sample Suits index is projected to rise from -0.052 in 2012 to -0.035 in 2017. Income growth rates are expected to outpace tax growth rates in every decile except the 10th.

The thirteen biennial tax incidence studies cover 24-year a period. Comparison with earlier reports provides some historical context for the results of the current study. *Figures E-1* and *E-2* below show how effective tax rates and Suits indexes have changed over time. The effective tax rate is the ratio of tax burden to total household income. For the Suits index, positive values reflect progressivity and negative values show regressivity. To allow comparability to earlier studies, *Figure E-2* shows population-decile Suits indexes as well as the more accurate full-sample Suits indexes, which were not reported until tax year 2004. *Chapter 1* provides further explanation for these trends.

Figure E-1
Effective Tax Rates, All Minnesota Taxes[2]

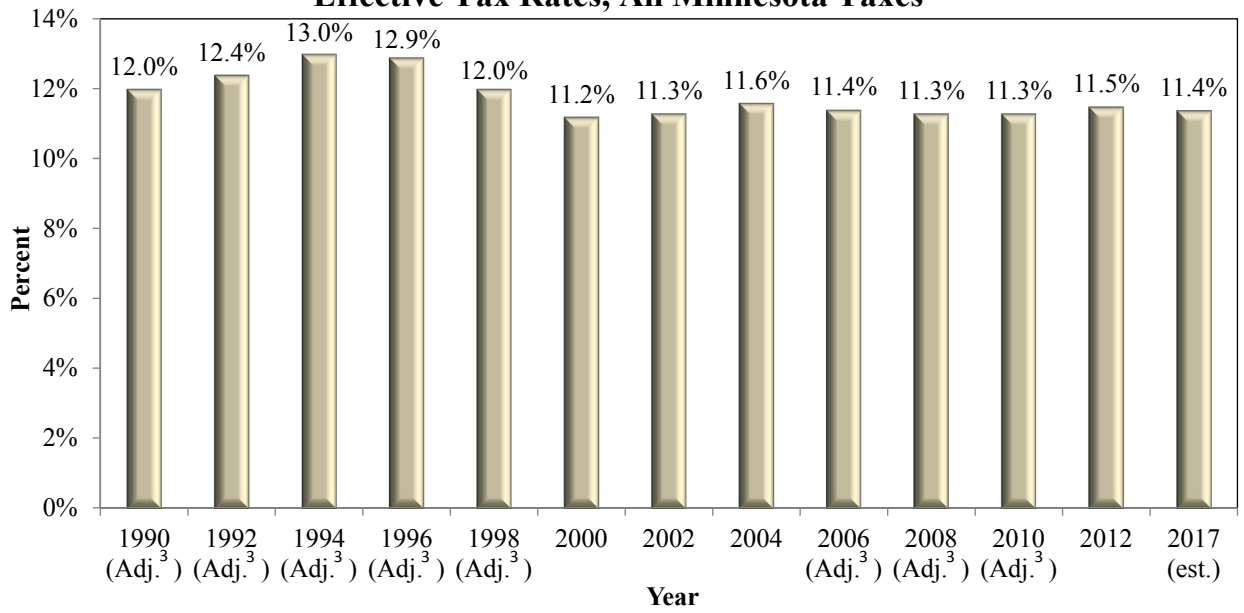
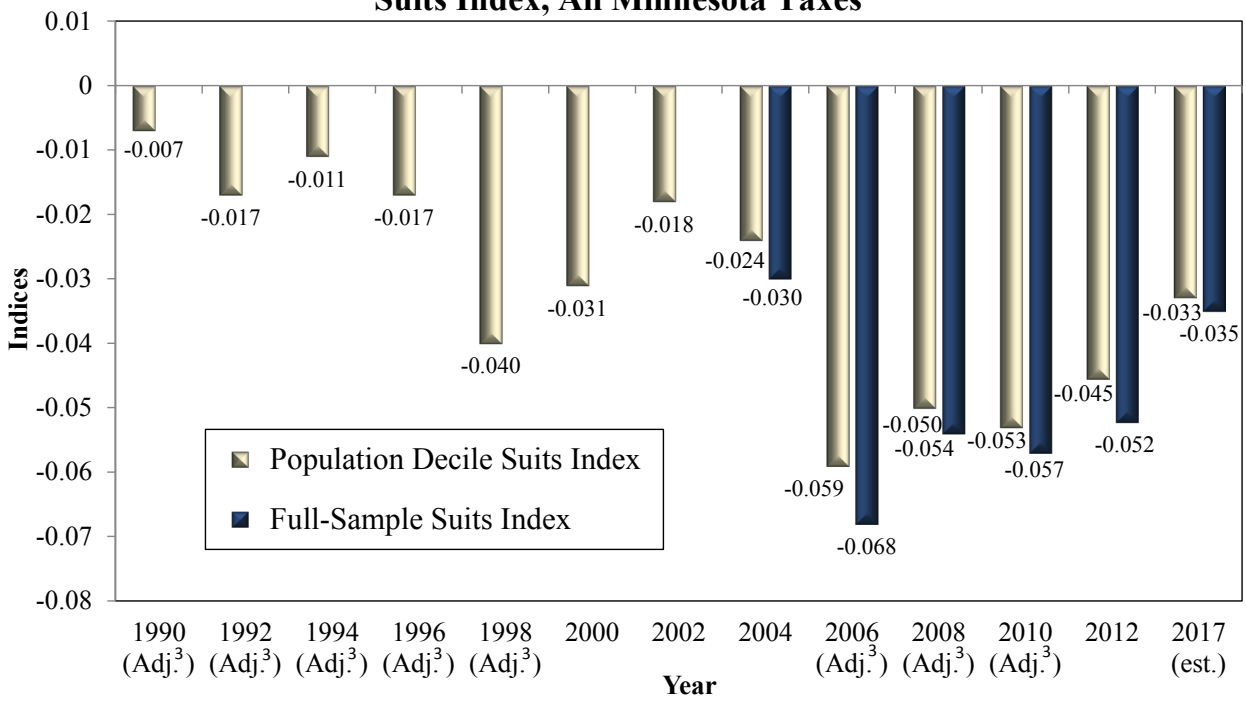


Figure E-2
Suits Index, All Minnesota Taxes[3]



[2] Effective tax rates for 2006 and later years would have been 0.2 percentage points higher except for methodological changes that identified additional income.

[3] The earliest studies (before 2000) did not include all of the taxes included in more recent studies, so both the effective tax rates (*Figure E-1*) and Suits indexes (*Figure E-2*) are adjusted to make them comparable. The published report for 2006 did not include the Health Impact Fees. The 2008 and 2010 Suits indexes were also corrected for errors in the database for those years. Unadjusted effective tax rates reported in the published studies were 11.8%, 12.1%, 12.9%, 12.7%, 11.8% for 1990-1998, 11.2% for 2006, and 11.5% in 2008 and 2010. The unadjusted Suits index was -0.004 in 1990, -0.013 in 1992, and -0.062 (full-sample Suits) in 2006, and -0.060 in 2008 and 2010.

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Chapter 1: Overview of Study

Minnesota State and Local Tax Collections

Minnesota collected $27.0 billion in state and local taxes in 2012.[4] By 2017, collections are expected to rise to $33.1 billion. This report estimates how much of the burden of total state and local taxes in each of those years falls on Minnesota residents and how the tax burden on Minnesota residents varies with income.[5]

Minnesota's 2012 state and local taxes are summarized in *Table 1-1*. In 2012, 70.3 percent of the $27.0 billion of tax was collected at the state level; local governments collected the remainder, largely from property taxes. The study includes taxes paid by business as well as those paid directly by households. The 30 separate tax components included in the study account for over 99 percent of total state tax collections and over 99 percent of local tax collections. For each of the taxes, the study identifies how the burden is distributed. Combining the results for each of those components provides an estimate of the distribution of the burden of the complete state and local tax system.

The 2012 results are based on a stratified random sample of over 100,000 Minnesota households. The 2017 results are projected forward from 2012 based on the November 2012 economic forecast and are adjusted to account for law changes that took effect after 2012.

[4] If the $35 million excluded from this study were added, the total would still round to $27.0 billion (as on *Table 1-1*).

[5] Throughout this study, the phrase "tax burden" refers to the burden of Minnesota's state and local taxes on Minnesota residents. The study includes no analysis of either federal taxes or taxes imposed in other states.

Table 1-1
Minnesota State and Local Tax Collections in 2012
($ Millions)

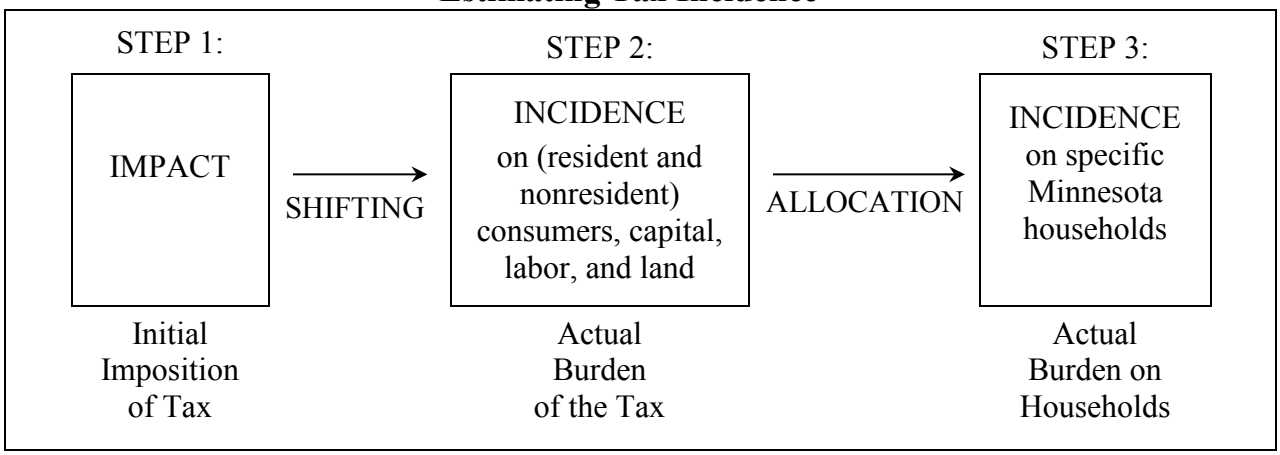
State		Local		State and Local	
Included		**Included**		**Included**	
Individual income tax	$8,493	Gross property taxes (after credits)			
Corporate franchise tax	1,183	Homestead property taxes	$3,723		
Estate tax	162	Property taxes on residential recreational property taxes (cabins)	192		
General sales and use tax	5,026	Rental property taxes (residential)	947		
Motor vehicle sales tax	578	Other business property taxes (including farming and taconite)	2,726		
Motor fuels excise taxes	856	Subtotal	$7,588		
Alcoholic beverage excise taxes	81	Local sales taxes	317		
Cigarette & tobacco excise taxes	424	Gross earnings taxes	114		
Insurance premiums tax	397				
Gambling taxes	39				
MinnesotaCare taxes	500				
Motor vehicle registration tax	601				
Mortgage and deed taxes	188				
Waste taxes	70				
State property tax	817				
Property tax refunds	(452)				
Total	$18,964	**Total**	$8,019	**Total**	$26,983
Omitted		**Omitted**		**Omitted**	
Controlled substances tax		General authorization lodging taxes			
Airflight property tax		Auxiliary forest tax			
Aircraft registration tax		Contamination tax			
Rural electric cooperatives tax		Severed mineral interests tax			
Metropolitan solid waste landfill fee		Unmined taconite tax			
		Aggregate material production tax			
Total	$20	**Total**	$15	**Total**	$35
Total Tax Collections	$18,984		$8,034		$27,018

The Concept of Tax Incidence

Economists commonly distinguish between the *initial impact* of a tax and its *incidence*. The initial impact of a tax is on the taxpayer legally liable to pay the tax, while the incidence of a tax is the final resting place of the tax burden after any tax shifting has occurred.

Figure 1-1 illustrates the steps involved in moving from impact to tax incidence on Minnesota households.

Figure 1-1
Estimating Tax Incidence

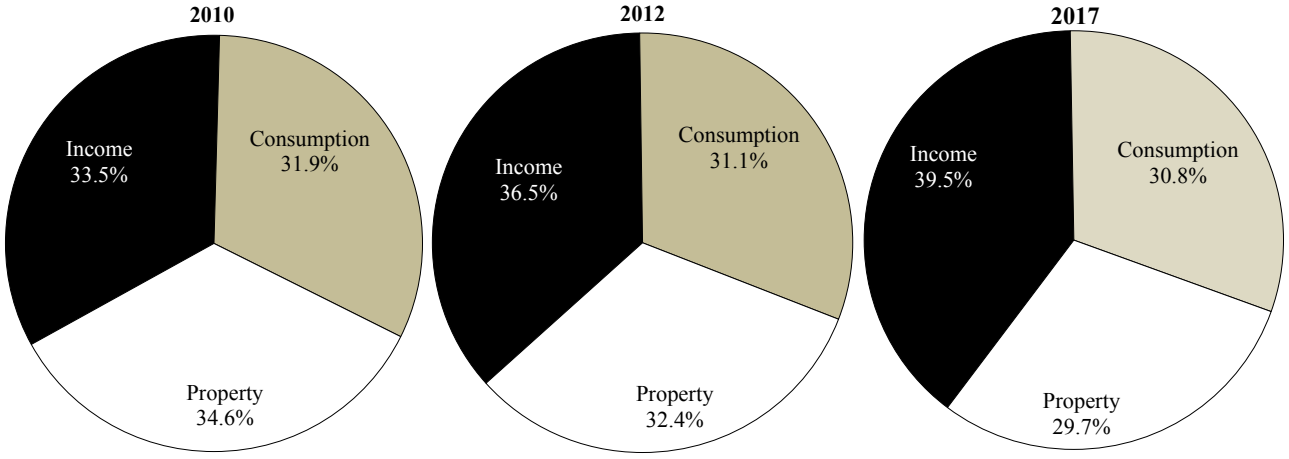


Each of the three steps shown in *Figure 1-1* is discussed separately below. The major findings from this study are reviewed in the context of that three-step estimating process.

Step 1 – Impact

Figure 1-2, derived from *Tables 1-2* and *1-3*, describes the revenues actually collected in 2010 and 2012 and expected to be collected in 2017. Taxes are divided into three general categories: Income, Consumption, and Property.[6]

Figure 1-2
Minnesota Tax System Impacts by Tax Type



[6] All taxes are assigned to one of the three categories. The motor vehicle registration tax and mortgage and deed taxes are defined as property taxes. The estate tax is defined as a tax on income. Property tax is net of property tax refunds. Parts may not sum to 100% due to rounding.

The three graphs in *Figure 1-2* show that the income tax share rose in 2012 and is expected to rise significantly through 2017. Both the property tax share and the consumption tax share fell significantly between 2010 and 2012, and both are expected to fall through 2017. These swings in tax shares are due primarily to the economic recovery but partly to law changes.

- Total household income grew 10.7 percent between 2010 and 2012. Income in the top population decile rose by 15.5 percent, much more than income in the lower 9 deciles (7.2 percent). In contrast, income is expected to grow by 25 percent between 2012 and 2017 (an average of 4.5 percent per year).
- As a general rule (in the absence of any law change), revenue from taxes on income falls sharply in a recession but rises faster than income when the economy expands. Revenue from income taxes rose by 23 percent between 2010 and 2012, and is expected to rise by 33 percent – faster than income – between 2012 and 2017.
- Taxes on consumption (sales and excise taxes) are generally less responsive to changes in income. Consumption tax revenue rose by 10.3 percent between 2010 and 2012 (almost matching income growth) and is projected to rise by 21.2 percent – slower than income – between 2012 and 2017.
- Property taxes differ from income and consumption taxes. They are not as directly affected by a recession. With fixed income tax rates, income tax revenue falls automatically as income falls. The same is true of sales tax revenue. In contrast, property tax levies are set to raise a fixed amount of dollars. The recession and falling property values may eventually affect property tax levies, but only with a lag. The rate of growth in property tax levies also depends partly on changes in the system of state aid to schools and local governments. When state aid increases, this places less upward pressure on local property tax levies. Property taxes increased 6.1 percent between 2010 and 2012, well below the growth of income. They are projected to rise by 12 percent – much slower than income – between 2012 and 2017.

Another way of looking at Minnesota's tax system is to consider how tax revenues are split between state and local taxes. Between 2010 and 2012, the state's share rose from 68.5 percent to 70.3 percent. By 2017, it is expected to rise to 72.2 percent. The local share (including school taxes) rose from 31.5 percent in 2010 to 29.7 percent in 2012 and is expected to fall to 27.8 percent by 2017. Although local tax revenue is projected to rise 15 percent between 2012 and 2017, state tax revenue is projected to rise 26 percent.

This study also highlights the distinction between taxes on households and taxes on business. Taxes on households include taxes paid directly by households (such as the individual income tax, homeowner property tax, vehicle registration tax on private vehicles, and the sales tax on consumer purchases). Household taxes are also defined to include taxes paid by business if the full tax is assumed to be passed on to households in higher prices. These fully-shifted taxes include excise taxes on cigarettes and alcohol, fuel taxes on fuel purchased by households, insurance taxes on homeowner insurance policies, and MinnesotaCare taxes on medical services. The term "business tax," as defined in this study, includes any tax paid by business that is *not* expected to be fully reflected in the price paid by consumers. Business taxes include, among others, the corporate franchise tax, business property taxes (including property taxes on rental housing), the sales tax on business purchases, and insurance taxes on business insurance.

Table 1-2
2012 State and Local Tax Collections by Type of Tax and Taxpayer Category

Tax Type	Collections		Percentage by Taxpayer Category			
	Total ($ Millions)	Percent Distribution	Households		Business	Total
			Resident	Nonresident		
State Taxes						
Taxes on Income and Estates						
Individual income tax	$8,493	31.5%	94.4%	5.6%		100.0%
Corporation franchise tax [1]	1,183	4.4%			100.0%	100.0%
Estate tax	162	0.6%	100.0%			100.0%
Total Income and Estate Taxes	$9,838	36.5%	83.2%	4.8%	12.0%	100.0%
Taxes on Consumption						
Total sales tax	$5,604	20.8%	51.3%	5.5%	43.2%	100.0%
General sales/use tax	5,026	18.6%	51.9%	6.1%	42.0%	100.0%
Sales tax on motor vehicles	578	2.1%	45.9%		54.1%	100.0%
Motor fuels excise taxes	856	3.2%	53.0%	7.6%	39.4%	100.0%
Alcoholic beverage excise taxes	81	0.3%	89.3%	10.7%		100.0%
Cigarette and tobacco excise taxes[2]	424	1.6%	91.0%	9.0%		100.0%
Insurance premiums taxes	397	1.5%	73.3%		26.7%	100.0%
Gambling taxes	39	0.1%	99.0%	1.0%		100.0%
MinnesotaCare taxes	500	1.9%	91.6%	8.4%		100.0%
Solid waste management taxes	70	0.3%	46.6%		53.4%	100.0%
Total Consumption Taxes	$7,972	29.5%	57.8%	5.8%	36.4%	100.0%
Taxes on Property						
State Property Tax	$817	3.0%	3.9%	1.0%	95.1%	100.0%
Residential recreational property	40	0.1%	80.2%	19.8%		100.0%
Commercial [3]	540	2.0%			100.0%	100.0%
Industrial	150	0.6%			100.0%	100.0%
Utility	88	0.3%			100.0%	100.0%
Motor vehicle registration tax	601	2.2%	84.8%		15.2%	100.0%
Mortgage and deed taxes	188	0.7%	49.8%		50.2%	100.0%
Total Property Taxes	$1,606	6.0%	39.5%	0.5%	60.0%	100.0%
Property Tax Refunds						
Homeowners	-$271	-1.0%	100.0%			100.0%
Renters	-181	-0.7%	100.0%			100.0%
Total Property Tax Refunds	-$452	-1.7%	100.0%			100.0%
Total State Taxes	$18,964	70.3%	68.4%	5.0%	26.6%	100.0%
Local Taxes						
Taxes on Property	$7,588	28.1%	51.1%	0.5%	48.4%	100.0%
General Property Tax	7,494	27.8%	51.7%	0.5%	47.8%	100.0%
Homeowners (before PTR)	3,723	13.8%	100.0%			100.0%
Residential recreational property	192	0.7%	80.2%	19.8%		100.0%
Commercial [3]	1,506	5.6%			100.0%	100.0%
Industrial	422	1.6%			100.0%	100.0%
Farm (other than residence) [4]	445	1.6%			100.0%	100.0%
Rental Housing (before PTR)	947	3.5%			100.0%	100.0%
Utility	259	1.0%			100.0%	100.0%
Mining Production Taxes (taconite)	94	0.3%			100.0%	100.0%
Taxes on Consumption						
Local Sales Taxes	317	1.2%	51.9%	6.1%	42.0%	100.0%
Local Gross Earnings Taxes	114	0.4%			100.0%	100.0%
Total Local Taxes	$8,019	29.7%	50.4%	0.7%	48.9%	100.0%
Total State and Local Taxes	$26,983	100.0%	63.1%	3.7%	33.2%	100.0%

[1] Includes taconite/iron ore occupation tax.
[2] Includes Health Impact Fees.
[3] Includes resorts and railroads.
[4] Includes timber.

Table 1-3
2017 State and Local Tax Collections by Type of Tax and Taxpayer Category

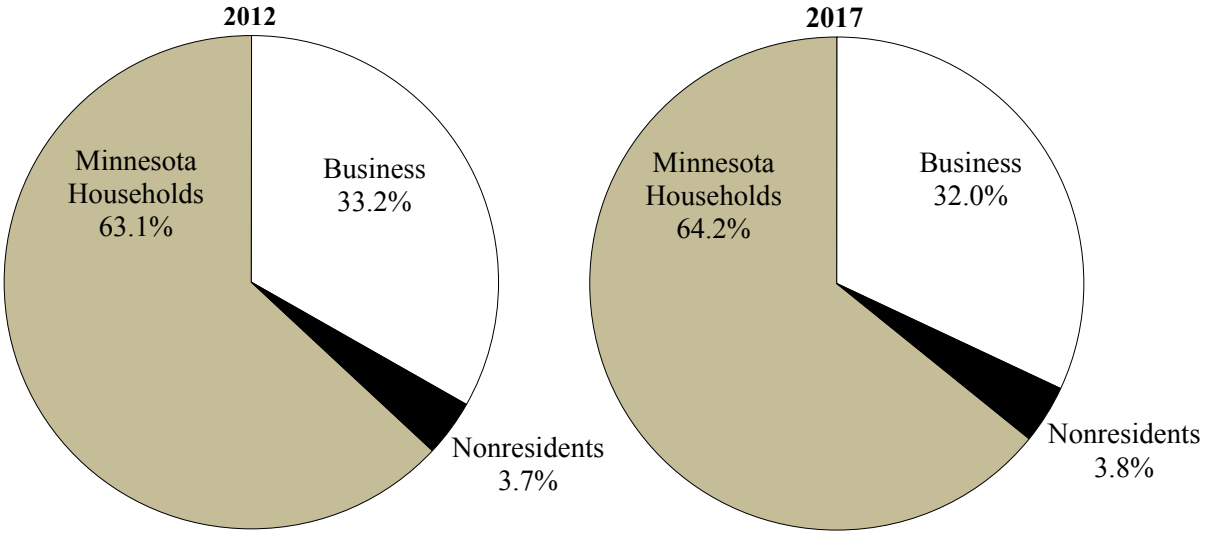
Tax Type	Collections		Percentage by Taxpayer Category			
	Total ($ Millions)	Percent Distribution	Households		Business	Total
			Resident	Nonresident		
State Taxes						
Taxes on Income and Estates						
Individual income tax	$11,540	34.9%	94.4%	5.6%		100.0%
Corporation franchise tax [1]	1,334	4.0%			100.0%	100.0%
Estate tax	164	0.5%	100.0%			100.0%
Total Income and Estate Taxes	$13,038	39.4%	84.9%	4.9%	10.2%	100.0%
Taxes on Consumption						
Total sales tax	$6,826	20.7%	51.2%	5.4%	43.4%	100.0%
General sales/use tax	6,016	18.2%	51.9%	6.1%	42.0%	100.0%
Sales tax on motor vehicles	810	2.5%	45.9%		54.1%	100.0%
Motor fuels excise taxes	874	2.6%	53.0%	7.6%	39.4%	100.0%
Alcoholic beverage excise taxes	89	0.3%	89.3%	10.7%		100.0%
Cigarette and tobacco excise taxes	621	1.9%	91.0%	9.0%		100.0%
Insurance premiums taxes	481	1.5%	73.3%		26.7%	100.0%
Gambling taxes	48	0.1%	99.0%	1.0%		100.0%
MinnesotaCare taxes	636	1.9%	91.6%	8.4%		100.0%
Solid waste management taxes	80	0.2%	46.6%		53.4%	100.0%
Total Consumption Taxes	$9,655	29.2%	58.2%	5.7%	36.0%	100.0%
Taxes on Property						
State Property Tax	$863	2.6%	3.9%	1.0%	95.2%	100.0%
Residential recreational property	42	0.1%	80.2%	19.8%		100.0%
Commercial [2]	569	1.7%			100.0%	100.0%
Industrial	156	0.5%			100.0%	100.0%
Utility	97	0.3%			100.0%	100.0%
Motor vehicle registration tax	767	2.3%	84.8%		15.2%	100.0%
Mortgage and deed taxes	199	0.6%	49.8%		50.2%	100.0%
Total Property Taxes	$1,829	5.5%	42.8%	0.5%	56.8%	100.0%
Property Tax Refunds						
Homeowners	-$434	-1.3%	100.0%			100.0%
Renters	-230	-0.7%	100.0%			100.0%
Total Property Tax Refunds	-$664	-2.0%	100.0%			100.0%
Total State Taxes	$23,858	72.2%	70.4%	5.0%	24.5%	100.0%
Local Taxes						
Taxes on Property	$8,666	26.2%	48.6%	0.5%	50.9%	100.0%
General Property Tax	8,552	25.9%	49.2%	0.5%	50.3%	100.0%
Homeowners (before PTR)	4,042	12.2%	100.0%			100.0%
Residential recreational property	210	0.6%	80.2%	19.8%		100.0%
Commercial [2]	1,678	5.1%			100.0%	100.0%
Industrial	460	1.4%			100.0%	100.0%
Farm (other than residence) [3]	764	2.3%			100.0%	100.0%
Rental Housing (before PTR)	1,093	3.3%			100.0%	100.0%
Utility	306	0.9%			100.0%	100.0%
Mining Production Taxes (taconite)	114	0.3%			100.0%	100.0%
Taxes on Consumption						
Local Sales Taxes	385	1.2%	51.9%	6.1%	42.0%	100.0%
Local Gross Earnings Taxes	142	0.4%			100.0%	100.0%
Total Local Taxes	$9,193	27.8%	48.0%	0.7%	51.3%	100.0%
Total State and Local Taxes	$33,051	100.0%	64.2%	3.8%	32.0%	100.0%

[1] Includes taconite/iron ore occupation tax.
[2] Includes resorts and railroads.
[3] Farm includes timber.

Figure 1-3 shows that business taxes accounted for 33.2 percent of total state and local taxes in 2012 up slightly from 33.1 percent in 2010. That share is expected to fall to 32.0 percent in 2017.

Total business taxes are projected to increase 18 percent between 2012 and 2017, but individual taxes are projected to increase faster at 25 percent.

Figure 1-3
Minnesota Tax System Impacts: Business vs. Households



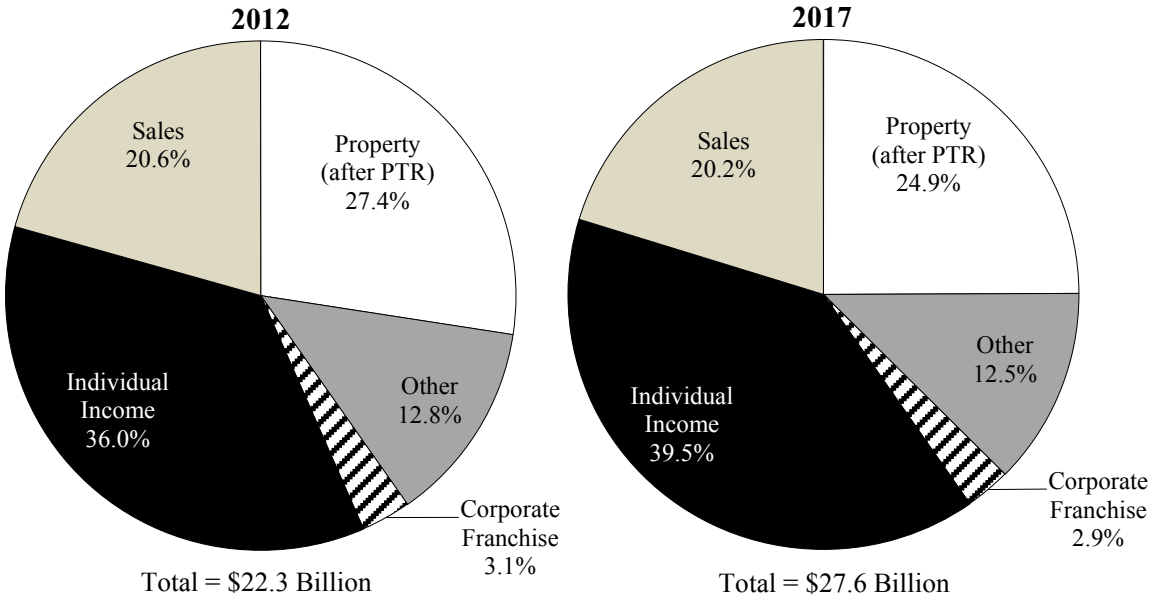
Step 2 – Shifting

Step 2 relies on economic theory to estimate how much of the burden of each tax is "shifted" from the initial business taxpayer to households. Such shifting depends both on (a) how Minnesota tax rates compare to those in other states and (b) the nature of the market for the goods or services produced by the business being taxed. *Appendix B* explains the method used to estimate the extent to which each tax initially levied on business is shifted to consumers (in higher prices) or labor (in lower wages), and how much is borne instead by the owners of capital (in lower rates of return).

Figure 1-4 indicates that in 2012 Minnesota households paid (either directly or indirectly through shifted business tax) a total of $22.3 billion in Minnesota state and local taxes. This equals 82.7 percent of total state and local tax collections ($27.0 billion). The other $4.7 billion (17.3 percent) is "exported" to nonresidents or visitors to the state. Between 2012 and 2017 the total burden on Minnesotans will rise by 23.8 percent (to $27.6 billion), increasing more slowly than income (projected to increase 24.9 percent), so the tax burden as percent of income will fall from 11.5 percent to 11.4 percent.

Between 2012 and 2017, the individual income tax share of the burden on Minnesota households is projected to increase from 36.0 percent to 39.5 percent. The shares of property tax (after PTR), sales taxes, corporate tax, and other taxes all fall.

Figure 1-4
Tax Incidence After Shifting



Step 3 – Allocation to Specific Households

Step 3 combines the incidence assumptions from Step 2 with information on the income and characteristics of individuals to estimate the tax burden falling on each of Minnesota's 2.58 million households.[7] Each dollar of tax not exported to a nonresident is allocated to a specific Minnesota household. The result is an estimated tax burden, or tax incidence, for each separate tax. These separate taxes are aggregated to estimate the total state and local tax burden for each household. Effective tax rates are calculated by comparing the tax burden to the household's income.

Tax Progressivity and the Suits Index

Taxes may be described as progressive, proportional, or regressive. The effective tax rate – that is, the ratio of taxes paid to income – can be used to compare tax burdens across income categories. A progressive tax is one in which the effective tax rate rises as income rises. A regressive tax is one in which the effective tax rate falls as income rises. However, it is sometimes difficult to summarize the overall distribution of a tax (progressive, proportional, or regressive) from the individual effective tax rates. Taxes may be progressive over some income ranges and regressive over others. The Suits index is often used as a summary measure of overall progressivity or regressivity.

[7] This study defines a household to include a taxpayer and any spouse or dependents. A U.S. Census household may include more than one household as defined in this study. Three single persons living together will be one Census household but three households for purposes of this study. On the other hand, a Census household can consist of a single person who is a dependent for tax purposes. Because of these definitional differences, the number of households reported in this study (2,580,562 in 2012) exceeds the number of households reported by the Census (2,111,943). A more detailed comparison is provided in the last section of *Chapter 5*.

The Suits index has numerical properties that make it easy to identify the degree of progressivity or regressivity of a tax. A proportional tax has a Suits index equal to zero; a progressive tax has a positive index number in the range between 0 and +1. In the extreme case, if the total tax burden were paid by the richest household, the index would be a value of +1. For a regressive tax, the Suits index has a negative value between 0 and -1, with -1 being the most regressive value.

Table 1-4 presents full-sample Suits indexes for selected Minnesota state and local tax categories in 2012 and 2017. The only major progressive tax is the personal income tax. Consumption taxes are the most regressive category. Taken as a whole, the system of Minnesota taxes was regressive in 2012 (a full-sample Suits index of -0.052). State taxes were slightly progressive (+0.006), and local taxes were regressive (-0.193).

Between 2012 and 2017, Minnesota's overall Suits index is expected to rise (moving toward zero) from -0.052 to -0.035. The income tax becomes more progressive in 2017. Its share of the total tax burden also grows (as seen in *Figure 1-4*). As a result, individual taxes become progressive in 2017, their Suits index moving from negative to positive.

Table 1-4
Suits Indexes for Selected
Minnesota State and Local Taxes

Tax Category	2012 Suits Index	2017 Suits Index
Personal Income Tax	+0.223	+0.231
Sales Taxes (State & Local)	-0.254	-0.248
Business Taxes	-0.172	-0.167
Individual Taxes	-0.015	+0.005
All State Taxes	+0.006	+0.025
All Local Taxes	-0.193	-0.195
Total Taxes	-0.052	-0.035

Effective Tax Rates by Decile

For analytical purposes, Minnesota's households are divided into ten equal groups, or deciles. Each of these ten population deciles includes 10 percent of all households. The bottom (1st) decile includes the tenth with lowest incomes; the top (10th) decile includes the tenth with highest incomes. Income is defined to include all cash income, whether taxable or not. It includes nontaxable social security, interest, and pension income, as well as nontaxable workers' compensation and cash payments from the Minnesota Family Investment Program (MFIP).[8]

[8] The database captures nontaxable income reported on income tax returns and property tax refund returns, along with workers' compensation and welfare income from administrative sources. For those filing neither income tax nor property tax returns, additional wage and nonwage income is included if reported on W2s or 1099s. For this study, household income does not include in-kind benefits such as food stamps, housing subsidies, energy assistance, or fringe benefits provided by employers. For more information on how income is defined, see *Appendix A* of this report.

Because the information for the first decile includes data anomalies and measurement problems discussed in the box at the end of this section, effective tax rates for the first decile are not reliable.

As *Table 1-5* shows, Minnesota's state and local tax system is somewhat progressive between the lower and middle deciles and somewhat regressive between the middle and upper deciles. For 2012, effective tax rates rose from a low of 11.5 and 11.4 percent of income in the 3rd and 4th deciles to between 12.1 and 12.3 percent in the 5th to 8th deciles, but then falls to 11.8 percent in the 9th deile and 10.5 percent in the 10th decile.[9]

Between 2012 and 2017, effective tax rates are projected to fall in every decile except the 10th.

As shown in *Table 1-5,* Minnesota residents paid an estimated 11.5 percent of their 2012 total income in state and local taxes. Under current law (and with the current economic forecast), this is expected to fall to 11.4 percent in 2017. For 2012, the effective tax rate was 8.1 percent for state taxes and 3.4 percent for local taxes. Between 2012 and 2017, the effective state tax rate is projected to rise by 0.2 percentage points, but that is outweighed by a 0.3 percentage point drop in the effective local tax rate (from 3.4 percent to 3.1 percent).

Table 1-5
Minnesota Effective Tax Rates for 2012 and 2017[1]
State and Local Taxes by Population Decile

Population Decile	2012			2017		
	State	Local	Total	State	Local	Total
First	16.2%	12.1%	28.3%	14.9%	11.5%	26.4%
Second	7.7%	5.2%	12.9%	7.3%	4.8%	12.1%
Third	6.8%	4.7%	11.5%	6.6%	4.3%	10.9%
Fourth	6.8%	4.6%	11.4%	7.0%	4.3%	11.3%
Fifth	7.6%	4.7%	12.3%	7.6%	4.4%	12.0%
Sixth	7.9%	4.3%	12.2%	7.9%	3.9%	11.8%
Seventh	8.2%	4.0%	12.2%	8.1%	3.8%	12.0%
Eighth	8.3%	3.8%	12.1%	8.4%	3.5%	11.9%
Ninth	8.4%	3.4%	11.8%	8.4%	3.2%	11.6%
Tenth	8.2%	2.4%	10.5%	8.5%	2.2%	10.7%
Total	8.1%	3.4%	11.5%	8.3%	3.1%	11.4%

[1]Parts may not sum to totals due to rounding.

[9] The income ranges for each population decile are shown in *Table 2-2* (for 2012) and *Table 3-2* (for 2017).

As shown in *Figure 1-5*, state tax burdens and local tax burdens are distributed quite differently. Total state taxes for 2012 (individual and business combined) were roughly proportional overall, with effective tax rates rising continuously from 6.8 percent in the third decile to 8.4 percent in the ninth decile before falling to 8.2 percent in the tenth decile. Effective local tax rates, primarily local property taxes (before any state property tax refunds), declined steadily with income and were regressive overall.

Between 2012 and 2017, changes in effective state tax rates are mixed in the lower deciles but rise by 0.3 percentage points in the 10th decile. Effective tax rates for local taxes, in contrast, are expected to fall across the board.

Figure 1-5
Effective Tax Rates for 2012 and 2017
State and Local Taxes by Population Decile

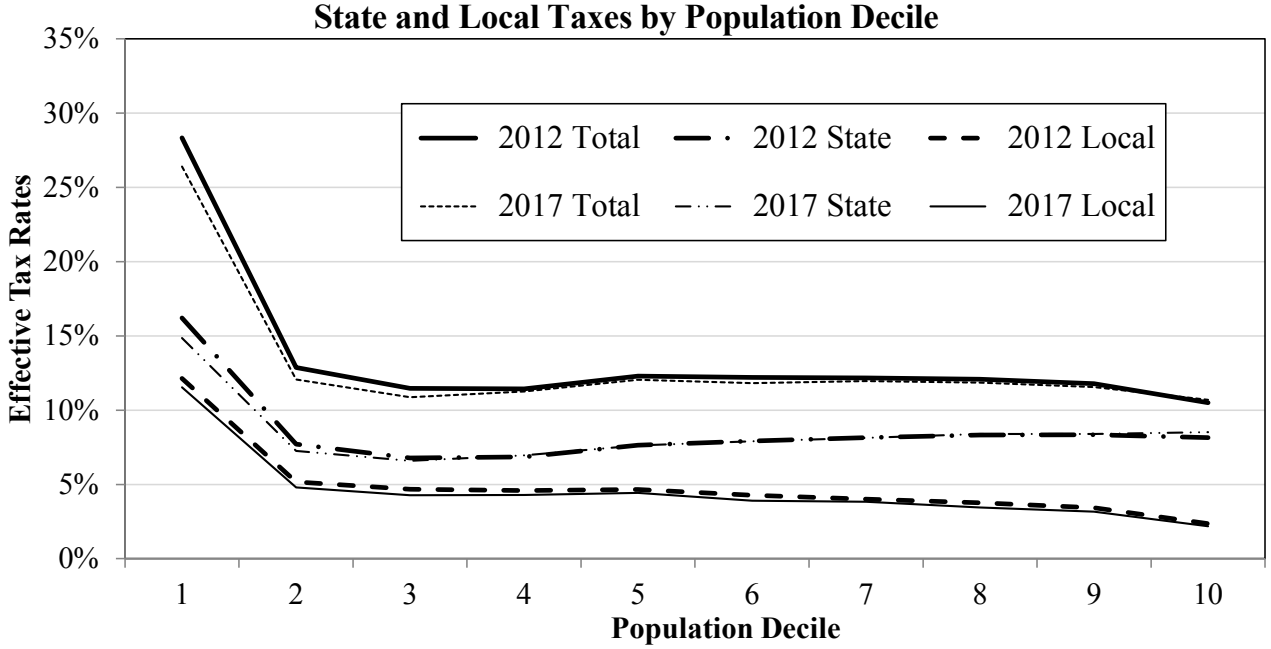


Table 1-6 and *Figure 1-6* show that the patterns of effective rates for taxes paid by individuals versus businesses are also quite different. For 2012, effective rates for taxes paid by individuals increased from 6.8 percent of income in the third decile to 9.5 percent in the eighth decile, and then declined to 8.4 percent in the tenth decile.

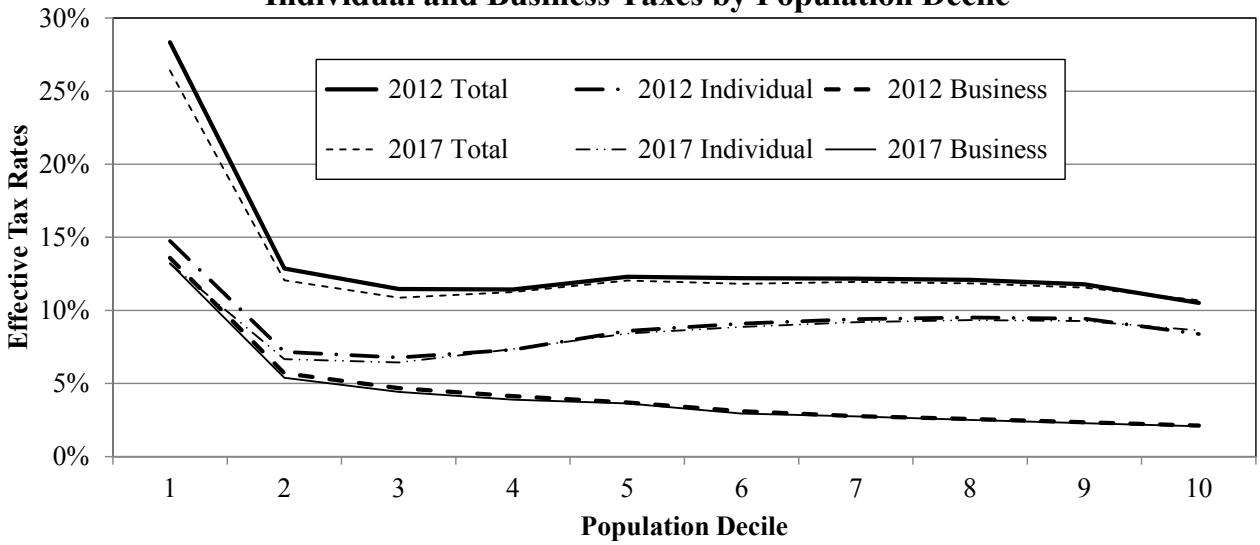
In contrast, Minnesota state and local taxes on businesses (after shifting) are regressive, with effective tax rates for 2012 falling from 5.7 to 2.1 percent of income between the second and tenth deciles. The overall effective rate for taxes on businesses after shifting was 2.7 percent and on individuals was 8.8 percent in 2012. Between 2012 and 2017, effective tax rates for individual taxes fall in 8 of the first 9 deciles, but increase in the 10th. Effective tax rates for business taxes fall in every decile.

Table 1-6
Minnesota Effective Tax Rates for 2012 and 2017[1]
Individual and Business Taxes by Population Decile

Population Decile	2012			2017		
	Individual	Business	Total	Individual	Business	Total
First	14.8%	13.6%	28.3%	13.2%	13.2%	26.4%
Second	7.2%	5.7%	12.9%	6.7%	5.4%	12.1%
Third	6.8%	4.7%	11.5%	6.4%	4.4%	10.9%
Fourth	7.3%	4.1%	11.4%	7.4%	3.9%	11.3%
Fifth	8.6%	3.7%	12.3%	8.4%	3.6%	12.0%
Sixth	9.1%	3.1%	12.2%	8.9%	2.9%	11.8%
Seventh	9.4%	2.8%	12.2%	9.2%	2.8%	12.0%
Eighth	9.5%	2.6%	12.1%	9.3%	2.5%	11.9%
Ninth	9.4%	2.4%	11.8%	9.3%	2.3%	11.6%
Tenth	8.4%	2.1%	10.5%	8.6%	2.1%	10.7%
Total	8.8%	2.7%	11.5%	8.8%	2.6%	11.4%

[1]Parts may not sum to totals due to rounding.

Figure 1-6
Effective Tax Rates for 2012 and 2017
Individual and Business Taxes by Population Decile



Effective Tax Rates in the First Decile

As shown in *Table 1-5*, the total 2012 effective tax rate of 28.3 percent for taxpayers in the first decile is much higher than the rates in other deciles.

The effective tax rate for the first decile is overstated for several reasons. First, the lowest decile includes households who have temporarily low incomes or have better overall economic well-being than was indicated by their money income in 2012. A portion of retirees, for example, may be living primarily on savings or other assets but report small amounts of annual money income received. Due to unemployment or business fluctuations, some households who normally have higher incomes are also included in the first decile. A small portion of all first-decile households were in this decile only because they reported business losses or large capital losses for income tax purposes in 2012.

Second, effective tax rates for the first decile are overstated because income is understated. The incidence sample was unable to identify all sources of income. Many first-decile households filed neither an income tax nor a property tax refund return. The Incidence Study identified some other sources of income for these households, but many had additional sources of income that were not identified. An underestimate of household income generally causes effective tax rates to be overestimated.

Household income is also underestimated in the *Consumer Expenditure Survey* used to estimate sales and excise tax burdens. To the extent that income was subject to relatively greater underreporting than consumption, particularly for low-income households, the taxable consumption expenditures calculated from CES will be overstated.

While this study does adjust for negative incomes for a small number of households, no attempt has been made to adjust for possible underreported or unidentified sources of income or for other differences between transitory and long-run measures of income. By including only money income, the substantial amounts of food stamps and housing subsidies received by the poor are ignored in this study. Consequently, money income at the low end of the income distribution does not provide an accurate measure of overall economic well-being. For all of these reasons, effective tax rates in the first decile are overstated by an unknown but possibly significant amount.

If the first decile were excluded, the full-sample Suits index for 2012 would rise from -0.052 to -0.040 – still quite regressive.[10]

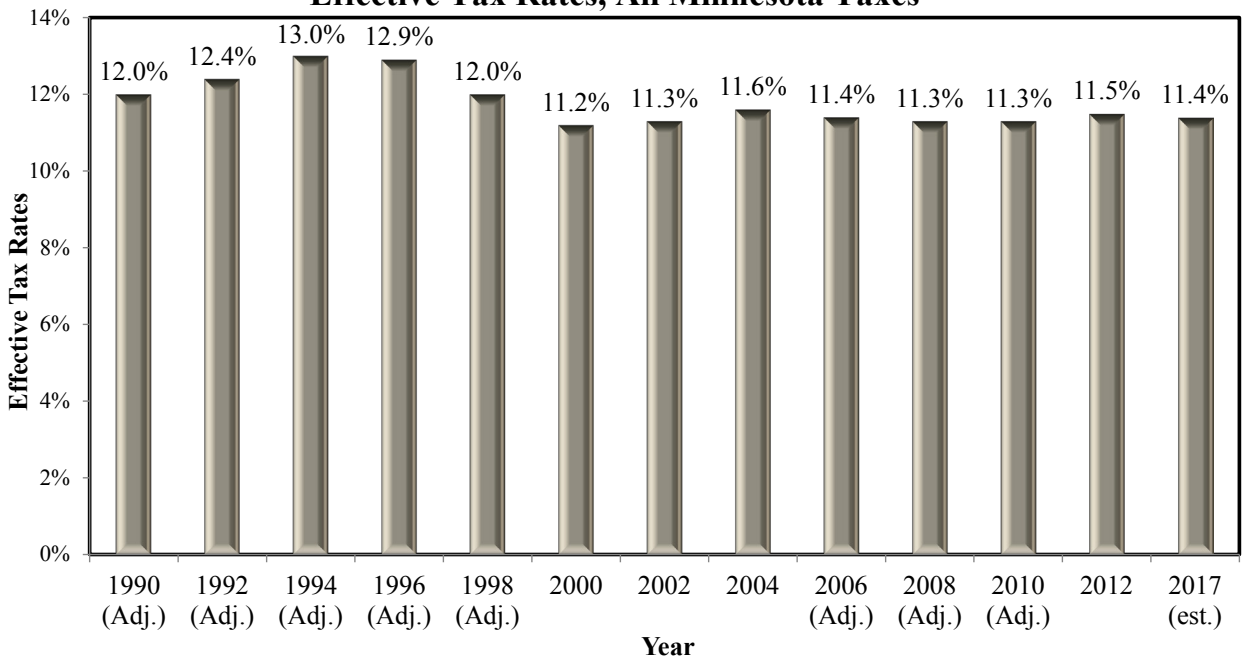
[10] The overall regressivity is more the result of the lower effective tax rate for the top decile. If both the 1st and 10th deciles were excluded, the full-sample Suits index would rise to -0.005 – close to proportional.

Historical Comparison with Earlier Studies

Incidence data has been collected and published in a series of studies, of which this is the thirteenth. Comparable data extends back to 1990. It is interesting to consider the pattern of effective tax rates and Suits indexes over that time. This period illustrates the effect of the business cycle on incomes and tax receipts. It includes both periods of very rapid growth in the mid- and late 1990's, the slowdown of the early 1990's, the contraction from 2000 to 2002, solid growth between 2002 and 2008, recession in 2010, and recovery in 2012.

As shown in *Figure 1*-7, effective tax rates over the period 1990–2012 first rise but then fall and remain well below those of the 1990's. The effective tax rate for the tax system as a whole was 12.0 percent in 1990. Effective tax rates rose to 13.0 percent just four years later in 1994, before beginning a sustained decline to 11.2 percent in 2000. The decline through 2000 was attributable partly to tax cuts and partly to income growth, especially in the late 1990's, that outstripped tax collections (see *Table 1-7*). As the economy emerged from recession after 2002, the effective tax rate rose to 11.6 percent in 2004, and remained fairly constant (11.3 or 11.4 percent) through 2010. It rose to 11.5 percent in 2012 but is projected to fall back to 11.4 percent in 2017.

Figure 1-7
Effective Tax Rates, All Minnesota Taxes[11]



[11] Because earlier studies (before 2000) did not include all of the taxes included in more recent studies, effective tax rates (*Figure 1-7*) and Suits indexes (*Figure 1-8*) are adjusted to make them comparable. Unadjusted effective tax rates (reported in the published studies) were 11.8%, 12.1%, 12.9%, 12.7%, and 11.4% for 1990-1998. Health Impact Fees were excluded in 2006 but included starting in 2008, so 2006 numbers are adjusted to include the HIF in that year as well. Effective tax rates for 2008 and 2010 are also adjusted downward to correct errors in the published numbers.

A change in methodology starting in 2006 identified additional income. By increasing measured income, this caused effective tax rates to fall by roughly 0.2 percentage points in later years.

Changes in the population-decile Suits index are shown in *Table 1-7* and *Figure 1-8*. The tax system was essentially proportional in 1990, with a population-decile Suits index near zero. The population-decile Suits index fell from -0.017 in 1992 to a low of -0.040 in 1998. It rebounded somewhat in succeeding years, reaching -0.018 in 2002 and -0.024 in 2004. It dropped significantly below those levels in more recent years, to -0.059 in 2006, -0.050 in 2008, -0.053 in 2010, and -0.045 in 2012. Under current law, though, it is projected to rebound to -0.033 in 2017.

Figure 1-8 also shows the more accurate full-sample Suits index for years 2004 and after. This report generally refers to the full-sample Suits index, but it was not reported until tax year 2004.

Table 1-7
Households, Household Income, Total Taxes, Effective Tax Rates, and Suits Indexes, All Taxes, 1990-2017

Year	Number of Households	Household Income ($ Thousands)	Total Taxes as Imposed ($ Thousands)	Tax Dollars Included in Study (%)	Total Taxes After Shifting ($ Thousands)	Effective Tax Rate	Population Decile Suits Index	Full-Sample Suits Index
1990	2,072,488	65,842,600	9,575,000	97.1%	$7,747,743	11.8%	-0.007	N/A
1992	2,120,967	74,410,299	11,050,000	96.9%	8,991,383	12.1%	-0.017	N/A
1994	2,148,820	80,148,374	12,539,000	98.0%	10,323,412	12.9%	-0.011	N/A
1996	2,193,971	93,272,563	14,495,000	98.0%	11,886,823	12.7%	-0.017	N/A
1998	2,232,670	114,610,957	16,137,000	97.8%	13,526,348	11.8%	-0.040	N/A
2000	2,322,380	132,094,974	17,599,000	99.8%	14,809,590	11.2%	-0.031	N/A
2002	2,340,070	127,311,429	17,174,000	99.9%	14,412,365	11.3%	-0.018	N/A
2004	2,363,258	138,824,077	19,313,000	99.9%	16,170,469	11.6%	-0.024	-0.030
2006	2,448,872	165,040,421	22,310,000	99.9%	18,753,567	11.4%	-0.059	-0.068
2008	2,541,183	173,854,675	23,796,000	99.9%	19,573,643	11.3%	-0.050	-0.054
2010	2,575,184	175,349,202	23,846,000	99.9%	19,827,961	11.3%	-0.053	-0.057
2012	2,580,561	194,079,578	26,983,000	99.9%	22,304,145	11.5%	-0.045	-0.052
2017 (est.)	2,719,138	242,432,398	33,051,000	99.9%	27,609,818	11.4%	-0.033	-0.035

Interval	Household Growth	Income Growth	Post-Shifting Tax Growth
1990-1992	2.3%	13.0%	16.1%
1992-1994	1.3%	7.7%	14.8%
1994-1996	2.1%	16.4%	15.1%
1996-1998	1.8%	22.9%	13.8%
1998-2000	4.0%	15.3%	9.5%
2000-2002	0.8%	-3.6%	-2.7%
2002-2004	1.0%	9.0%	12.2%
2004-2006	3.6%	18.9% *	16.0%
2006-2008	3.8%	5.3%	4.4%
2008-2010	1.3%	0.9%	1.3%
2010-2012	0.2%	10.7%	12.5%
2012-2017 (est.)	5.4%	24.9%	23.8%

*Two percentage points was due to more complete data on income.

Figure 1-8
Suits Indexes, All Minnesota Taxes 1990-2017[12]

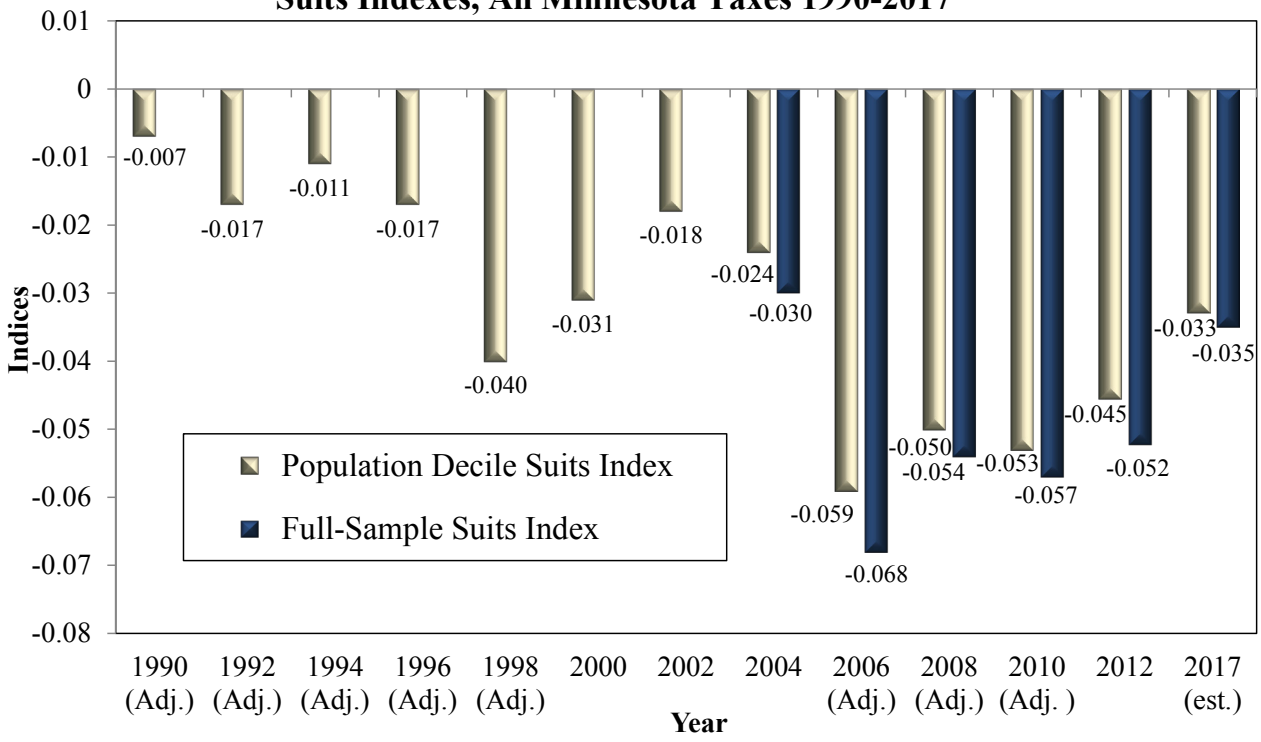


Table 1-8 shows effective tax rates by decile for each incidence study year. It is interesting to compare the pattern of effective tax rates in 1990 and 1992 with those for more recent years. *Figure 1-9* compares effective tax rates in 1992 and 2012. In 1992, effective tax rates were virtually the same for deciles 2 through 10. All were between 11.9 percent and 12.3 percent. Moreover, the tax rate was only slightly lower for the top 1 percent (at 11.6 percent of income).

The pattern has been quite different in more recent years, including 2012:

- The lower deciles (3 and 4) have effective tax rates significantly lower than the average for deciles 5 through 8.
- Effective tax rates drop significantly between the ninth and tenth deciles. The drop was largest in 1998 (dropping from 12.5 percent of income to 10.6 percent of income, or by 1.9 percentage points). The difference fell to 1.0 percentage point in 2002 but rose to 1.7 percentage points in 2006 and 1.3 percentage points in 2008, 2010, and 2012. In 2017, though, it is expected to fall to 0.9 percentage points, the smallest difference since 1996.

Each of these two patterns has been found consistently in recent studies, regardless of the point in the business cycle. The lower rates in the 3rd and 4th deciles apparently reflect the increased role of refundable income tax credits and property tax refunds.

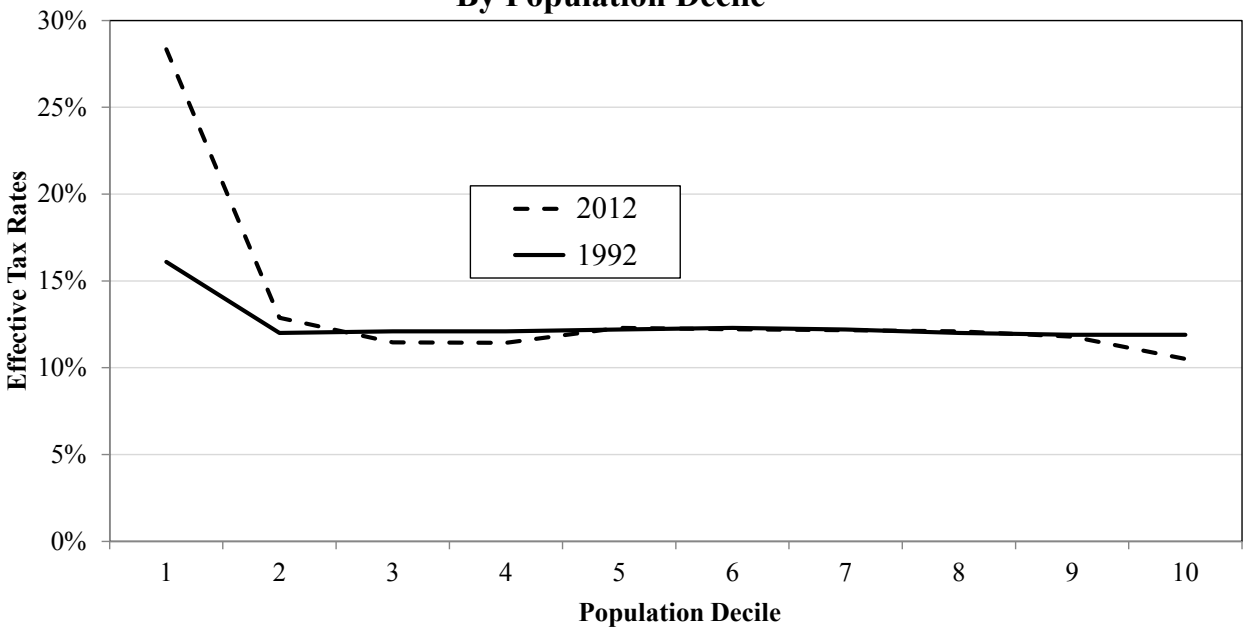
[12] For an explanation of these adjustments, see footnote 3 on page 3.

The pattern of lower effective tax rates in the 3rd and 4th deciles disappeared temporarily in 2010, but it has returned in 2012. The one-year aberration reflects law changes that reduced property tax refunds for renters by 16 percent between 2008 and 2010, but then increased renter refunds by 30 percent between 2010 and 2012.

Table 1-8
Effective Tax Rates by Population Decile
All Taxes, 1990–2012, 2017 (est.)

Decile	1990	1992	1994	1996	1998	2000	2002	2004	2006	2008	2010	2012	2017 (est.)
First	17.9%	16.1%	17.3%	17.8%	20.2%	17.4%	18.2%	18.9%	25.2%	31.4%	31.1%	28.3%	26.4%
Second	11.1%	12.0%	12.3%	12.0%	11.3%	9.8%	10.5%	11.3%	13.2%	12.7%	13.5%	12.9%	12.1%
Third	10.7%	12.1%	11.8%	12.2%	10.8%	10.6%	10.1%	10.5%	12.0%	11.3%	11.9%	11.5%	10.9%
Fourth	11.3%	12.1%	12.8%	12.5%	12.0%	11.1%	11.0%	11.5%	11.9%	11.5%	11.3%	11.4%	11.3%
Fifth	11.1%	12.2%	12.8%	13.0%	12.1%	11.5%	11.4%	11.9%	12.7%	11.8%	11.8%	12.3%	12.0%
Sixth	11.8%	12.3%	13.2%	13.1%	13.1%	12.3%	11.9%	12.2%	12.4%	12.0%	12.1%	12.2%	11.8%
Seventh	12.0%	12.2%	13.0%	13.1%	12.9%	12.0%	12.0%	12.3%	12.3%	11.8%	11.9%	12.2%	12.0%
Eighth	11.9%	12.0%	13.0%	13.0%	12.9%	12.0%	11.8%	12.3%	12.0%	11.9%	11.8%	12.1%	11.9%
Ninth	11.8%	11.9%	13.0%	13.0%	12.5%	11.9%	11.7%	12.3%	11.8%	11.5%	11.5%	11.8%	11.6%
Tenth	11.7%	11.9%	12.6%	12.2%	10.6%	10.3%	10.7%	10.9%	10.1%	10.2%	10.2%	10.5%	10.7%
Total	11.8%	12.1%	12.9%	12.7%	11.8%	11.2%	11.3%	11.6%	11.4%	11.3%	11.3%	11.5%	11.4%
Top 5%	11.6%	11.8%	12.3%	11.9%	10.1%	9.9%	10.5%	10.5%	9.7%	9.9%	10.0%	10.2%	10.5%
Top 1%	11.2%	11.6%	11.8%	11.0%	8.3%	8.4%	9.0%	9.6%	8.9%	9.8%	9.5%	9.8%	10.5%

Figure 1-9
Effective Tax Rates for 1992 and 2012
By Population Decile



Although the historical changes in the degree of regressivity are due partly to changes in tax laws, the role of the business cycle may be even more important. During the past two decades, income inequality has generally risen during times of rapid growth and fallen during economic contractions. The years of greatest regressivity (1998, 2000, and 2006-2012) were years when the distribution of income was most unequal, due in some years to unusually high capital gains income. As shown in *Figure 1-10*, the income share of the top 5 percent and top 1 percent of Minnesota households was unusually high in those years. In 1998 and 2000, the top 5 percent of households accounted for 31.4 percent of total household income, up from an average of only 26.7 percent in 1988-1996. It was even higher (at 32.2 percent) in 2006 and remained high by historical standards in both 2008 (at 31.1 percent) and 2010 (at 30.9 percent). Despite the recession, the share of income received by the top 5 percent did not drop much in 2010. This was unlike 2002 (following the 2001 recession) when it fell from 31.4 percent to 28.1 percent. In 2012, the income share of the top 5 percent (at 32.7 percent) is even higher than in 1998.

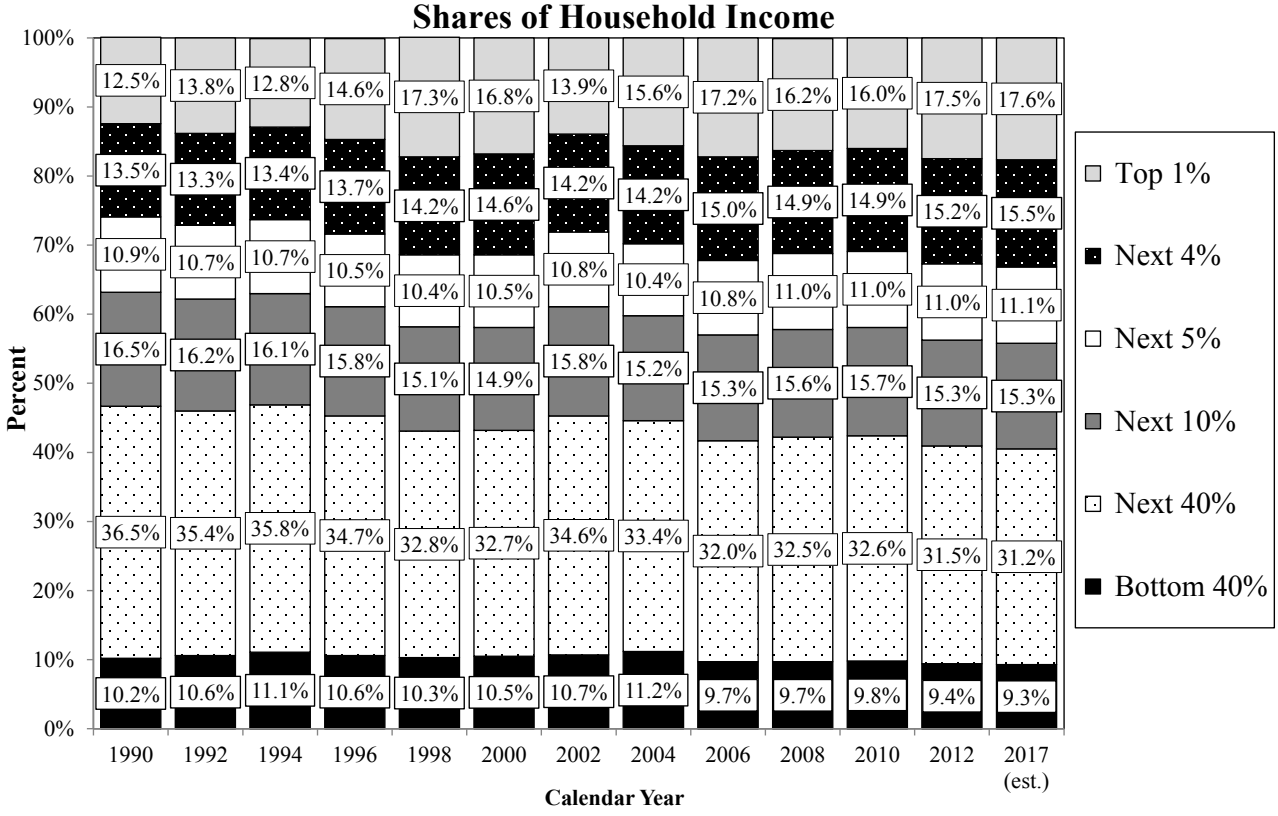
The pattern is similar for the share of income received by the top 1 percent of Minnesota households. In 1998 and 2000, the top 1 percent received 17 percent of total income, up from an average of 13.3 percent in the earlier study years. After a drop to 13.9 percent in 2002, the share of the top 1 percent rose to 17.2 percent in 2006 before falling to 16.2 percent in 2008 and 16.0 percent in 2010. In 2012, the income share of the top 1 percent (at 17.5 percent) was even higher than in 1998.

The projection to 2017 shows continuing increases in the share of income for the top 5 percent and top 1 percent.

This concentration of income by itself, with no change in tax law, will increase the measured regressivity of the tax system. Lower regressivity in earlier recession years (such as 2002) partly reflected the reduced share of income at the top. A substantial portion of the increase in regressivity since 2004 is likely the result of the unusually high share of income received by the richest Minnesotans.[13] The income share of the bottom 40 percent dropped below 10 percent in 2006 for the first time since these studies began. It remained below 10 percent (at 9.4 percent) in 2012 and is projected to fall even further to 9.3 percent in 2017.

[13] A simple correlation between the population-decile Suits index and the share of income received by the top decile (1990-2012) is -0.92, suggesting that the variation in income inequality could explain much of the variation in the Suits index.

Figure 1-10
Shares of Household Income



Tax policy can certainly affect the degree of regressivity, but it is difficult to identify tax changes that are large enough to move the Suits index by as much as it has moved year-to-year over the last 20 years. Trends in income inequality are certainly responsible for much of the pattern shown above.

Projected changes in the distribution of the tax burden between 2012 and 2017, though, are clearly due mostly to major tax law changes enacted in 2013 and 2014. Those changes included the new top income tax rate, expanded property tax refunds, an increase in the Working Family Credit, higher cigarette taxes, and lower estate taxes. *Chapter 3* addresses the role that these law changes play in explaining the projected reduction in overall regressivity in 2017.

back

Chapter 2: Principal Results, 2012

This chapter examines the state and local tax burdens imposed on Minnesota taxpayers in 2012. Taxes paid by businesses as well as those paid directly by households are included. The taxes included account for over 99 percent of Minnesota state and local tax revenue in 2012.

Only Minnesota taxes paid by residents are included in the analysis below; Minnesota taxes paid by nonresidents and taxes Minnesota residents pay to the federal government or to other states are excluded. For business taxes, the study estimates the extent to which they are shifted forward to Minnesota consumers (in higher prices), shifted backward to Minnesota workers (in lower wages), or borne by owners of capital (in lower rates of return).

Total Tax Burden

For 2012, Minnesota residents paid a total of $22.3 billion in Minnesota state and local taxes while receiving $194.1 billion in total money income.[14] Minnesota residents thus paid 11.5 percent of their total income in state and local taxes.

Details of Minnesota tax collections before and after tax shifting are shown in *Table 2-1*. Of the $27.0 billion in total tax collections in 2012, $22.3 billion (82.7 percent) of the total burden falls on Minnesotans, directly or indirectly. The other 17.3 percent ($4.7 billions) is exported to nonresident consumers and owners of capital.

As shown in the "as imposed" columns of the table, $17.0 billion (63 percent) of the total tax is imposed directly on Minnesota households. Another $1.0 billion (4 percent) is paid by out-of-state visitors. The remaining $9.0 billion (33 percent) is initially imposed on businesses.

The burden of the business taxes is partially shifted to consumers (in higher prices) or in some cases to labor (in lower wages). Only a portion of business taxes is borne by capital owners as a lower rate of return on their investment. Part of the burden of business taxes is also shifted to nonresidents. This study estimates the degree to which such shifting occurs and then allocates the estimated burden to Minnesota households based on each household's sources of income and patterns of spending. (An explanation of tax shifting and the method of estimating the incidence of business taxes is included in the *Appendix B*.)

[14] Total money income includes all cash income, whether taxable or nontaxable. It includes nontaxable social security, interest, and retirement income, nontaxable workers' compensation payments, and cash payments from the Minnesota Family Investment Program (MFIP). Income excludes the value of fringe benefits and in-kind benefits such as food stamps, rent subsidies, and energy assistance. For a more complete description of the definition of household income, see *Appendix A* of this study.

Summary List

Table 2-1
2012 Tax Collection Amounts

Tax Type	Total ($ Millions)	As Imposed			After shifting		Full-Sample Suits Index
		MN HH's	NR	Business	Minnesota	Exported	
State Taxes							
Taxes on Income and Estates							
Individual income tax	$8,493	$8,021	$471		$8,021	$471	0.223
Corporation franchise tax [1]	1,183			$1,183	701	482	-0.197
Estate tax	162	162			162		0.841
Total Income and Estate Taxes	$9,838	$8,183	$471	$1,183	$8,885	$953	0.201
Taxes on Consumption							
Total sales tax	$5,604	$2,875	$308	$2,422	$4,351	$1,253	-0.253
General sales/use tax	5,026	2,609	308	2,109	3,968	1,058	-0.272
Sales tax on motor vehicles	578	265		313	384	195	-0.058
Motor fuels excise taxes	856	454	65	337	538	318	-0.370
Alcoholic beverage excise taxes	81	72	9		72	9	-0.248
Cigarette and tobacco excise taxes [2]	424	386	38		386	38	-0.602
Insurance premiums taxes	397	291		106	344	53	-0.347
Gambling taxes	39	39	0		39		-0.517
MinnesotaCare taxes	500	458	42		458	42	-0.340
Solid waste management taxes	70	33		37	64	6	-0.422
Total Consumption Taxes	$7,972	$4,607	$462	$2,902	$6,253	$1,719	-0.299
Taxes on Property							
State Property Tax	$817	$32	$8	$778	$387	$430	-0.124
Residential recreational property	40	32	8		32	8	-0.275
Commercial [3]	540			540	280	259	-0.102
Industrial	150			150	26	124	0.035
Utility	88			88	49	39	-0.240
Motor vehicle registration tax	601	509		92	562	39	-0.222
Mortgage and deed taxes	188	93		94	159	29	-0.044
Total Property Taxes	$1,606	$635	$8	$963	$1,109	$497	-0.162
Property Tax Refunds							
Homeowners	-$271	-$271			-$271		0.724
Renters	-181	-181			-181		0.901
Total Property Tax Refunds	-$452	-$452			-$452		0.795
Total State Taxes	$18,964	$12,974	$942	$5,049	$15,795	$3,169	0.006
Local Taxes							
Taxes on Property	$7,588	$3,877	$38	$3,673	$6,195	$1,392	-0.189
General Property Tax	7,494	3,877	38	3,579	6,186	1,307	-0.190
Homeowners (before PTR)	3,723	3,723			3,723		-0.202
Residential recreational property	192	154	38		154	38	-0.275
Commercial [3]	1,506			1,506	782	724	-0.102
Industrial	422			422	73	349	0.035
Farm (other than residence) [4]	445			445	443	2	-0.058
Rental Housing (before PTR)	947			947	866	81	-0.282
Utility	259			259	145	114	-0.240
Mining Production Taxes (taconite)	94			94	9	85	0.308
Taxes on Consumption							
Local Sales Taxes	317	165	19	133	250	67	-0.272
Local Gross Earnings Taxes	114			114	64	50	-0.240
Total Local Taxes	$8,019	$4,041	$57	$3,920	$6,510	$1,509	-0.193
Total State and Local Taxes	$26,983	$17,015	$999	$8,969	$22,304	$4,678	-0.052

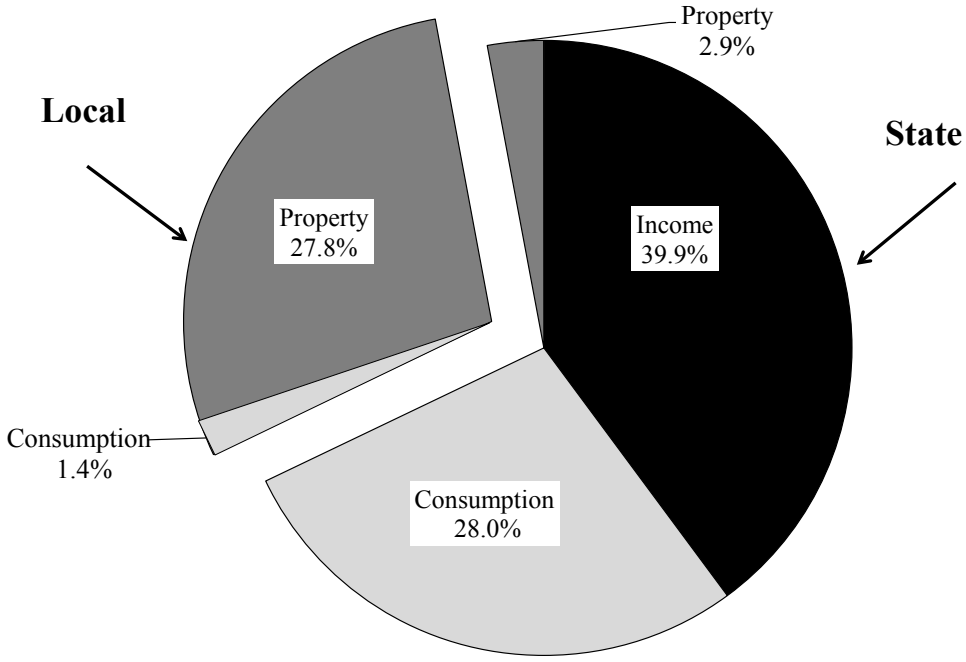
[1] Includes taconite/iron ore occupation tax.
[2] Includes Health Impact Fee.
[3] Includes resorts and railroads.
[4] Includes timber.

The "after shifting" columns in *Table 2-1*, show that some taxes are borne by Minnesotans in much greater proportions than are others. Of the large state taxes, the income tax is borne almost entirely by Minnesota residents, who pay 94 percent of total collections. Minnesota residents bear a smaller share of the general sales tax burden (79 percent). At the other end of the scale, Minnesotans are estimated to bear only 17 percent of the burden of property taxes on industrial property. Minnesotans are estimated to bear 59 percent of the burden of the total tax imposed on business.

Table 2-1 assigns each tax to one of three broad categories. Each tax is either a tax on income, a tax on consumption, or a tax on property. *Figure 2-1* shows each category's share of the total state and local tax burden for Minnesotans. It also distinguishes state taxes from local taxes. Almost 71 percent of the total burden is from state taxes; just over 29 percent is from local taxes. By tax category, 40 percent of the burden is from taxes on income, 31 percent from taxes on property, and 29 percent from taxes on consumption.

Local taxes are primarily taxes on property, with a relatively small portion on consumption (local sales taxes). State taxes are primarily on income or consumption, with a relatively small portion on property.

Figure 2-1
2012 Distribution of State and Local Tax Burdens
By Type of Tax and Level of Government



Taxes by Population Decile

To summarize the distribution of tax burdens by income level, the population of Minnesota households is divided into ten equal-sized groups or *deciles* of households ranked by household income levels. By definition, the first decile includes the 10 percent of households with the lowest incomes and the tenth decile includes the highest-income 10 percent of households. There were 258,056 households in each population decile. The total burden by tax type for each decile is summarized in *Table 2-2*. The table also shows the tax burden on the top 5 percent and top 1 percent of households.

Taxpayers in the top decile (incomes of $140,692 and over) bore 40 percent of the total tax burden while having 44 percent of total income. By tax type, taxpayers in the top decile paid 58 percent of the individual income tax, 25 percent of the consumer sales tax, 28 percent of the gross homeowner property tax (before property tax refunds), and 34 percent of business taxes.[15]

In contrast, taxpayers in the bottom decile (incomes of $10,902 and below) bore 2.2 percent of the total tax burden and received 0.9 percent of total income. The bottom-decile taxpayers had a negative net individual income tax burden due to refundable tax credits. First decile households paid 3.9 percent of the consumer sales taxes, 2.2 percent of gross homeowner property tax, and 4.4 percent of business taxes.

Overall Effective Tax Rates

To evaluate the fairness or equity in the distribution of tax burdens by income level, tax burdens may be compared to the underlying distribution of income. This section examines this relationship in more detail.

A key measure used to analyze tax equity is the effective tax rate, which is defined as the ratio of taxes to income. Effective tax rates measure the percentage of income paid in taxes and can be compared for different levels of income. The distribution of tax burdens is characterized as progressive if the effective tax rate rises with income, proportional if it is constant for all income levels, or regressive if it falls as income rises.

Effective tax rates by population decile and tax type are reported in *Table 2-3*. The effective tax rate for all Minnesota state and local taxes combined is shown in the last column in the lower section of the table. For all households combined, the effective tax rate is 11.5 percent. Effective tax rates rise from a low of 11.5 and 11.4 percent of income in the 3rd and 4th deciles to between 12.1 and 12.3 percent in the 5th to 8th deciles, but then fall to 11.8 percent in the 9th decile and 10.5 percent in the 10th decile. For the top 5 percent of households the effective tax rate is 10.2 percent, falling to 9.8 percent of income for the top 1 percent.

[15] The term "business tax," as defined in this study, includes any tax paid by business that is *not* expected to be fully reflected in the price paid by consumers. Business taxes include, among others, the corporate franchise tax, business property taxes (including property taxes on rental housing), the sales tax on business purchases, and insurance taxes on business insurance.

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Table 2-2 2012 Population Deciles - Amounts ($ Thousands)

Population Decile	Income Range	Number of Households	Household Income	State Income Taxes: Individual Income Tax	State Income Taxes: Corporate Franchise Tax	State Sales Tax: Purchases by Individuals	State Sales Tax: Purchases by Businesses	State Sales Tax: Sales Tax Total	Property Tax Refund	State Property Tax	State Excise Taxes	Other State Taxes: Taxes on Individuals	Other State Taxes: Taxes on Businesses
First	$10,902 & Under	258,056	$1,710,481	-$17,458	$24,476	$110,875	$63,606	$174,481	-$44,572	$16,298	$69,759	$43,441	$10,747
Second	$10,903 - $17,554	258,056	3,672,566	-24,892	27,481	139,930	61,266	201,196	-69,198	13,211	74,068	54,994	6,311
Third	$17,555 - $24,767	258,056	5,427,472	3,900	33,420	162,764	72,905	235,669	-78,616	16,250	79,208	70,844	7,821
Fourth	$24,768 - $33,333	258,056	7,473,792	70,086	40,037	189,383	85,597	274,980	-78,384	19,944	85,344	90,418	9,422
Fifth	$33,334 - $43,553	258,056	9,866,246	219,410	46,749	215,685	97,317	313,002	-64,196	22,972	91,665	113,096	10,705
Sixth	$43,554 - $56,666	258,056	12,854,410	375,929	55,491	250,043	115,281	365,324	-54,295	27,831	98,244	137,746	13,144
Seventh	$56,667 - $73,485	258,056	16,657,619	566,280	67,637	298,353	138,293	436,646	-35,975	34,097	106,039	167,938	16,174
Eighth	$73,486 - $96,670	258,056	21,771,478	841,669	83,301	358,746	166,672	525,418	-20,682	42,116	116,434	205,841	19,959
Ninth	$96,671 - $140,691	258,056	29,778,990	1,304,131	104,351	432,837	202,696	635,533	-4,238	53,196	126,555	241,683	25,424
Tenth	$140,692 & Over	258,056	84,866,525	4,682,047	218,367	716,265	472,728	1,188,992	-1,460	141,386	149,133	459,603	83,468
TOTALS		2,580,561	$194,079,578	$8,021,100	$701,309	$2,874,880	$1,476,361	$4,351,241	-$451,616	$387,300	$996,450	$1,585,604	$203,175
Top 5%	Over $201,567	129,098	$63,487,705	$3,659,239	$148,851	$449,918	$336,217	$786,135	-$846	$104,660	$82,262	$320,903	$64,200
Top 1%	Over $493,603	25,806	$33,912,268	$2,098,844	$65,054	$160,516	$165,963	$326,479	-$514	$56,289	$22,483	$191,982	$36,909

Population Decile	Residential Local Property Taxes: Homeowners Gross	Residential Local Property Taxes: Renters Gross	Residential Local Property Taxes: Owners of Rental Prop.	Residential Local Property Taxes: Total on Rental Prop.	Residential Local Property Taxes: Residential Total [1]	Nonresidential Local Property Taxes	Other Local Taxes [2]	Local Taxes Total	Total State Taxes: Total on Individuals	Total State Taxes: Total on Businesses	Total State Taxes: State Taxes Total	Total State and Local Taxes
First	$81,655	$18,184	$34,644	$52,827	$138,784	$56,401	$12,482	$207,668	$159,721	$117,451	$277,172	$484,840
Second	78,936	37,032	13,202	50,233	133,495	41,045	14,953	189,492	171,720	111,450	283,170	472,662
Third	118,130	47,250	16,974	64,224	188,088	47,965	17,481	253,534	234,516	133,979	368,495	622,029
Fourth	172,317	56,768	20,327	77,095	258,701	63,714	20,380	342,795	353,217	158,630	511,847	854,642
Fifth	251,488	62,440	21,589	84,029	347,202	89,289	23,253	459,745	571,714	181,687	753,401	1,213,146
Sixth	339,336	50,300	28,392	78,692	431,309	91,684	27,103	550,095	803,065	216,348	1,019,413	1,569,509
Seventh	433,536	36,348	34,741	71,089	521,815	113,557	32,418	667,791	1,097,445	261,392	1,358,837	2,026,627
Eighth	531,930	24,647	42,485	67,132	621,923	157,211	39,032	818,165	1,496,265	317,791	1,814,056	2,632,221
Ninth	657,303	16,606	53,875	70,481	760,185	216,498	47,171	1,023,854	2,095,087	391,548	2,486,636	3,510,490
Tenth	1,058,017	8,340	242,288	250,628	1,341,637	565,624	89,183	1,996,443	5,990,941	930,594	6,921,536	8,917,979
TOTALS	$3,722,648	$357,914	$508,517	$866,431	$4,743,139	$1,442,987	$323,456	$6,509,582	$12,973,692	$2,820,871	$15,794,563	$22,304,145
Top 5%	$645,148	$3,340	$196,883	$200,224	$862,351	$406,482	$59,279	$1,328,112	$4,501,403	$664,002	$5,165,404	$6,493,516
Top 1%	$190,557	$533	$126,095	$126,628	$321,446	$181,458	$24,875	$527,780	$2,469,319	$328,207	$2,797,526	$3,325,305

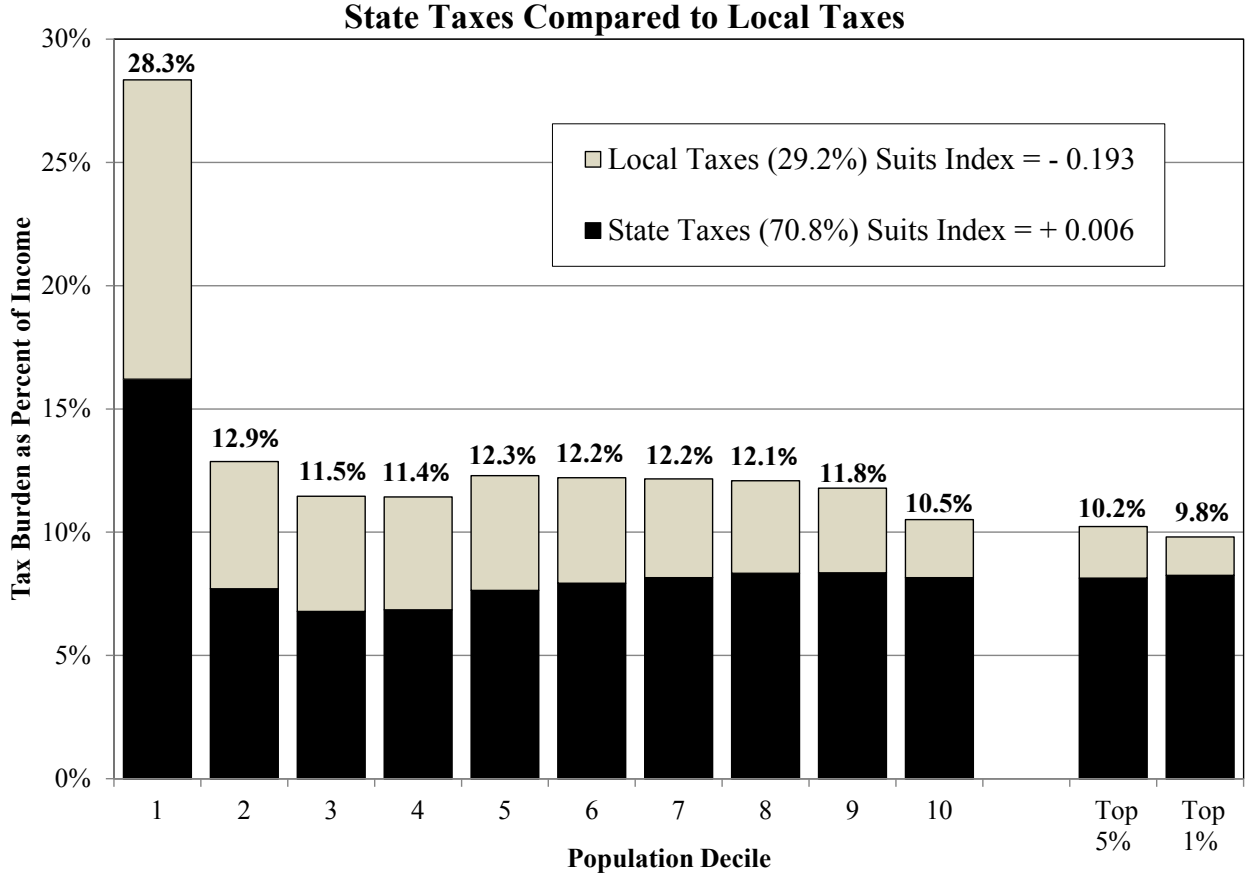
[1] Includes seasonal recreational residential (cabins).

[2] Includes taconite production tax.

State Taxes Compared to Local Taxes

As shown in *Figure 2-2*, the distribution of the burden of state taxes differs greatly from that of local taxes. The effective state tax rate rises with income (from the 3rd to 9th decile) and falls little in the 10th. In contrast, the effective local tax rate falls steadily as income rises.

Figure 2-2
Effective Tax Rates by Population Decile
State Taxes Compared to Local Taxes



A tax is said to be regressive if effective tax rates fall with income. A regressive tax claims a smaller share of household income as income rises. If effective tax rates fall with income, a tax is said to be progressive. A progressive tax claims an increasing share of household income as income rises. If the effective tax rate remains constant as income rises, the tax is said to be proportional.

The Suits index is a useful summary measure of regressivity or progressivity. A regressive tax has a negative Suits index (between 0 and -1). A progressive tax has a positive Suits index (between 0 and +1). The more regressive or progressive, the further the Suits index will be from zero.

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Table 2-3 2012 Population Deciles - Effective Tax Rates

Population Decile	Income Range	Number of Households	Household Income	State Income Taxes: Individual Income Tax	State Income Taxes: Corporate Franchise Tax	State Sales Tax: Purchases by Individuals	State Sales Tax: Purchases by Businesses	State Sales Tax: Sales Tax Total	Property Tax Refund	State Property Tax	State Excise Taxes	Other State Taxes: Taxes on Individuals	Other State Taxes: Taxes on Businesses
First	$10,902 & Under	258,056	$1,710,481	- 1.0%	1.4%	6.5%	3.7%	10.2%	- 2.6%	1.0%	4.1%	2.5%	0.6%
Second	$10,903 - $17,554	258,056	3,672,566	- 0.7%	0.7%	3.8%	1.7%	5.5%	- 1.9%	0.4%	2.0%	1.5%	0.2%
Third	$17,555 - $24,767	258,056	5,427,472	0.1%	0.6%	3.0%	1.3%	4.3%	- 1.4%	0.3%	1.5%	1.3%	0.1%
Fourth	$24,768 - $33,333	258,056	7,473,792	0.9%	0.5%	2.5%	1.1%	3.7%	- 1.0%	0.3%	1.1%	1.2%	0.1%
Fifth	$33,334 - $43,553	258,056	9,866,246	2.2%	0.5%	2.2%	1.0%	3.2%	- 0.7%	0.2%	0.9%	1.1%	0.1%
Sixth	$43,554 - $56,666	258,056	12,854,410	2.9%	0.4%	1.9%	0.9%	2.8%	- 0.4%	0.2%	0.8%	1.1%	0.1%
Seventh	$56,667 - $73,485	258,056	16,657,619	3.4%	0.4%	1.8%	0.8%	2.6%	- 0.2%	0.2%	0.6%	1.0%	0.1%
Eighth	$73,486 - $96,670	258,056	21,771,478	3.9%	0.4%	1.6%	0.8%	2.4%	- 0.1%	0.2%	0.5%	0.9%	0.1%
Ninth	$96,671 - $140,691	258,056	29,778,990	4.4%	0.4%	1.5%	0.7%	2.1%	0.0%	0.2%	0.4%	0.8%	0.1%
Tenth	$140,692 & Over	258,056	84,866,525	5.5%	0.3%	0.8%	0.6%	1.4%	0.0%	0.2%	0.2%	0.5%	0.1%
TOTALS		2,580,561	$194,079,578	4.1%	0.4%	1.5%	0.8%	2.2%	- 0.2%	0.2%	0.5%	0.8%	0.1%
Top 5%	Over $201,567	129,098	$63,487,705	5.8%	0.2%	0.7%	0.5%	1.2%	0.0%	0.2%	0.1%	0.5%	0.1%
Top 1%	Over $493,603	25,806	$33,912,268	6.2%	0.2%	0.5%	0.5%	1.0%	0.0%	0.2%	0.1%	0.6%	0.1%

Population Decile	Residential Local Property Taxes: Homeowners Gross	Residential Local Property Taxes: Renters Gross	Residential Local Property Taxes: Owners of Rental Prop.	Residential Local Property Taxes: Total on Rental Prop.	Residential Local Property Taxes: Residential Total [1]	Nonresidential Local Property Taxes	Other Local Taxes
First	4.8%	1.1%	2.0%	3.1%	8.1%	3.3%	0.7%
Second	2.1%	1.0%	0.4%	1.4%	3.6%	1.1%	0.4%
Third	2.2%	0.9%	0.3%	1.2%	3.5%	0.9%	0.3%
Fourth	2.3%	0.8%	0.3%	1.0%	3.5%	0.9%	0.3%
Fifth	2.5%	0.6%	0.2%	0.9%	3.5%	0.9%	0.2%
Sixth	2.6%	0.4%	0.2%	0.6%	3.4%	0.7%	0.2%
Seventh	2.6%	0.2%	0.2%	0.4%	3.1%	0.7%	0.2%
Eighth	2.4%	0.1%	0.2%	0.3%	2.9%	0.7%	0.2%
Ninth	2.2%	0.1%	0.2%	0.2%	2.6%	0.7%	0.2%
Tenth	1.2%	0.0%	0.3%	0.3%	1.6%	0.7%	0.1%
TOTALS	1.9%	0.2%	0.3%	0.4%	2.4%	0.7%	0.2%
Top 5%	1.0%	0.0%	0.3%	0.3%	1.4%	0.6%	0.1%
Top 1%	0.6%	0.0%	0.4%	0.4%	0.9%	0.5%	0.1%

Population Decile	Local Taxes Total	Total State Taxes: Total on Individuals	Total State Taxes: Total on Businesses	Total State Taxes: State Taxes Total	Total State and Local Taxes
First	12.1%	9.3%	6.9%	16.2%	28.3%
Second	5.2%	4.7%	3.0%	7.7%	12.9%
Third	4.7%	4.3%	2.5%	6.8%	11.5%
Fourth	4.6%	4.7%	2.1%	6.8%	11.4%
Fifth	4.7%	5.8%	1.8%	7.6%	12.3%
Sixth	4.3%	6.2%	1.7%	7.9%	12.2%
Seventh	4.0%	6.6%	1.6%	8.2%	12.2%
Eighth	3.8%	6.9%	1.5%	8.3%	12.1%
Ninth	3.4%	7.0%	1.3%	8.4%	11.8%
Tenth	2.4%	7.1%	1.1%	8.2%	10.5%
TOTALS	3.4%	6.7%	1.5%	8.1%	11.5%
Top 5%	2.1%	7.1%	1.0%	8.1%	10.2%
Top 1%	1.6%	7.3%	1.0%	8.2%	9.8%

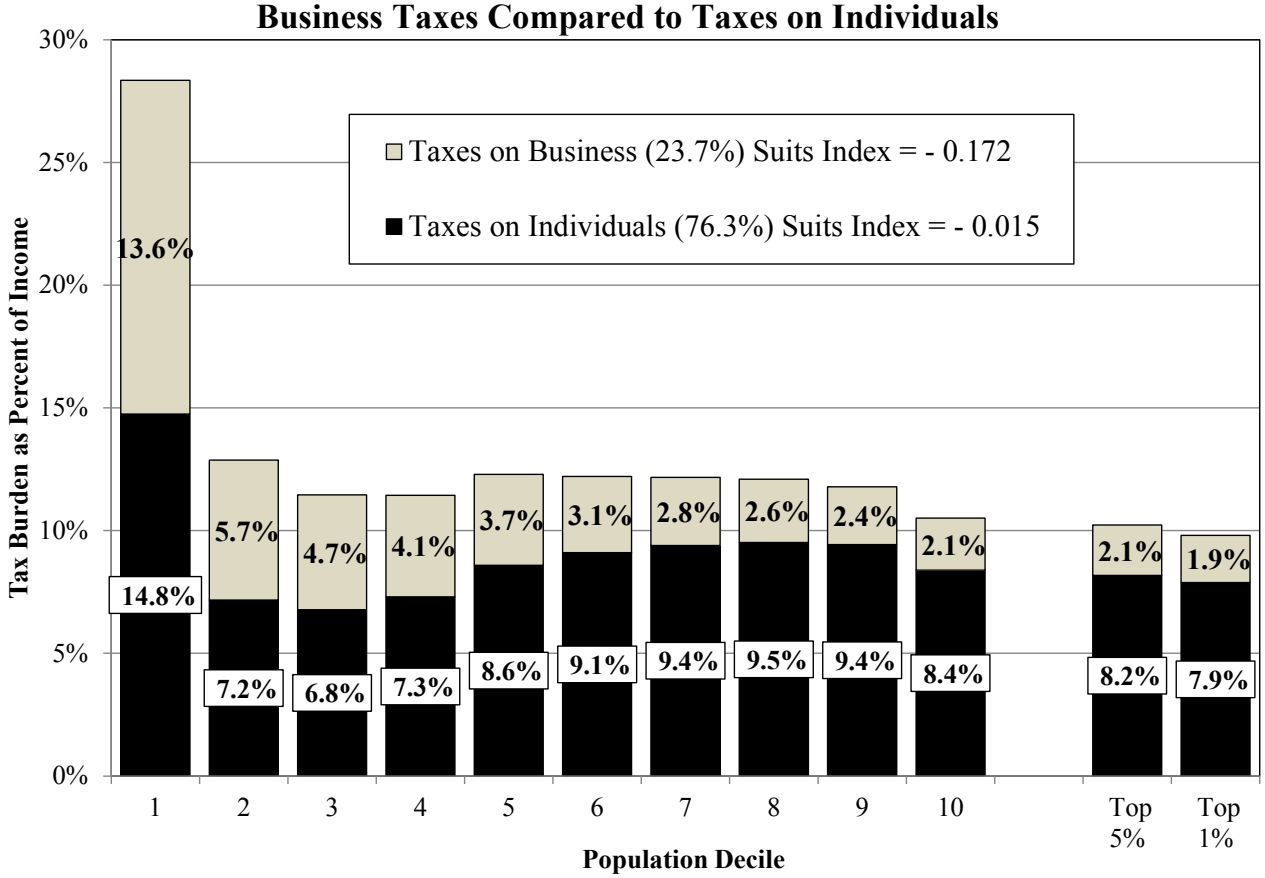
[1] Includes seasonal recreational residential (cabins).

The Suits index for state taxes is +0.006, meaning that (as seen in *Figure 2-2* above) state taxes are slightly progressive. In contrast, the Suits index for local taxes is -0.193 (regressive). When combined, the Suits index for all Minnesota state and local taxes is -0.052 (regressive).

Business Taxes Compared to Taxes on Individuals

Figure 2-3 compares taxes on business with taxes paid by individuals. It illustrates that taxes on business are regressive, with effective tax rates falling with income and a Suits index of -0.172. Taxes on individuals are almost proportional, with effective tax rates rising with income between the 3rd and 8th deciles before falling in the 10th, and a Suits index of -0.015.

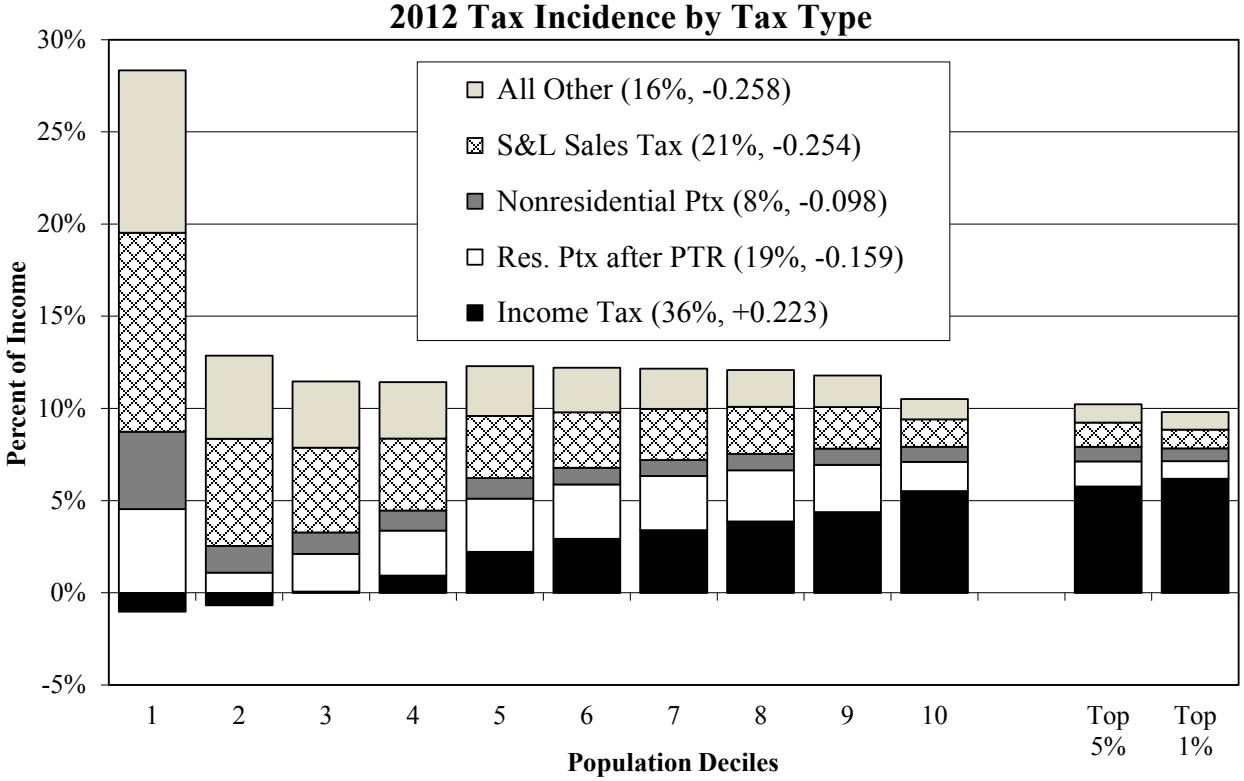
Figure 2-3
Effective Tax Rates by Population
Business Taxes Compared to Taxes on Individuals



Summary of 2012 Tax Burden by Major Tax Type

Figure 2-4 and *Table 2-4* summarize how the 2012 tax burden of the major tax categories varies by population decile. The categories for this table combine both the individual and business components of these tax types. For example, the state and local sales tax total includes both the consumer and business portions (and includes the sales tax on motor vehicles). Residential property tax after PTR includes both homeowner and rental property taxes, along with cabins and nets out the impact of homeowner and renter property tax refunds.

Figure 2-4
2012 Tax Incidence by Tax Type



Note: Numbers in parentheses show percent of total tax burden and the full-sample Suits index.

Table 2-4
Effective Tax Rates by Tax Type (2012)

Population Decile	Personal Income Tax	Residential Property Taxes*	Other Property Taxes	State & Local Sales Taxes	All Other S&L Taxes
First	-1.0%	5.6%	4.2%	10.8%	8.8%
Second	-0.7%	1.8%	1.5%	5.8%	4.5%
Third	0.1%	2.0%	1.2%	4.6%	3.6%
Fourth	0.9%	2.4%	1.1%	3.9%	3.1%
Fifth	2.2%	2.9%	1.1%	3.4%	2.7%
Sixth	2.9%	3.0%	0.9%	3.0%	2.4%
Seventh	3.4%	2.9%	0.9%	2.8%	2.2%
Eighth	3.9%	2.8%	0.9%	2.6%	2.0%
Ninth	4.4%	2.6%	0.9%	2.3%	1.7%
Tenth	5.5%	1.6%	0.8%	1.5%	1.1%
Total	4.1%	2.2%	0.9%	2.4%	1.8%
Top 5%	5.8%	1.4%	0.8%	1.3%	1.0%
Top 1%	6.2%	0.9%	0.7%	1.0%	1.0%
Share of Total Tax Burden	36.0%	19.4%	8.1%	20.6%	16.0%
Suits Index	+0.223	-0.159	-0.098	-0.254	-0.258

Individual Income Tax

The individual income tax accounts for 36 percent of the total state and local tax burden. Because of its graduated tax rate structure and allowance of personal exemptions and deductions, the individual income tax is, by design, progressive. As seen in *Table 2-4*, effective tax rates rose significantly with increases in household income. At the low end, the effective tax rate for the income tax was negative for the first two deciles and close to zero in the third decile, showing the impact of three refundable low-income credits (which can more than offset any income tax liabilities).[16] It rose steadily from 0.9 percent of income for the fourth decile to 5.5 percent for the tenth decile. The top 5 percent and 1 percent of households have even higher effective tax rates, at 5.8 and 6.2 percent respectively. The Suits index of +0.223 reflects its considerable progressivity.

Figure 2-4 (above) clearly demonstrates the importance of the progressive income tax in offsetting most of the regressivity of other taxes.

[16] The impact of these refundable credits on the distribution of the overall tax burden is shown in *Chapter 4, Section C*.

Residential Property Taxes (After PTR)

Residential property taxes include the tax on both owned homes and rental property. The burden shown here includes the impact of state property tax refunds for both homeowners and renters. The property tax refunds ($452 million in 2012) offset almost 10 percent of the residential property tax burden, and the refunds offset a much higher portion in the lowest five deciles. Residential property taxes net of PTR account for 19 percent of the total state and local tax burden.

Effective tax rates rise from 1.8 percent of income in the 2nd decile to 3.0 percent of income in the 6th decile before falling to 2.6% in the 9th and 1.6 percent in the 10th decile. The Suits index of -0.159 (regressive) shows that the impact of the sharp drop in the 10th decile well outweighs the increasing effective tax rates over the lower deciles.

Although residential property tax burdens (after PTR) are regressive, they are noticeably less regressive than either sales taxes or "all other taxes." This is mostly due to the impact of property tax refunds. In their absence, the Suits index for residential property taxes would be -0.219 – much closer to that of state and local sales taxes (-0.254).[17]

Nonresidential Property Taxes

These include commercial and industrial taxes along with taxes on utilities and farm property. Like other business taxes, the incidence of these taxes depends on the extent to which the tax burden is borne by property owners rather than shifted to others through higher prices or lower wages. Incidence models estimate these taxes to be regressive, but less so than either sales taxes or residential property taxes.[18]

State and Local Sales Taxes

In agreement with other incidence studies, this analysis finds the sales tax to be regressive. Higher income households spend a smaller portion of their income on items subject to the sales tax. This is partly due to their higher savings rates and partly to the mix of consumer goods and services they buy. Hence, tax burdens as a proportion of income tend to decline as one moves up the income scale.

For 2012, the effective state and local sales tax rate falls from 5.8 percent in the 2nd decile to 1.5 percent in the 10th decile. Sales taxes overall are much more regressive than property taxes (after PTR).

[17] The impact of property tax refunds on residential property taxes is summarized in *Chapter 4, Table 4-9*.

[18] This is less true of the portion of nonresidential property taxes that falls on utility property because more of those taxes are passed along to consumers in higher prices.

Other Taxes

The "all other taxes" category in *Table 2-4* includes one progressive tax (the estate tax) and many regressive taxes, including excise taxes on motor fuels, tobacco, and alcohol, the motor vehicle registration tax, solid waste management taxes, mortgage and deed taxes, insurance premiums taxes, gambling taxes, and MinnesotaCare taxes. These assorted taxes account for 15.6 percent of Minnesota's state and local tax burden, and their combined impact is more regressive than state and local sales taxes (a Suits index of -0.258).

Representative Households

Table 2-5 presents average tax burdens for households in each decile. For example, in the 6th decile (average income $49,812), the average Minnesota state and local tax burden of $6,082 includes $1,299 of property taxes after PTR, $1,457 of income tax, $969 of consumer sales tax, $352 of excise tax, $652 of other taxes on individuals, and $1,353 of taxes on businesses.

Table 2-5 also shows how demographic characteristics vary across deciles. As incomes rise, the percentage of households who are married rises from 7 percent in the 1st decile to 89 percent in the 10th decile. The percentage who are homeowners rises from 17 percent in the 1st decile to 97 percent in the 10th. The percentage who have children rises from 18 percent in the 1st decile to 52 percent in the 10th.

Chapter 5 includes similar tables by demographic groups. *Table 5-1* is limited to married couples with children, *Table 5-2* is limited to non-senior married couples without children, *Table 5-3* is limited to single-person households with no children, *Table 5-4* is limited to single parents, and *Table 5-5* is limited to seniors. These tables provide a better understanding of the tax burden for typical taxpayers. They summarize the tax burden for households of the same family type and show how it varies with income. Anyone interested in tax burdens for representative households should use the *Chapter 5* tables rather than *Table 2-5*.

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Table 2-5

Household Characteristics and Average Tax Burden Amounts by Population Decile
All Households

Each Decile Contains 258,056 Households

HOUSEHOLD CHARACTERISTICS	Population Decile										
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Total
Number of Households	258,056	258,056	258,056	258,056	258,056	258,056	258,056	258,056	258,056	258,056	2,580,561
Average Household Income	$6,628	$14,232	$21,032	$28,962	$38,233	$49,812	$64,550	$84,367	$115,397	$328,869	$75,208
Maximum Household Income	$10,902	$17,554	$24,767	$33,333	$43,553	$56,666	$73,485	$96,670	$140,691		
Percent with Earned Income[1]	50%	59%	68%	77%	80%	81%	84%	87%	91%	92%	77%
Average Earned Income[1]	$8,037	$12,646	$19,291	$25,639	$33,339	$41,550	$52,973	$69,012	$93,170	$193,956	$61,420
Homeowners[2]	17%	20%	29%	40%	52%	67%	79%	88%	93%	97%	58%
Married	7%	8%	10%	19%	26%	39%	57%	74%	84%	89%	41%
Seniors	13%	19%	20%	23%	22%	25%	26%	23%	19%	17%	21%
Households with Children	18%	22%	25%	27%	26%	25%	30%	39%	46%	52%	31%
Average Taxable Market Value	$170,385	$129,374	$121,442	$126,731	$145,669	$152,208	$167,475	$185,006	$211,503	$315,415	$191,737
Average Monthly Rent	$155	$310	$444	$611	$795	$929	$1,016	$1,141	$1,292	$1,529	$583
AVERAGE TAX BURDENS											
Local Property Tax											
All Households											
Total Tax	$387	$449	$641	$888	$1,217	$1,510	$1,821	$2,157	$2,611	$4,132	$1,581
-Property Tax Refund	-$173	-$268	-$305	-$304	-$249	-$210	-$139	-$80	-$16	-$6	-$175
Tax after PTR	$214	$181	$336	$584	$968	$1,299	$1,681	$2,077	$2,595	$4,127	$1,406
Renters Only											
Total Tax on Rental Unit	$433	$770	$1,001	$1,321	$1,696	$1,978	$2,149	$2,404	$2,724	$3,222	$1,286
Renters Share of Tax	$145	$258	$336	$443	$569	$663	$721	$806	$914	$1,081	$431
-Property Tax Refund	-$215	-$338	-$329	-$291	-$169	-$87	-$27	-$8	-$3	-$1	-$224
Tax after PTR	-$69	-$80	$7	$152	$400	$576	$693	$799	$911	$1,079	$208
Homeowners Only											
Total Tax on Home	$1,864	$1,537	$1,588	$1,653	$1,858	$1,961	$2,122	$2,342	$2,739	$4,226	$2,475
-Property Tax Refund	-$421	-$419	-$451	-$403	-$343	-$277	-$169	-$90	-$17	-$6	-$180
Homeowners Tax after PTR	$1,443	$1,118	$1,137	$1,250	$1,515	$1,684	$1,953	$2,252	$2,722	$4,221	$2,295
State Income Tax	-$68	-$96	$15	$272	$850	$1,457	$2,194	$3,262	$5,054	$18,144	$3,108
State Sales Tax	$430	$542	$631	$734	$836	$969	$1,156	$1,390	$1,677	$2,776	$1,114
State Excise Taxes	$258	$271	$288	$309	$331	$352	$377	$411	$442	$495	$353
Other Taxes	$214	$266	$338	$437	$541	$652	$798	$984	$1,184	$2,089	$750
Business Taxes[3]	$831	$668	$801	$977	$1,175	$1,353	$1,647	$2,077	$2,652	$6,928	$1,911
Total State and Local Tax Burden	$1,879	$1,832	$2,410	$3,312	$4,701	$6,082	$7,853	$10,200	$13,604	$34,558	$8,643
Effective Tax Rate for all Taxes	28.3%	12.9%	11.5%	11.4%	12.3%	12.2%	12.2%	12.1%	11.8%	10.5%	11.5%

[1]Earned income includes wage and self-employment income.

[2]Homeowners include farm homesteads.

[3]For this table and those in Chapter 5 only, Business Taxes does not include the share of Rental Property Taxes borne by the renter.

Minnesota's Diversified Tax Portfolio in 2012

The state and local tax structure should be viewed as an integrated system. Minnesota's diversified tax portfolio includes many taxes, and it is important to consider the system as a whole rather than focusing on just a single part. This study helps focus attention on the system as a whole.

The right-hand column of *Table 2-1* (above) reports the Suits index for each tax. The Suits index for the overall state and local tax system (-0.052) is a weighted average of the Suits indexes for each of the individual taxes. In that calculation, each tax's weight is that tax's share of the total burden. As a result, the overall Suits index is most affected by the taxes with the largest burden, though a smaller tax that is very progressive (such as the estate tax) or very regressive (such as the cigarette tax) can also have a substantial impact.

Figure 2-5 provides a visual presentation of the Suits indexes for each of the individual tax types. The magnitude of each tax's burden is represented by the size and height of the circle, and the circles are arranged by Suits index on a line with values between -1 (most regressive) and +1 (most progressive).

Only three circles are located to the right of zero. The individual income tax and the estate tax are the only progressive taxes. The property tax refunds circle is also on the far right side of the figure because their impact is highly progressive.[19] Three other tax types (the motor vehicle sales tax, mortgage and deed taxes, and nonresidential property taxes) are only mildly regressive, with Suits indexes between zero and -0.100.

Homeowner property taxes and the sales tax are among a larger group of taxes with Suits indexes between -0.200 and -0.300. More regressive taxes (with Suits indexes between -0.300 and -0.400) include the MinnesotaCare taxes, the motor fuels excise tax, and taxes on insurance premiums. The two most regressive taxes (Suits indexes between -0.500 and -0.600) are lawful gambling and cigarette and tobacco taxes.

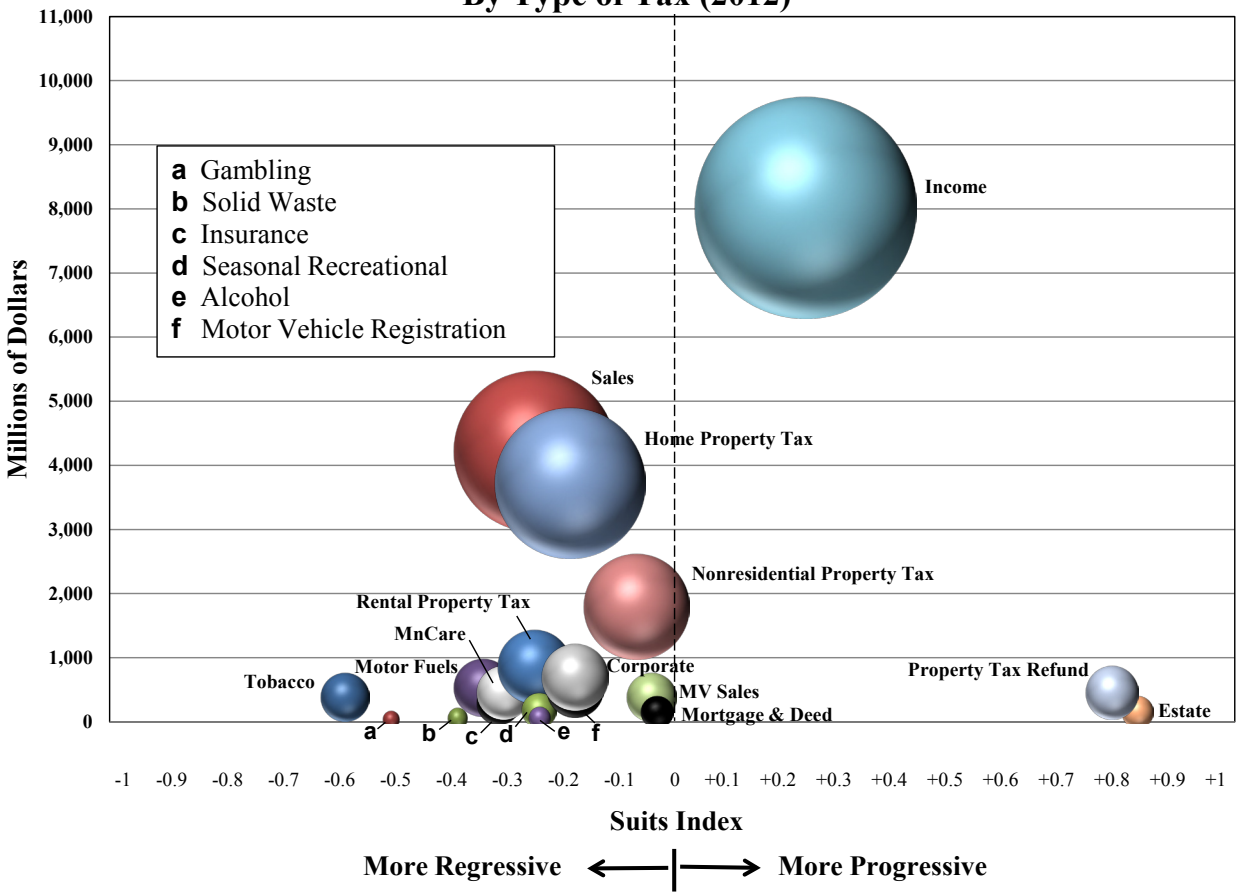
Minnesota's income tax, property tax refunds, and estate tax are effective in offsetting much of the regressivity of other taxes. The full portfolio (with a Suits index of -0.052) is less regressive than any of the other tax types except the mortgage and deed taxes.

The overall tax structure can be made more or less regressive by either (1) changing the mix of taxes in the tax portfolio or (2) changing the regressivity of a particular tax by changing the tax base or tax rates.

[19] Technically the refunds are negative taxes, but their placement on *Figure 2-5* accurately reflects their impact on overall progressivity and the overall Suits index.

On *Figure 2-5*, the first option (changing the tax mix) would change the size of the circles; the second would move the circle representing that tax either to the right or to the left. For example, increasing the sales tax rate would make the sales tax larger while leaving its regressivity unchanged. The sales tax circle would become larger and move upward, and the overall Suits index would become more negative. Alternatively, raising the top rate on the income tax would shift the income tax circle to the right (and increase its size), and the overall Suits index would become less regressive.

Figure 2-5
Dollars of Tax Burden and Suits Index
By Type of Tax (2012)



Tax law changes are not the only reason for changes in the tax portfolio. Economic growth by itself will change the portfolio mix, because some taxes (most notably the income tax) are more responsive to income growth than other taxes. Changes in the distribution of income can also modify the size and location of some of the circles in *Table 2-5*. So the Suits index will change from year to year even if there were no change in tax law.

Choosing the correct tax portfolio for Minnesota requires a weighing of several competing goals. Taxes differ in many ways other than how their burden is distributed by income class. Taxes also differ in their impact on revenue stability over the short-term business cycle, in how their revenues respond to longer-run economic growth, in administrative complexity, and in their impact on Minnesota's competitiveness. In considering any of those goals, it is helpful to look at the tax system as a diversified portfolio.[20]

[20] For an analysis of applying the portfolio approach to the goals of revenue stability and growth, see the report of the Budget Trends Study Commission (January 12, 2009), available on the Minnesota Management and Budget website.

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Chapter 3: Projected Results, 2017

This chapter examines the state and local tax burdens imposed on Minnesota taxpayers in 2017. The taxes included are the same as those analyzed for 2012. Changes between 2012 and 2017 are discussed, along with possible reasons for those changes.

Tax Incidence Projections to 2017 (Assuming Current Law)

To analyze tax incidence five years beyond 2012, the 2012 results must be projected into the future. A variety of methods were used to do this.

Income – The HITS income tax model[21] uses growth rates derived from the state economic forecast to grow each of the various categories of income: wages, interest, pensions, capital gains, social security, etc. The expected growth rates vary by type of income. These differential growth rates were applied to each type of income a sample household received in 2012, yielding an estimate of total household income in 2017. Because the various types of income are assumed to grow at different rates, some households in the model will experience faster income growth than others. Because of this, sample households may switch deciles between 2012 and 2017.

Population – The number of Minnesota households is expected to grow by 5.4 percent between 2012 and 2017, a growth rate of just over 1 percent per year. Therefore, each sample household is assumed to represent 5.4 percent more households in 2017.

Taxes – All taxes were adjusted for tax law changes that have already gone into effect or, under current law, are scheduled to go into effect. Income tax projections are from the HITS income tax model. For the remaining taxes in the study, total collections were based on the November 2014 forecast from the Department of Management and Budget. Business taxes were assumed to be shifted in the same manner as were the corresponding 2012 business taxes. In the absence of law changes, taxes imposed directly on households are also assumed to be allocated to the various households in the sample in the same way as were the 2012 taxes. If tax law has changed since 2012 (as with increased property tax refunds and the restructured estate tax), the study adjusts the allocation.[22]

Total Tax Burden in 2017

In 2017, Minnesota residents are projected to pay a total of $27.6 billion in Minnesota state and local taxes. Total income is projected to be $242.2 billion. Because household income increased faster (at 24.9 percent) than the total tax burden (at 23.8 percent), the effective tax rate is projected to fall from 11.5 percent to 11.4 percent of income.

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[21] The House Income Tax Simulation (HITS) model is the micro-simulation model used both for forecasting and for estimating the revenue impact of proposed changes in tax law. The version used in this study is based on a stratified random sample of tax year 2012 income tax returns and the November 2014 economic forecast.

[22] Changes in income tax credits (such as the expanded Working Family Credit) and the addition of the new top income tax rate are modeled in the HITS income tax model.

Details of Minnesota tax collections before and after tax shifting are shown in *Table 3-1*. Of the $33.1 billion in total tax collections in 2017, $27.6 billion (83.5 percent) of the total burden falls on Minnesotans, directly or indirectly. The other 16.5 percent ($5.4 billions) is exported to nonresident consumers and owners of capital.

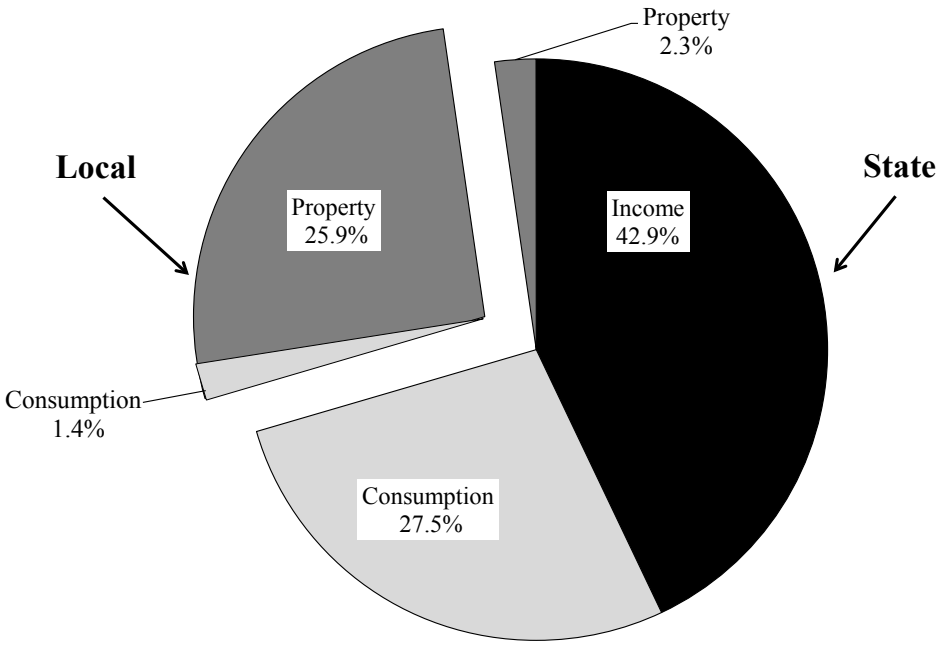
As shown in the "as imposed" columns of the table, $21.2 billion (64 percent) of the total tax is imposed directly on Minnesota households. Another $1.3 billion (4 percent) is paid by out-of-state visitors. The remaining $10.5 billion (32 percent) is initially imposed on businesses.

The "after shifting" columns in *Table 3-1*, show that some taxes are borne by Minnesotans in much greater proportions than are others. Of the large state taxes, the income tax is borne almost entirely by Minnesota residents, who pay 94 percent of total collections. Minnesota residents bear a smaller share of the general sales tax burden (79 percent). At the other end of the scale, Minnesotans are estimated to bear only 17 percent of the burden of property taxes on industrial property. Minnesotans are estimated to bear 61 percent of the burden of the total tax imposed on business.

Table 3-1 assigns each tax to one of three broad categories. Each tax is either a tax on income, a tax on consumption, or a tax on property. *Figure 3-1* shows each category's share of the total state and local tax burden for Minnesotans. It also distinguishes state taxes from local taxes. Almost 73 percent of the total burden is from state taxes; about 27 percent is from local taxes. By tax category, 43 percent of the burden is from taxes on income, 29 percent from taxes on consumption, and 28 percent from taxes on property.

Local taxes are primarily taxes on property, with a relatively small portion on consumption (local sales taxes). State taxes are primarily on income or consumption, with a relatively small portion on property.

Figure 3-1
2017 Distribution of Minnesota State and Local Tax Burdens by Tax



What changed from 2012 to 2017? The increase in the income tax share of the tax burden between 2012 and 2017 is dramatic, rising from 40 percent to 43 percent of the total. The state taxes share also increases noticeably, from 71 to 73 percent of the total. Both changes are driven by growth in the personal income tax that exceed growth for other taxes.

Taxes by Population Decile

To summarize the distribution of tax burdens by income level, the population of Minnesota households was divided into ten equal-sized groups or *deciles* of households ranked by household income levels. By definition, the first decile includes the 10 percent of households with the lowest income levels and the tenth decile includes the highest income, 10 percent of households. There are expected to be 271,914 households in each population decile. The total burden by tax type for each decile is summarized in *Table 3-2*.

Taxpayers in the top decile (incomes of $165,871 and over in 2017) are expected to bear 41.5 percent of the total tax burden while having 44.2 percent of total income. By tax type, taxpayers in the top decile would pay 59 percent of the individual income tax, 26 percent of the consumer sales tax, 28 percent of the gross homeowner property tax, and 35 percent of business taxes.[23]

In contrast, taxpayers in the bottom decile (incomes of $12,584 and below) are projected to bear 1.9 percent of the total tax burden while receiving only 0.8 percent of total income. The bottom-decile taxpayers will have a negative individual income tax burden due to the refundable tax credits. They will pay 3.7 percent of the consumer sales tax, 2.1 percent of gross homeowner property tax, and 4.2 percent of business taxes.

[23] The term "business tax," as defined in this study, includes any tax paid by business that is *not* expected to be fully reflected in the price paid by consumers. Business taxes include, among others, the corporate franchise tax, business property taxes (including property taxes on rental housing), the sales tax on business purchases, and insurance taxes on business insurance.

Summary List

Table 3-1
2017 Tax Collection Amounts

Tax Type	Total ($ Millions)	As Imposed			After shifting		Full-Sample Suits Index
		MN HH's	NR	Business	Minnesota	Exported	
State Taxes							
Taxes on Income and Estates							
Individual income tax	$11,540	$10,899	$641		$10,899	$641	0.231
Corporation franchise tax [1]	1,334			$1,334	791	543	-0.198
Estate tax	164	164			164		0.862
Total Income and Estate Taxes	$13,038	$11,063	$641	$1,334	$11,854	$1,184	0.211
Taxes on Consumption							
Total sales tax	$6,826	$3,495	$368	$2,962	$5,287	$1,539	-0.247
General sales/use tax	6,016	3,124	368	2,524	4,749	1,267	-0.269
Sales tax on motor vehicles	810	372		438	537	273	-0.060
Motor fuels excise taxes	874	463	67	344	549	325	-0.381
Alcoholic beverage excise taxes	89	80	10		80	10	-0.241
Cigarette and tobacco excise taxes	621	565	56		565	56	-0.614
Insurance premiums taxes	481	353		128	417	64	-0.356
Gambling taxes	48	48	0		48		-0.526
MinnesotaCare taxes	636	582	53		582	53	-0.354
Solid waste management taxes	80	37		43	73	7	-0.423
Total Consumption Taxes	$9,655	$5,623	$554	$3,478	$7,601	$2,054	-0.302
Taxes on Property							
State Property Tax	$863	$33	$8	$822	$410	$453	-0.124
Residential recreational property	42	33	8		33	8	-0.286
Commercial [2]	569			569	295	274	-0.100
Industrial	156			156	27	129	0.045
Utility	97			97	54	42	-0.238
Motor vehicle registration tax	767	650		117	718	49	-0.233
Mortgage and deed taxes	199	99		100	169	30	-0.057
Total Property Taxes	$1,829	$782	$8	$1,038	$1,296	$533	-0.175
Property Tax Refunds							
Homeowners	-$434	-$434			-$434		0.705
Renters	-230	-230			-230		0.903
Total Property Tax Refunds	-$664	-$664			-$664		0.774
Total State Taxes	$23,858	$16,805	$1,203	$5,850	$20,087	$3,771	0.025
Local Taxes							
Property Taxes	$8,666	$4,210	$42	$4,414	$7,139	$1,527	-0.191
General Property Tax	8,552	4,210	42	4,301	7,128	1,424	-0.192
Homeowners (before PTR)	4,042	4,042			4,042		-0.213
Residential recreational property	210	168	42		168	42	-0.286
Commercial [2]	1,678			1,678	871	807	-0.100
Industrial	460			460	80	380	0.045
Farm (other than residence) [3]	764			764	761	3	-0.069
Rental Housing (before PTR)	1,093			1,093	1,035	58	-0.276
Utility	306			306	172	135	-0.238
Mining Production Taxes (taconite)	114			114	11	103	0.340
Taxes on consumption							
Local Sales Taxes	385	200	24	161	304	81	-0.269
Local Gross Earnings Taxes	142			142	80	63	-0.238
Total Local Taxes	$9,193	$4,410	$65	$4,718	$7,523	$1,671	-0.195
Total State and Local Taxes	$33,051	$21,215	$1,268	$10,568	$27,610	$5,441	-0.035

[1] Includes taconite/iron ore occupation tax.
[2] Includes resorts and railroads.
[3] Includes Timber.

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Table 3-2 2017 Population Deciles - Amounts ($ Thousands)

Population Decile	Income Range	Number of Households	Household Income	State Income Taxes: Individual Income Tax	State Income Taxes: Corporate Franchise Tax	State Sales Tax: Purchases by Individuals	State Sales Tax: Purchases by Businesses	State Sales Tax: Sales Tax Total	Property Tax Refund	State Property Tax	State Excise Taxes & HIF	Other State Taxes: Taxes on Individuals	Other State Taxes: Taxes on Businesses
First	$12,584 & under	271,914	$2,036,808	-$26,013	$26,383	$127,806	$74,483	$202,289	-$74,136	$16,532	$91,794	$53,905	$11,977
Second	$12,585 - $20,449	271,914	4,494,968	-38,702	30,314	164,845	71,420	236,265	-88,296	13,648	95,928	69,743	7,350
Third	$20,450 - $29,136	271,914	6,699,209	3,156	37,327	193,667	86,233	279,900	-95,878	17,032	101,379	89,271	9,286
Fourth	$29,137 - $39,054	271,913	9,262,776	113,748	44,812	226,185	101,529	327,714	-95,307	20,930	107,526	114,134	11,023
Fifth	$39,055 - $51,098	271,914	12,205,051	309,369	52,208	257,410	115,604	373,014	-95,370	24,127	113,067	140,880	12,810
Sixth	$51,099 - $66,362	271,914	15,934,293	513,960	62,547	302,049	138,359	440,408	-91,493	29,471	118,266	171,617	15,505
Seventh	$66,363 - $86,340	271,914	20,608,654	749,565	76,527	363,221	167,448	530,669	-73,068	36,254	124,464	210,775	19,406
Eighth	$86,341 - $113,860	271,914	26,975,843	1,119,043	94,095	438,562	200,244	638,805	-46,079	44,314	135,439	257,700	23,751
Ninth	$113,861 - $165,870	271,914	37,055,294	1,698,544	118,355	528,048	246,824	774,872	-4,572	56,634	141,522	295,969	29,840
Tenth	$165,871 & over	271,914	107,159,502	6,456,746	248,040	893,563	589,170	1,482,733	0	151,079	164,806	528,998	96,379
TOTALS		2,719,138	$242,432,398	$10,899,417	$790,607	$3,495,355	$1,791,315	$5,286,670	-$664,200	$410,020	$1,194,189	$1,932,990	$237,327
Top 5%	Over $241,940	136,151	$80,358,706	$5,123,205	$168,607	$564,560	$420,680	$985,240	$0	$111,742	$90,889	$359,638	$73,317
Top 1%	Over $595,346	27,207	$42,756,443	$3,083,752	$73,890	$202,662	$209,483	$412,145	$0	$59,997	$25,404	$205,803	$41,540

Population Decile	Residential Local Property Taxes: Homeowners Gross	Residential Local Property Taxes: Renters Gross	Residential Local Property Taxes: Owners of Rental Prop.	Residential Local Property Taxes: Total on Rental Prop.	Residential Local Property Taxes: Residential Total [1]	Nonresidential Local Property Taxes	Other Local Taxes [2]	Local Taxes Total	Total State Taxes: Total on Individuals	Total State Taxes: Total on Businesses	Total State Taxes: State Taxes Total	Total State and Local Taxes
First	$85,361	$21,855	$41,135	$62,990	$152,894	$67,775	$14,501	$235,170	$171,133	$131,597	$302,730	$537,900
Second	84,742	43,178	15,399	58,576	148,140	50,047	17,751	215,938	200,424	125,826	326,250	542,189
Third	125,417	56,127	20,792	76,919	208,745	57,006	20,923	286,675	288,083	153,390	441,473	728,148
Fourth	195,352	66,178	24,567	90,745	296,504	76,849	24,489	397,843	462,755	181,823	644,578	1,042,421
Fifth	278,357	70,084	26,855	96,938	387,953	124,317	27,912	540,182	721,470	208,635	930,105	1,470,287
Sixth	371,314	57,869	34,467	92,336	478,527	111,520	32,949	622,996	1,009,864	250,417	1,260,280	1,883,277
Seventh	485,391	40,304	43,510	83,813	588,186	160,768	39,635	788,589	1,369,751	304,840	1,674,591	2,463,180
Eighth	570,710	27,880	51,956	79,836	675,912	207,393	47,636	930,941	1,898,979	368,089	2,267,067	3,198,008
Ninth	716,044	19,311	66,773	86,084	837,245	276,009	57,801	1,171,055	2,653,496	457,667	3,111,163	4,282,218
Tenth	1,129,095	10,009	296,332	306,341	1,470,730	751,587	111,092	2,333,409	8,028,761	1,100,020	9,128,781	11,462,190
TOTALS	$4,041,784	$412,793	$621,786	$1,034,579	$5,244,836	$1,883,271	$394,690	$7,522,798	$16,804,717	$3,282,304	$20,087,020	$27,609,818
Top 5%	$680,558	$3,798	$239,173	$242,972	$941,801	$529,106	$74,165	$1,545,072	$6,127,757	$784,880	$6,912,637	$8,457,710
Top 1%	$202,330	$556	$152,277	$152,833	$359,733	$214,837	$31,322	$605,891	$3,513,432	$389,099	$3,902,531	$4,508,422

[1] Includes seasonal recreational residential (cabins).

[2] Includes taconite production tax.

Overall Effective Tax Rates

In a similar fashion as was done for taxes paid in 2012, effective tax rates by tax type for 2017 are reported in *Table 3-3*. The effective tax rate for all Minnesota state and local taxes combined is shown in the last column in the lower section of the table. For all households combined, the effective tax rate is 11.4 percent. Effective tax rates rise from 10.9 percent of income in the 3rd decile to 12.0 percent in the 5th decile, but then fall to 11.6 percent in the 9th decile and 10.7 percent in the 10th decile. For both the top 5 percent and the top 1 percent of households the effective tax rate is 10.5 percent.

What changed between 2012 and 2017? The average tax rate falls by 0.1 percentage points (from 11.5 to 11.4 percent). It falls by more than a half percentage point in each of the first 3 deciles. For the 4th to 9th deciles effective tax rates generally fall by 0.2 percentage points. In contrast, the 10th decile's effective tax rate rises by 0.2 percentage point. For the top 5 percent the effective tax rate rises by 0.3 percentage points. For the top 1 percent the effective tax rate rises by 0.7 percentage points.

The projected decline in the average effective tax rate is due largely to lower effective tax rates on residential property. The projected increases in the top decile, top 5 percent, and top 1 percent are largely the result of the addition of the fourth tax bracket in 2013, which increased income tax on taxable incomes over $250,000 for married filing a joint return ($150,000 for single filers and $200,000 for heads of households).

The drop in the effective tax rate between the 9th and 10th deciles shrinks between 2012 and 2017 (from 1.3 percentage points to 0.6 percentage points). The drop between the 9th decile and the top 1 percent fell from 3.0 percentage points to 0.7 percentage points. The effective tax rates in the 3rd and 4th decile are both below the average overall effective tax rate for the first time since 2004.

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Table 3-3 2017 Population Deciles - Effective Tax Rates

Population Decile	Income Range	Number of Households	Household Income	State Income Taxes		State Sales Tax			Property Tax Refund	State Property Tax	State Excise Taxes & HIF	Other State Taxes	
				Individual Income Tax	Corporate Franchise Tax	Purchases by Individuals	Purchases by Businesses	Sales Tax Total				Taxes on Individuals	Taxes on Businesses
First	$12,584 & under	271,914	$2,036,808	- 1.3%	1.3%	6.3%	3.7%	9.9%	- 3.6%	0.8%	4.5%	2.6%	0.6%
Second	$12,585 - $20,449	271,914	4,494,968	- 0.9%	0.7%	3.7%	1.6%	5.3%	- 2.0%	0.3%	2.1%	1.6%	0.2%
Third	$20,450 - $29,136	271,914	6,699,209	0.0%	0.6%	2.9%	1.3%	4.2%	- 1.4%	0.3%	1.5%	1.3%	0.1%
Fourth	$29,137 - $39,054	271,913	9,262,776	1.2%	0.5%	2.4%	1.1%	3.5%	- 1.0%	0.2%	1.2%	1.2%	0.1%
Fifth	$39,055 - $51,098	271,914	12,205,051	2.5%	0.4%	2.1%	0.9%	3.1%	- 0.8%	0.2%	0.9%	1.2%	0.1%
Sixth	$51,099 - $66,362	271,914	15,934,293	3.2%	0.4%	1.9%	0.9%	2.8%	- 0.6%	0.2%	0.7%	1.1%	0.1%
Seventh	$66,363 - $86,340	271,914	20,608,654	3.6%	0.4%	1.8%	0.8%	2.6%	- 0.4%	0.2%	0.6%	1.0%	0.1%
Eighth	$86,341 - $113,860	271,914	26,975,843	4.1%	0.3%	1.6%	0.7%	2.4%	- 0.2%	0.2%	0.5%	1.0%	0.1%
Ninth	$113,861 - $165,870	271,914	37,055,294	4.6%	0.3%	1.4%	0.7%	2.1%	0.0%	0.2%	0.4%	0.8%	0.1%
Tenth	$165,871 & over	271,914	107,159,502	6.0%	0.2%	0.8%	0.5%	1.4%	0.0%	0.1%	0.2%	0.5%	0.1%
TOTALS		2,719,138	$242,432,398	4.5%	0.3%	1.4%	0.7%	2.2%	- 0.3%	0.2%	0.5%	0.8%	0.1%
Top 5%	Over $241,940	136,151	$80,358,706	6.4%	0.2%	0.7%	0.5%	1.2%	0.0%	0.1%	0.1%	0.4%	0.1%
Top 1%	Over $595,346	27,207	$42,756,443	7.2%	0.2%	0.5%	0.5%	1.0%	0.0%	0.1%	0.1%	0.5%	0.1%

Population Decile	Residential Local Property Taxes					Nonresidential Local Property Taxes	Other Local Taxes
	Homeowners Gross	Renters Gross	Owners of Rental Prop.	Total on Rental Prop.	Residential Total [1]		
First	4.2%	1.1%	2.0%	3.1%	7.5%	3.3%	0.7%
Second	1.9%	1.0%	0.3%	1.3%	3.3%	1.1%	0.4%
Third	1.9%	0.8%	0.3%	1.1%	3.1%	0.9%	0.3%
Fourth	2.1%	0.7%	0.3%	1.0%	3.2%	0.8%	0.3%
Fifth	2.3%	0.6%	0.2%	0.8%	3.2%	1.0%	0.2%
Sixth	2.3%	0.4%	0.2%	0.6%	3.0%	0.7%	0.2%
Seventh	2.4%	0.2%	0.2%	0.4%	2.9%	0.8%	0.2%
Eighth	2.1%	0.1%	0.2%	0.3%	2.5%	0.8%	0.2%
Ninth	1.9%	0.1%	0.2%	0.2%	2.3%	0.7%	0.2%
Tenth	1.1%	0.0%	0.3%	0.3%	1.4%	0.7%	0.1%
TOTALS	1.7%	0.2%	0.3%	0.4%	2.2%	0.8%	0.2%
Top 5%	0.8%	0.0%	0.3%	0.3%	1.2%	0.7%	0.1%
Top 1%	0.5%	0.0%	0.4%	0.4%	0.8%	0.5%	0.1%

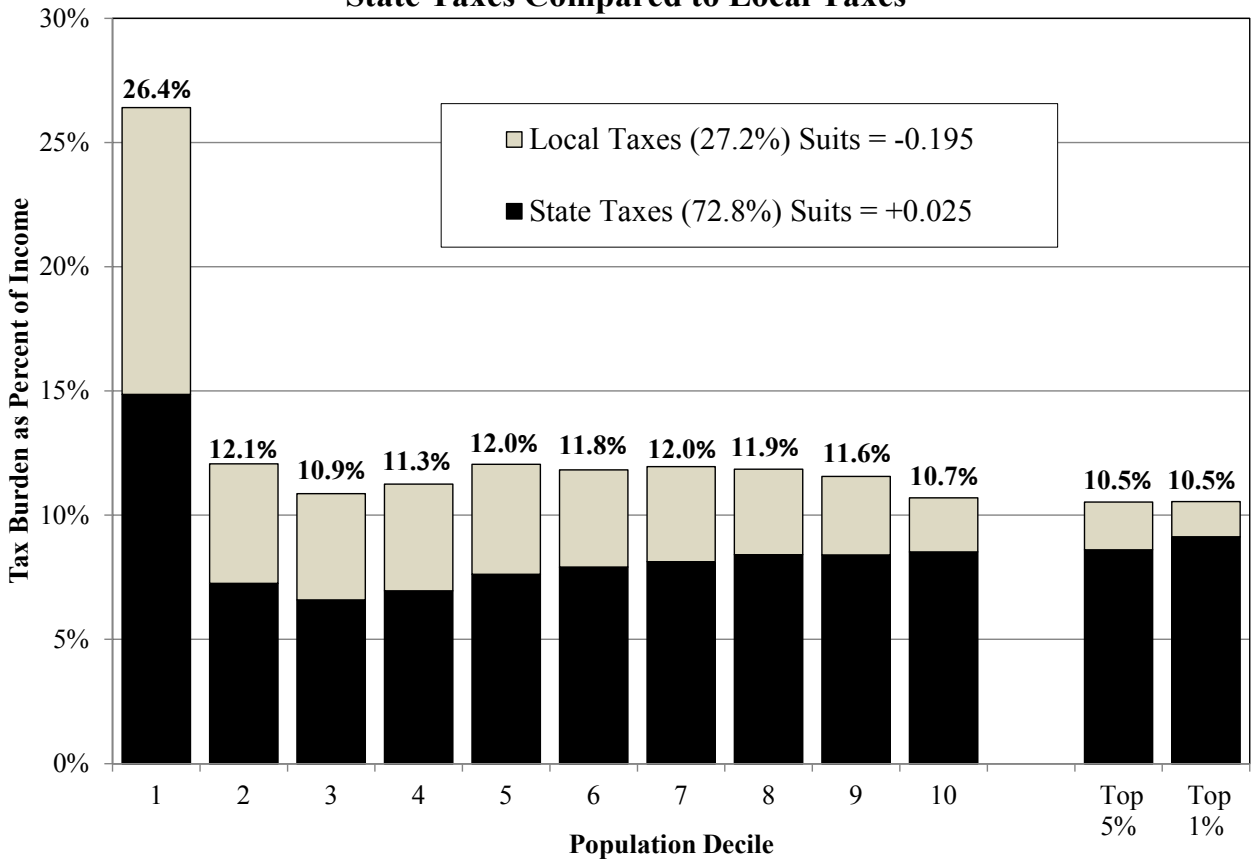
Local Taxes Total	Total State Taxes			Total State and Local Taxes
	Total on Individuals	Total on Businesses	State Taxes Total	
11.5%	8.4%	6.5%	14.9%	26.4%
4.8%	4.5%	2.8%	7.3%	12.1%
4.3%	4.3%	2.3%	6.6%	10.9%
4.3%	5.0%	2.0%	7.0%	11.3%
4.4%	5.9%	1.7%	7.6%	12.0%
3.9%	6.3%	1.6%	7.9%	11.8%
3.8%	6.6%	1.5%	8.1%	12.0%
3.5%	7.0%	1.4%	8.4%	11.9%
3.2%	7.2%	1.2%	8.4%	11.6%
2.2%	7.5%	1.0%	8.5%	10.7%
3.1%	6.9%	1.4%	8.3%	11.4%
1.9%	7.6%	1.0%	8.6%	10.5%
1.4%	8.2%	0.9%	9.1%	10.5%

[1] Includes seasonal recreational residential (cabins).

State Taxes Compared to Local Taxes

As shown in *Figure 3-2*, the distribution of the burden of state taxes differs greatly from that of local taxes. The effective state tax rate rises with income from the 3rd to 10th decile and rises further for the top 5 percent and top 1 percent. In contrast, the effective local tax rate falls steadily as income rises.

Figure 3-2
Effective Tax Rates by Population Decile
State Taxes Compared to Local Taxes



A tax is said to be regressive if effective tax rates fall with income. A regressive tax claims a smaller share of household income as income rises. If effective tax rates fall with income, a tax is said to be progressive. A progressive tax claims an increasing share of household income as income rises. If the effective tax rate remains constant as income rises, the tax is said to be proportional.

The Suits index is a useful summary measure of regressivity or progressivity. A regressive tax has a negative Suits index (between 0 and -1). A progressive tax has a positive Suits index (between 0 and +1). The more regressive or progressive, the further the Suits index will be from zero.

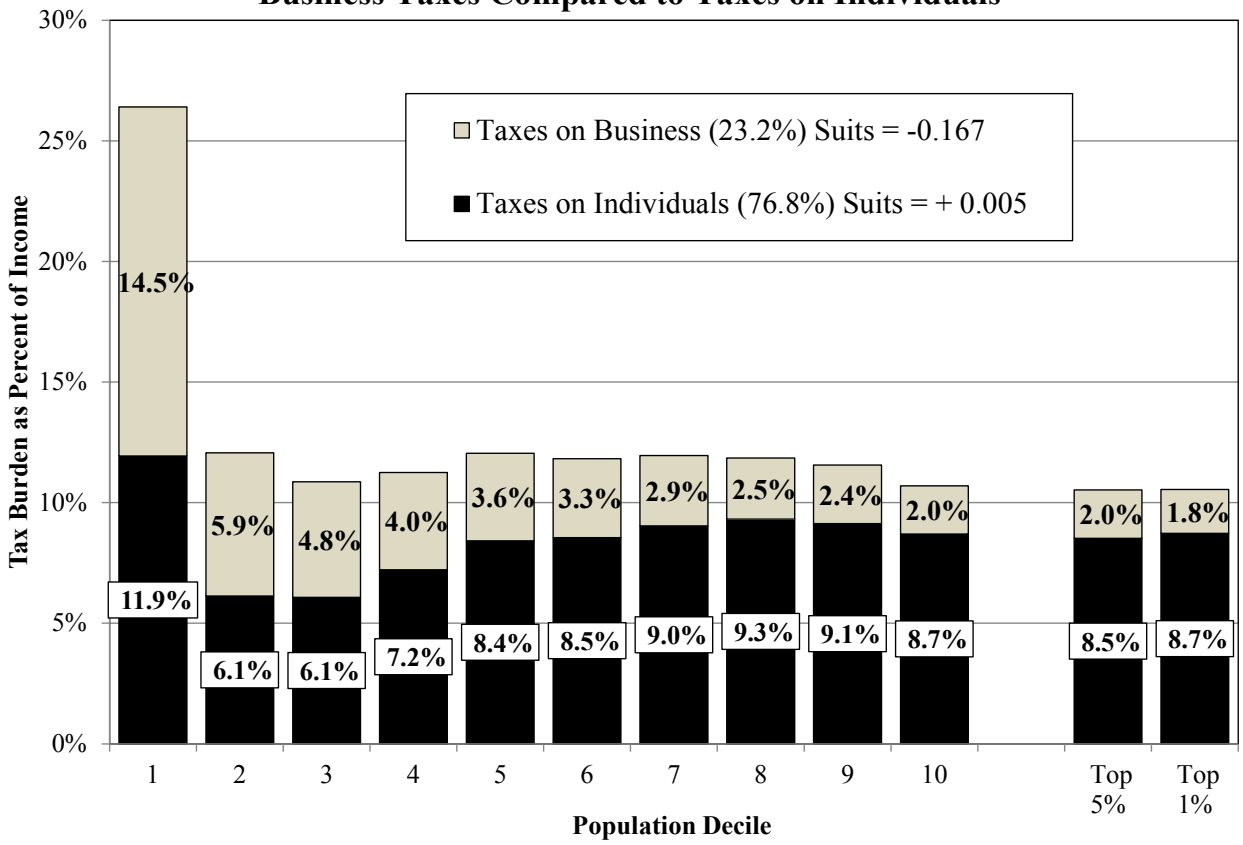
What changed between 2012 and 2017? In 2017, the Suits index for state taxes is +0.025, meaning that (as seen in *Figure 2-2* above) state taxes are progressive. In 2012, state taxes less progressive, with a Suits index of +0.006. The Suits index for local taxes in 2017 is -0.195 (regressive), almost identical to what it was in 2012. When combined, the Suits index for all Minnesota state and local taxes in 2017 is -0.035. This is less regressive than in 2012 (Suits index of -0.052).

Business Taxes Compared to Taxes on Individuals

Figure 3-3 compares taxes on business with taxes paid by individuals. As in 2012, taxes on business are regressive, with effective tax rates falling with income and a Suits index of -0.167. In contrast, taxes on individuals are slightly progressive, with a Suits index of +0.005. Effective tax rates rise with income between the 3rd and 8th deciles before falling in the 10th. Although the effective tax rate is a bit lower for the top 5 percent, the effective tax rate for the top 1 percent is the same as for the full 10th decile.

What changed between 2012 and 2017? In 2012, individual taxes were regressive (Suits of -0.015). The move from regressive to progressive is due to the rapid growth in the income tax, which also accounts for the rising share for individual taxes

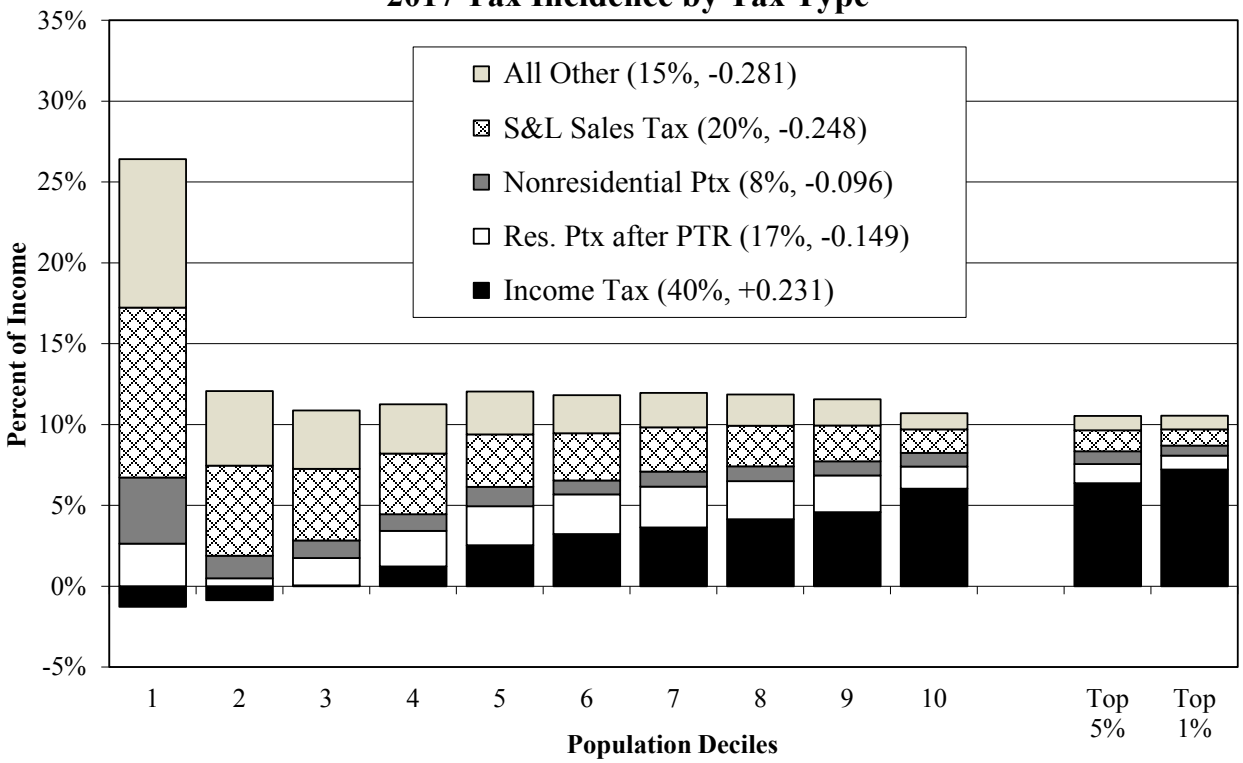
Figure 3-3
Effective Tax Rates by Population Decile
Business Taxes Compared to Taxes on Individuals



Summary of 2017 Tax Burden by Major Tax Type

Figure 3-4 summarizes how the 2017 tax burden of the major tax categories varies by population decile. The categories for this table combine both the individual and business components of these tax types. For example, the state sales tax total includes both the consumer and business portions (and includes the tax on motor vehicles). Residential property tax includes both homeowner and rental property taxes, along with cabins.

Figure 3-4
2017 Tax Incidence by Tax Type



Note: Numbers in parentheses show percent of total tax burden and the full-sample Suits index.

The 2017 effective tax rates by tax type are shown in *Table 3-4*. (These are the effective tax rates graphed in *Figure 3-4* above.) The patterns for each of the five tax types are discussed below.

Table 3-5 shows the percentage point changes in effective tax rates between 2012 and 2017, by tax type. The reasons for those changes are also discussed below.

Table 3-4
Effective Tax Rates by Tax Type (2017)

Population Decile	Personal Income Tax	Residential Property Taxes*	Other Property Taxes	State & Local Sales Taxes	All Other S&L Taxes
First	-1.3%	3.9%	4.1%	10.5%	9.2%
Second	-0.9%	1.4%	1.4%	5.6%	4.6%
Third	0.0%	1.7%	1.1%	4.4%	3.6%
Fourth	1.2%	2.2%	1.0%	3.7%	3.1%
Fifth	2.5%	2.4%	1.2%	3.2%	2.7%
Sixth	3.2%	2.4%	0.9%	2.9%	2.4%
Seventh	3.6%	2.5%	0.9%	2.7%	2.1%
Eighth	4.1%	2.4%	0.9%	2.5%	1.9%
Ninth	4.6%	2.3%	0.9%	2.2%	1.6%
Tenth	6.0%	1.4%	0.8%	1.5%	1.0%
Total	4.5%	1.9%	0.9%	2.3%	1.8%
Top 5%	6.4%	1.2%	0.8%	1.3%	0.9%
Top 1%	7.2%	0.9%	0.6%	1.0%	0.9%
Share of Total Tax Burden	39.5%	16.7%	8.2%	20.2%	15.4%
Suits Index	0.231	-0.149	-0.096	-0.248	-0.281

*Residential property taxes are net of property tax refunds.

Table 3-5
Change in Effective Tax Rates Between 2012 and 2017

Population Decile	Personal Income Tax	Residential Property Taxes*	Other Property Taxes	State & Local Sales Taxes	All Other S&L Taxes
First	-0.3%	-1.6%	-0.1%	-0.3%	0.4%
Second	-0.2%	-0.4%	-0.1%	-0.2%	0.1%
Third	0.0%	-0.3%	-0.1%	-0.2%	0.0%
Fourth	0.3%	-0.2%	-0.1%	-0.1%	0.0%
Fifth	0.3%	-0.5%	0.1%	-0.1%	0.0%
Sixth	0.3%	-0.5%	0.0%	-0.1%	-0.1%
Seventh	0.2%	-0.4%	0.1%	0.0%	-0.1%
Eighth	0.3%	-0.4%	0.0%	0.0%	-0.1%
Ninth	0.2%	-0.3%	0.0%	0.0%	-0.1%
Tenth	0.5%	-0.2%	0.0%	0.0%	-0.1%
Total	0.4%	-0.3%	0.0%	-0.1%	-0.1%
Top 5%	0.6%	-0.2%	0.0%	0.0%	-0.1%
Top 1%	1.0%	-0.1%	-0.1%	0.0%	-0.1%

Calculated as the difference between the unrounded percentages in Tables 3-4 and 2-4.
*Residential property taxes are net of property tax refunds.

Individual Income Tax

The individual income tax is expected to account for 39.5 percent of the total state and local tax burden in 2017, up from 36.0 percent in 2012. Because of its graduated tax rate structure and allowance of personal exemptions and deductions, the individual income tax is, by design, progressive. As seen in *Table 3-4*, effective tax rates rose significantly with increases in household income. At the low end, the effective tax rate for the income tax was negative for the first two deciles and close to zero in the third decile, showing the impact of three refundable low-income credits (which can more than offset any income tax liabilities).[24] Effective tax rates rise steadily from 1.2 percent of income for the fourth decile to 6.0 percent for the tenth decile. The top 5 percent and 1 percent of households have even higher effective tax rates, at 6.4 and 7.2 percent respectively. The Suits index of +0.231 reflects its considerable progressivity.

Figure 3-4 clearly demonstrates the importance of the progressive income tax in offsetting most of the regressivity of other taxes.

What changed between 2012 and 2017? Income tax burdens are projected to increase by 36 percent between 2012 and 2017, much faster than the growth in income (25 percent). Effective income tax rates are expected to fall in the first 3 deciles but rise in every other decile. The increases in the 4th through 9th deciles (by 0.2 or 0.3 percentage points) are the result of projected economic growth and higher real incomes. Income tax brackets are indexed for inflation, but if incomes rise faster than inflation, effective tax rates will rise even if tax rates remain unchanged. The much larger increases for the top decile (up 0.5 percentage points) and the top 5 percent and top 1 percent (up 0.6 and 1.0 percentage points respectively) are the result of the addition of the fourth tax bracket.

Residential Property Taxes (After PTR)

Residential property taxes include the tax on owned homes and rental property. The burden shown here includes the impact of state property tax refunds for both homeowners and renters. The property tax refunds ($664 million in 2017) offset more than 12 percent of the residential property tax burden (up from less than 10 percent in 2012). The refunds offset a much higher portion in the lowest five deciles. Residential property taxes (after PTR) account for 17 percent of the total state and local tax burden (down from 19 percent in 2017).

Effective tax rates rise from 1.4 percent of income in the 2nd decile to 2.5 percent of income in the 7th decile before falling to 2.3 percent in the 9th and 1.4 percent in the 10th decile. The Suits index of -0.149 (regressive) shows that the impact of the sharp drop in the 10th decile far outweighs the increasing effective tax rates over the lower deciles.

[24] The impact of these refundable credits on the distribution of the overall tax burden is shown in *Chapter 4, Section C*.

Although residential property tax burdens (after PTR) are regressive, they are noticeably less regressive than either sales taxes or "all other taxes." This is mostly due to the impact of property tax refunds. In their absence, the Suits index for residential property taxes would be -0.228.

What changed between 2012 and 2017? The average effective tax rate falls by 0.3 percentage point. Effective tax rates fall in every decile. Local property taxes are projected to increase by 14 percent over 5 years, far below the projected 25 percent increase in income. Property tax refunds rise by almost 50 percent offsetting 12 percent of the total tax compared to 10 percent in 2012. With taxes rising far less rapidly than income and with a major expansion of property tax refunds, tax rates fall.

The larger percentage point drops in the 5th through 8th deciles are likely due partly to the pattern of increases in homeowner property tax refunds and partly to the more rapid increase in rental property taxes than homestead taxes.

Nonresidential Property Taxes

These include commercial and industrial taxes along with taxes on utilities and farm property. Like other business taxes, the incidence of these taxes depends on the extent to which the tax burden is borne by property owners rather than shifted to others through higher prices or lower wages. Incidence models estimate these taxes to be regressive, but less so than either sales taxes or residential property taxes. Little change is expected between 2012 and 2017, with no change in the average effective tax rate.

State and Local Sales Taxes

In agreement with other incidence studies, this analysis finds the sales tax to be regressive. Higher income households spend a smaller portion of their income on items subject to the sales tax. This is partly due to their higher savings rates and partly to the mix of consumer goods and services they buy. Hence, tax burdens as a proportion of income tend to decline as one moves up the income scale.

For 2017, the effective state and local sales tax rate falls from 5.6 percent in the 2nd decile to 1.5 percent in the 10th decile. Sales taxes overall are much more regressive than property taxes (after PTR).

What changed between 2012 and 2017? The state general sales tax burden is expected to grow by 20 percent between 2012 and 2017, lower than the 25 percent increase in income. In contrast, the sales tax on motor vehicles is expected to grow by 40 percent. The overall effective tax rate falls by 0.1 percentage point, and every decile sees a reduction (though many round to zero percentage points). The larger reductions in the lower deciles may reflect the differential growth rates for the general and motor vehicle sales taxes.

The sales taxes share of the total burden falls from 20.6 percent to 20.2 percent.

Other Taxes

The "all other taxes" category in *Table 2-4* includes one progressive tax (the estate tax) and many regressive taxes, including excise taxes on motor fuels, tobacco, and alcohol, the motor vehicle registration tax, solid waste management taxes, mortgage and deed taxes, insurance premiums taxes, gambling taxes, and MinnesotaCare taxes. These assorted taxes account for 15.4 percent of Minnesota's state and local tax burden, and in 2017 their combined impact is more regressive than sales taxes (a Suits index of -0.281). Effective tax rates fall from 4.6 percent in the 2nd decile to 1.0 percent in the 10th decile.

What changed between 2012 and 2017? The other taxes share of the tax burden fell slightly between 2012 and 2017 (from 16.0 to 15.4 percent). Many of these taxes grew much more slowly than income (motor fuels and alcohol excise taxes, mortgage and deed taxes, and the estate tax). Motor vehicle registration taxes and MinnesotaCare taxes grew just slightly faster than income. Only tobacco tax burdens (up 40 percent) grew much faster than income, due to increased tax rates. Effective tax rates rose slightly in the lowest deciles (due partly to increased cigarette tax rates) and fell in the top decile (due partly to enacted cuts in the estate tax).

Summary of the Impact of Law Changes Between 2012 and 2017

It is possible to estimate the impact of major tax policy changes by modeling what the tax burden distribution would have been if no change had been made. This section considers five tax law changes enacted in 2013 and 2014 that have a measurable impact on the estimated regressivity of the overall state and local tax system in 2017.

1. The addition of a fourth income tax bracket (at a 9.85 percent rate) raised taxes on those with high incomes (taxable income over $250,000 for a married couple filing jointly in 2013, with brackets indexed for inflation each year). In 2017, this will increase income taxes paid by high-income taxpayers by about $600 million. This was a very progressive tax change. The additional tax has a Suits index of +0.813. By itself, the fourth tier raised the overall Suits index by 0.020. In other words, without the 4th tax bracket, the Suits index in 2017 would have been -0.055 rather than -0.035. This would have been more regressive than the Suits index in 2012 (at -0.052).

2. The expanded Working Family Credit will increase the low income credits by $34 million in 2017. This was a very progressive tax change. The added credits have a Suits index of 0.914. By itself, the expanded Working Family Credit raised the overall Suits index by 0.001.

3. The expansion of property tax refunds (mostly for homeowners but also partly for renters) increased refunds by an estimated $145 million in 2017. The increase was less concentrated at lower incomes than the existing credits, but the Suits index for the expanded refunds is estimated to be +0.688. By itself, the expanded PTR raised the overall Suits index by 0.004.

4. The cigarette and tobacco tax increases raised the tax burden by an estimated $220 million in 2017. These are very regressive taxes, with a Suits index of -0.614. By itself, the increased cigarette and tobacco taxes reduced the overall Suits index by 0.005.

5. The estate tax law changes will reduce the estate tax burden in 2017 by about $70 million. The payments no longer made would have had a Suits index of +0.792. By itself, cutting this progressive tax reduced the overall Suits index by 0.002.

The three progressive changes combined raise the Suits index by 0.025. The two regressive changes reduce the Suits index by 0.007. The combined impact of the five law changes increased the overall Suits index by 0.018. In their absence, the Suits index would have remained almost where it was in 2012. Rather than rising from -0.052 to -0.035, the Suits index would have fallen to -0.053. This means that the net impact of these five law changes can explain all of the net change in the Suits index between 2012 and 2017. Economic growth and changes in the distribution of income appear to have little net impact on the regressivity of Minnesota's state and local tax system.

Minnesota's Diversified Tax Portfolio in 2017

Table 3-6 shows how revenue is expected to grow between 2012 and 2017 for each of the components of Minnesota's tax portfolio. The varying growth rates change the mix of taxes. Income tax revenue growth, at 36 percent, far exceeds that of the general sales tax (20 percent) which exceeds that of residential property taxes.

Table 3-6
Projected Growth in Tax Collections
Between 2012 and 2017 By Tax Type

5-Year Growth	Taxes on Consumption	Taxes on Property	Taxes on Income
Less than 5%	Motor Fuels		Estate*
5% to 10%	Alcohol	Mortgage & Deed Homestead Seasonal Recreation	
11% to 15%	Solid Waste	Rental Property	Corporate*
16% to 20%	General Sales*	Nonresidential Property	
21% to 25%	Insurance Gambling		
26% to 30%	MinnesotaCare	Motor Vehicle Reg Renter PTR*	
31% to 35%			
36% to 40%	Motor Vehicle Sales		Income*
41% to 45%			
46% to 50%	Cigarette & Tobacco*		
51% to 60%		Homeowner PTR*	

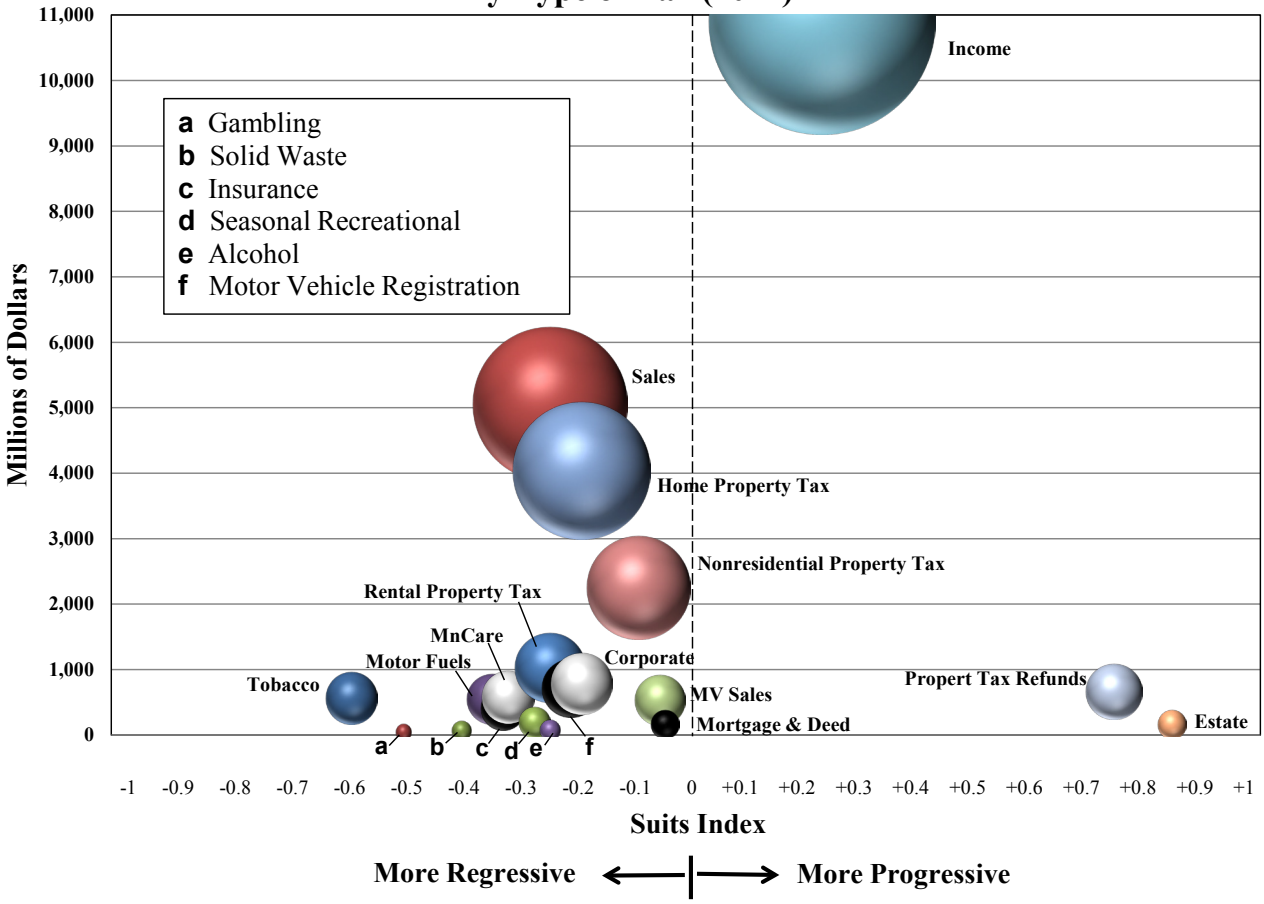
*Growth rates for these tax types were affected by major law changes.

Other taxes with high growth rates include tobacco taxes (up 46 percent) and the motor vehicle sales tax (up 40 percent). Property tax refunds grow by 47 percent. MinnesotaCare taxes and motor vehicle registration tax collections also grow faster than the full portfolio (projected to grow by 22.5 percent. Taxes with very low growth include several excise taxes (on motor fuels and alcohol), mortgage and deed taxes, and the estate tax (due to enacted cuts).

Different growth rates result in changes in the mix of taxes. *Figure 3-5* illustrates the magnitude of the tax burden and Suits index for components of Minnesota's state and local tax system in 2017. Due to expected revenue growth, most of the circles are larger and have moved higher in *Figure 3-5* than they were in *Figure 2-5* (for 2012). The vertical dollar scale is unchanged, so growth in the income tax burden shifts its circle partly off the top of the chart.

The income tax has also shifted to the right because it has become more progressive (with a more positive Suits index). As explained earlier, its growth and increased progressivity are largely responsible for reducing the regressivity of the overall tax system.

Figure 3-5
Dollars of Tax Burden and Suits Index
By Type of Tax (2017)



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Chapter 4: Additional Results

This chapter provides additional analysis of the 2012 results.

- Section A reports the 2012 results by income deciles rather than population deciles. The households in each income decile receive 10 percent of total household income. This provides added detail for high-income households (but less detail for lower-income households).
- Section B explains why the study disregards the "federal tax offset" in calculating the burden of state and local taxes. For those who itemize deductions, an increase in their state income tax, homestead property tax, or motor vehicle registration tax may reduce their federal income tax liability. Taking this into account would reduce the estimated tax rates reported in this study. For informational purposes, effective tax rates and Suits indexes adjusted for the federal tax offset are included in this section.
- Section C demonstrates the significant impact that refundable income tax credits and property tax refunds have on the distribution of the overall tax burden. Effective tax rates and Suits indexes are calculated both with and without these provisions.
- Section D explains why this study's estimates of the incidence of *existing* business taxes should not be used to estimate the incidence of a *change* in Minnesota taxes. The difference between "average incidence" (for existing taxes) and "incremental incidence" (for a change in taxes) is illustrated for the corporate income tax, rental property tax, and industrial property tax.
- Section E presents results from a 50-state study of overall tax incidence. Though the results are limited to the population of non-seniors, they help provide context for the results of Minnesota's tax incidence studies.

Section A
An Alternative Presentation: Income Deciles[25]

The results presented elsewhere in this study have been summarized for deciles of households. Each population decile represented 10 percent of the population of households in the study. This section provides an alternative way to summarize the distribution of the 2012 and 2017 tax burdens. *Tables 4-1* through *4-4* are organized by income deciles rather than population deciles. To derive income deciles, households are ranked from lowest to highest income and divided into groups representing equal amounts of total income.

The distribution of tax by income deciles in these tables can be compared to the distribution by population deciles in *Tables 2-2, 2-3, 3-2,* and *3-3*. In both distributions, households are ranked by income level. Using the year 2012 for purposes of illustration in the population decile distribution, each decile of 258,056 households is 10 percent of all households; in the income decile distribution, each decile with $19.4 billion of income constitutes 10 percent of total income. Because of their relatively low incomes, it takes 1,065,463 households in the first income decile to account for 10 percent of total income; in contrast, there are only 5,568 high-income households in the tenth decile, who also received 10 percent of total income.

Again using the year 2012 for illustration, the first decile includes 41.3 percent of all households. Their share of total taxes (11.5 percent) exceeded their share of household income (10 percent). First income-decile households (with 10 percent of total income) paid less than 1 percent of the individual income tax, but paid 22 percent of the consumer sales tax, 33 percent of consumer excise taxes, and 20 percent of all business taxes borne by Minnesota residents.

The tenth income decile includes only 0.2 percent of all households. Their share of total taxes (8.5 percent) was lower than their share of household income (10 percent). They paid 15.5 percent of the individual income tax, but paid 2.3 percent of the consumer sales tax, 0.6 percent of excise taxes, and 6.9 percent of business taxes borne by Minnesota residents.

Tables by income decile provide more detail about the tax burdens of higher-income households. In contrast, tables by population decile provide more detail about tax burdens for households at the middle of the income distribution or below.

[25] Unlike some earlier studies, *Tables 4-1* through *4-4* do not report the results separately for those receiving the top 1 percent of income. Because less than 35 households would be included in that group, reporting such information separately would raise disclosure issues.

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Table 4-1 2012 Income Deciles - Amounts ($ Thousands)

Income Decile	Income Range	Number of Households	Household Income	State Income Taxes: Individual Income Tax	State Income Taxes: Corporate Franchise Tax	State Sales Tax: Purchases by Individuals	State Sales Tax: Purchases by Businesses	State Sales Tax: Sales Tax Total	Property Tax Refund	State Property Tax	State Excise Taxes	Other State Taxes: Taxes on Individuals	Other State Taxes: Taxes on Businesses
First	$34,482 & under	1,065,463	$19,411,657	$49,905	$131,084	$629,368	$295,313	$924,681	-$281,923	$68,563	$319,888	$272,435	$35,577
Second	$34,483 - $54,383	443,604	19,412,497	507,725	87,350	398,812	181,263	580,075	-100,135	43,095	163,009	214,651	20,221
Third	$54,384 - $74,211	304,927	19,399,903	654,584	79,119	348,639	162,237	510,876	-44,082	40,097	124,719	196,915	19,025
Fourth	$74,212 - $94,587	231,694	19,416,541	750,314	74,229	320,650	148,591	469,241	-18,641	37,453	104,181	183,836	17,734
Fifth	$94,588 - $120,020	183,091	19,421,506	827,565	69,998	292,962	137,933	430,896	-5,094	36,140	88,612	167,030	17,888
Sixth	$120,021 - $156,050	142,632	19,386,484	881,144	65,853	262,728	127,305	390,033	-447	33,961	71,777	142,069	15,982
Seventh	$156,051 - $225,308	104,912	19,426,311	961,459	61,048	229,981	119,621	349,602	-503	32,239	55,320	116,576	17,438
Eighth	$225,309 - $401,229	67,339	19,388,877	1,017,140	55,194	190,087	112,369	302,456	-273	31,922	39,187	83,530	18,055
Ninth	$401,230 - $1,226,535	31,332	19,430,527	1,128,641	45,511	136,511	101,341	237,852	-438	31,035	22,713	56,650	19,303
Tenth	$1,226,536 & over	5,568	19,385,275	1,242,623	31,925	65,142	90,389	155,530	-80	32,797	7,044	151,914	21,951
TOTALS		2,580,561	$194,079,578	$8,021,100	$701,309	$2,874,880	$1,476,361	$4,351,241	-$451,616	$387,300	$996,450	$1,585,604	$203,175
Top 5%	Over $4,594,181	817	$9,708,438	$649,342	$13,794	$23,813	$41,190	$65,003	$0	$15,813	$1,884	$115,965	$10,553

Income Decile	Residential Local Property Taxes: Homeowners Gross	Residential Local Property Taxes: Renters Gross	Residential Local Property Taxes: Owners of Rental Prop.	Residential Local Property Taxes: Total on Rental Prop.	Residential Local Property Taxes: Residential Total [1]	Nonresidential Local Property Taxes	Other Local Taxes [2]	Local Taxes Total	Total State Taxes: Total on Individuals	Total State Taxes: Total on Businesses	Total State Taxes: State Taxes Total	Total State and Local Taxes
First	$482,690	$167,028	$87,846	$254,874	$762,811	$216,956	$68,148	$1,047,915	$976,508	$543,701	$1,520,209	$2,568,124
Second	501,950	97,837	41,662	139,499	662,526	159,171	43,070	864,768	1,176,674	339,316	1,515,990	2,380,758
Third	505,802	44,346	41,367	85,714	611,578	130,881	37,936	780,394	1,274,703	306,549	1,581,253	2,361,647
Fourth	473,319	22,614	37,598	60,211	553,951	138,438	34,843	727,232	1,335,205	283,142	1,618,347	2,345,579
Fifth	444,053	12,873	38,185	51,058	516,982	168,359	31,920	717,261	1,367,091	265,943	1,633,034	2,350,295
Sixth	409,578	7,071	36,635	43,706	471,905	103,561	29,022	604,487	1,353,433	246,940	1,600,373	2,204,860
Seventh	352,490	3,118	39,928	43,046	408,152	165,165	26,023	599,339	1,358,599	234,579	1,593,177	2,192,516
Eighth	304,566	2,173	46,731	48,904	361,495	153,111	22,688	537,295	1,325,598	221,613	1,547,211	2,084,505
Ninth	193,352	775	60,139	60,914	259,456	109,939	17,598	386,993	1,340,954	200,312	1,541,266	1,928,259
Tenth	54,848	80	78,426	78,506	134,284	97,407	12,208	243,899	1,464,927	178,776	1,643,704	1,887,603
TOTALS	$3,722,648	$357,914	$508,517	$866,431	$4,743,139	$1,442,987	$323,456	$6,509,582	$12,973,692	$2,820,871	$15,794,563	$22,304,145
Top 5%	$12,032	$2	$38,102	$38,104	$50,273	$46,503	$5,296	$102,072	$790,407	$81,949	$872,356	$974,428

[1] Includes seasonal recreational residential (cabins)

[2] Includes taconite production tax

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Table 4-2 2012 Income Deciles - Effective Tax Rates

Income Decile	Income Range	Number of Households	Household Income	State Income Taxes: Individual Income Tax	State Income Taxes: Corporate Franchise Tax	State Sales Tax: Purchases by Individuals	State Sales Tax: Purchases by Businesses	State Sales Tax: Sales Tax Total	Property Tax Refund	State Property Tax	State Excise Taxes	Other State Taxes: Taxes on Individuals	Other State Taxes: Taxes on Businesses
First	$34,482 & under	1,065,463	$19,411,657	0.3%	0.7%	3.2%	1.5%	4.8%	- 1.5%	0.4%	1.6%	1.4%	0.2%
Second	$34,483 - $54,383	443,604	19,412,497	2.6%	0.4%	2.1%	0.9%	3.0%	- 0.5%	0.2%	0.8%	1.1%	0.1%
Third	$54,384 - $74,211	304,927	19,399,903	3.4%	0.4%	1.8%	0.8%	2.6%	- 0.2%	0.2%	0.6%	1.0%	0.1%
Fourth	$74,212 - $94,587	231,694	19,416,541	3.9%	0.4%	1.7%	0.8%	2.4%	- 0.1%	0.2%	0.5%	0.9%	0.1%
Fifth	$94,588 - $120,020	183,091	19,421,506	4.3%	0.4%	1.5%	0.7%	2.2%	0.0%	0.2%	0.5%	0.9%	0.1%
Sixth	$120,021 - $156,050	142,632	19,386,484	4.5%	0.3%	1.4%	0.7%	2.0%	0.0%	0.2%	0.4%	0.7%	0.1%
Seventh	$156,051 - $225,308	104,912	19,426,311	4.9%	0.3%	1.2%	0.6%	1.8%	0.0%	0.2%	0.3%	0.6%	0.1%
Eighth	$225,309 - $401,229	67,339	19,388,877	5.2%	0.3%	1.0%	0.6%	1.6%	0.0%	0.2%	0.2%	0.4%	0.1%
Ninth	$401,230 - $1,226,535	31,332	19,430,527	5.8%	0.2%	0.7%	0.5%	1.2%	0.0%	0.2%	0.1%	0.3%	0.1%
Tenth	$1,226,536 & over	5,568	19,385,275	6.4%	0.2%	0.3%	0.5%	0.8%	0.0%	0.2%	0.0%	0.8%	0.1%
TOTALS		2,580,561	$194,079,578	4.1%	0.4%	1.5%	0.8%	2.2%	- 0.2%	0.2%	0.5%	0.8%	0.1%
Top 5%	Over $4,594,181	817	$9,708,438	6.7%	0.1%	0.2%	0.4%	0.7%	0.0%	0.2%	0.0%	1.2%	0.1%

Income Decile	Residential Local Property Taxes: Homeowners Gross	Residential Local Property Taxes: Renters Gross	Residential Local Property Taxes: Owners of Rental Prop.	Residential Local Property Taxes: Total on Rental Prop.	Residential Local Property Taxes: Residential Total [1]	Nonresidential Local Property Taxes	Other Local Taxes	Local Taxes Total	Total State Taxes: Total on Individuals	Total State Taxes: Total on Businesses	Total State Taxes: State Taxes Total	Total State and Local Taxes
First	2.5%	0.9%	0.5%	1.3%	3.9%	1.1%	0.4%	5.4%	5.0%	2.8%	7.8%	13.2%
Second	2.6%	0.5%	0.2%	0.7%	3.4%	0.8%	0.2%	4.5%	6.1%	1.7%	7.8%	12.3%
Third	2.6%	0.2%	0.2%	0.4%	3.2%	0.7%	0.2%	4.0%	6.6%	1.6%	8.2%	12.2%
Fourth	2.4%	0.1%	0.2%	0.3%	2.9%	0.7%	0.2%	3.7%	6.9%	1.5%	8.3%	12.1%
Fifth	2.3%	0.1%	0.2%	0.3%	2.7%	0.9%	0.2%	3.7%	7.0%	1.4%	8.4%	12.1%
Sixth	2.1%	0.0%	0.2%	0.2%	2.4%	0.5%	0.1%	3.1%	7.0%	1.3%	8.3%	11.4%
Seventh	1.8%	0.0%	0.2%	0.2%	2.1%	0.9%	0.1%	3.1%	7.0%	1.2%	8.2%	11.3%
Eighth	1.6%	0.0%	0.2%	0.3%	1.9%	0.8%	0.1%	2.8%	6.8%	1.1%	8.0%	10.8%
Ninth	1.0%	0.0%	0.3%	0.3%	1.3%	0.6%	0.1%	2.0%	6.9%	1.0%	7.9%	9.9%
Tenth	0.3%	0.0%	0.4%	0.4%	0.7%	0.5%	0.1%	1.3%	7.6%	0.9%	8.5%	9.7%
TOTALS	1.9%	0.2%	0.3%	0.4%	2.4%	0.7%	0.2%	3.4%	6.7%	1.5%	8.1%	11.5%
Top 5%	0.1%	0.0%	0.4%	0.4%	0.5%	0.5%	0.1%	1.1%	8.1%	0.8%	9.0%	10.0%

[1] Includes seasonal recreational residential (cabins).

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Table 4-3 2017 Income Deciles - Amounts ($ Thousands)

Income Decile	Income Range	Number of Households	Household Income	State Income Taxes: Individual Income Tax	State Income Taxes: Corporate Franchise Tax	State Sales Tax: Purchases by Individuals	State Sales Tax: Purchases by Businesses	State Sales Tax: Sales Tax Total	Property Tax Refund	State Property Tax	State Excise Taxes	Other State Taxes: Taxes on Individuals	Other State Taxes: Taxes on Businesses
First	$40,920 & under	1,131,447	$24,243,474	$87,135	$146,602	$751,415	$351,201	$1,102,617	-$369,527	$71,787	$414,071	$347,212	$41,522
Second	$40,921 - $64,551	467,296	24,246,436	713,276	98,765	481,373	218,332	699,705	-161,989	46,002	199,350	270,015	24,413
Third	$64,552 - $87,733	321,898	24,253,128	881,831	90,021	428,152	196,992	625,144	-86,301	42,670	147,282	247,832	22,654
Fourth	$87,734 - $112,147	243,733	24,239,303	1,008,599	84,645	393,692	180,242	573,933	-41,345	39,950	121,409	231,735	21,543
Fifth	$112,148 - $143,111	191,648	24,234,839	1,096,841	78,736	356,307	164,848	521,155	-5,037	37,607	99,034	202,534	20,065
Sixth	$143,112 - $190,114	148,925	24,246,226	1,141,319	75,157	322,462	157,697	480,159	0	36,674	79,052	174,802	20,133
Seventh	$190,115 - $274,878	107,664	24,245,803	1,242,735	68,790	280,284	145,378	425,663	0	34,041	59,622	137,668	19,615
Eighth	$274,879 - $489,916	68,643	24,241,625	1,300,703	60,892	232,792	136,934	369,725	0	33,511	41,742	97,414	20,682
Ninth	$489,917 - $1,513,734	32,034	24,241,825	1,564,813	50,729	165,092	124,502	289,594	0	32,658	24,638	65,178	21,885
Tenth	$1,513,735 & over	5,850	24,239,738	1,862,166	36,270	83,786	115,189	198,975	0	35,121	7,989	158,600	24,815
TOTALS		2,719,138	$242,432,398	10,899,417	790,607	3,495,355	1,791,315	5,286,670	-664,200	410,020	1,194,189	1,932,990	237,327
Top 5%	Over $5,327,559	908	$12,125,944	$1,009,393	$16,026	$31,038	$53,603	$84,641	$0	$17,201	$2,299	$120,736	$12,098

Income Decile	Residential Local Property Taxes: Homeowners Gross	Residential Local Property Taxes: Renters Gross	Residential Local Property Taxes: Owners of Rental Prop.	Residential Local Property Taxes: Total on Rental Prop.	Residential Local Property Taxes: Residential Total [1]	Nonresidential Local Property Taxes	Other Local Taxes [2]
First	$531,429	$198,842	$106,061	$304,904	$864,387	$264,624	$81,889
Second	554,798	111,139	52,826	163,966	742,274	206,905	52,320
Third	571,655	47,464	50,492	97,956	692,180	184,454	46,730
Fourth	513,432	25,145	47,200	72,345	608,562	193,254	42,797
Fifth	472,166	15,227	44,267	59,494	555,536	208,207	38,821
Sixth	448,393	7,519	47,786	55,305	523,542	158,301	35,773
Seventh	382,007	4,355	48,554	52,908	447,868	198,288	31,767
Eighth	307,711	2,179	58,368	60,547	376,858	188,730	27,498
Ninth	202,041	847	70,735	71,582	278,894	166,211	21,624
Tenth	58,152	75	95,497	95,572	154,734	114,298	15,473
TOTALS	$4,041,784	$412,793	$621,786	$1,034,579	$5,244,836	$1,883,271	$394,690
Top 5%	$12,876	$4	$46,990	$46,994	$60,026	$55,704	$6,814

Local Taxes Total	Total State Taxes: Total on Individuals	Total State Taxes: Total on Businesses	Total State Taxes: State Taxes Total	Total State and Local Taxes
$1,210,899	$1,217,355	$624,062	$1,841,417	$3,052,317
1,001,499	1,494,745	394,794	1,889,538	2,891,038
923,364	1,612,701	358,432	1,971,133	2,894,497
844,613	1,708,986	331,482	2,040,469	2,885,081
802,564	1,745,690	305,245	2,050,935	2,853,498
717,616	1,713,588	293,708	2,007,295	2,724,911
677,923	1,715,873	272,261	1,988,134	2,666,057
593,086	1,668,537	256,133	1,924,670	2,517,756
466,729	1,816,477	233,018	2,049,495	2,516,224
284,505	2,110,766	213,169	2,323,935	2,608,439
$7,522,798	$16,804,717	$3,282,304	$20,087,020	$27,609,818
$122,544	$1,162,832	$99,562	$1,262,394	$1,384,938

[1] Includes seasonal recreational residential (cabins)

[2] Includes taconite production tax

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Table 4-4 2017 Income Deciles - Effective Tax Rates

Income Decile	Income Range	Number of Households	Household Income	State Income Taxes		State Sales Tax			Property Tax Refund	State Property Tax	State Excise Taxes	Other State Taxes	
				Individual Income Tax	Corporate Franchise Tax	Purchases by Individuals	Purchases by Businesses	Sales Tax Total				Taxes on Individuals	Taxes on Businesses
First	$40,920 & under	1,131,447	$24,243,474	0.4%	0.6%	3.1%	1.4%	4.5%	-1.5%	0.3%	1.7%	1.4%	0.2%
Second	$40,921 - $64,551	467,296	24,246,436	2.9%	0.4%	2.0%	0.9%	2.9%	-0.7%	0.2%	0.8%	1.1%	0.1%
Third	$64,552 - $87,733	321,898	24,253,128	3.6%	0.4%	1.8%	0.8%	2.6%	-0.4%	0.2%	0.6%	1.0%	0.1%
Fourth	$87,734 - $112,147	243,733	24,239,303	4.2%	0.3%	1.6%	0.7%	2.4%	-0.2%	0.2%	0.5%	1.0%	0.1%
Fifth	$112,148 - $143,111	191,648	24,234,839	4.5%	0.3%	1.5%	0.7%	2.2%	0.0%	0.2%	0.4%	0.8%	0.1%
Sixth	$143,112 - $190,114	148,925	24,246,226	4.7%	0.3%	1.3%	0.7%	2.0%	0.0%	0.2%	0.3%	0.7%	0.1%
Seventh	$190,115 - $274,878	107,664	24,245,803	5.1%	0.3%	1.2%	0.6%	1.8%	0.0%	0.1%	0.2%	0.6%	0.1%
Eighth	$274,879 - $489,916	68,643	24,241,625	5.4%	0.3%	1.0%	0.6%	1.5%	0.0%	0.1%	0.2%	0.4%	0.1%
Ninth	$489,917 - $1,513,734	32,034	24,241,825	6.5%	0.2%	0.7%	0.5%	1.2%	0.0%	0.1%	0.1%	0.3%	0.1%
Tenth	$1,513,735 & over	5,850	24,239,738	7.7%	0.1%	0.3%	0.5%	0.8%	0.0%	0.1%	0.0%	0.7%	0.1%
TOTALS		2,719,138	$242,432,398	4.5%	0.3%	1.4%	0.7%	2.2%	-0.3%	0.2%	0.5%	0.8%	0.1%
Top 5%	Over $5,327,559	908	$12,125,944	8.3%	0.1%	0.3%	0.4%	0.7%	0.0%	0.1%	0.0%	1.0%	0.1%

Income Decile	Residential Local Property Taxes					Nonresidential Local Property Taxes	Other Local Taxes
	Homeowners Gross	Renters Gross	Owners of Rental Prop.	Total on Rental Prop.	Residential Total [1]		
First	2.2%	0.8%	0.4%	1.3%	3.6%	1.1%	0.3%
Second	2.3%	0.5%	0.2%	0.7%	3.1%	0.9%	0.2%
Third	2.4%	0.2%	0.2%	0.4%	2.9%	0.8%	0.2%
Fourth	2.1%	0.1%	0.2%	0.3%	2.5%	0.8%	0.2%
Fifth	1.9%	0.1%	0.2%	0.2%	2.3%	0.9%	0.2%
Sixth	1.8%	0.0%	0.2%	0.2%	2.2%	0.7%	0.1%
Seventh	1.6%	0.0%	0.2%	0.2%	1.8%	0.8%	0.1%
Eighth	1.3%	0.0%	0.2%	0.2%	1.6%	0.8%	0.1%
Ninth	0.8%	0.0%	0.3%	0.3%	1.2%	0.7%	0.1%
Tenth	0.2%	0.0%	0.4%	0.4%	0.6%	0.5%	0.1%
TOTALS	1.7%	0.2%	0.3%	0.4%	2.2%	0.8%	0.2%
Top 5%	0.1%	0.0%	0.4%	0.4%	0.5%	0.5%	0.1%

Local Taxes Total	Total State Taxes			Total State and Local Taxes
	Total on Individuals	Total on Businesses	State Taxes Total	
5.0%	5.0%	2.6%	7.6%	12.6%
4.1%	6.2%	1.6%	7.8%	11.9%
3.8%	6.6%	1.5%	8.1%	11.9%
3.5%	7.1%	1.4%	8.4%	11.9%
3.3%	7.2%	1.3%	8.5%	11.8%
3.0%	7.1%	1.2%	8.3%	11.2%
2.8%	7.1%	1.1%	8.2%	11.0%
2.4%	6.9%	1.1%	7.9%	10.4%
1.9%	7.5%	1.0%	8.5%	10.4%
1.2%	8.7%	0.9%	9.6%	10.8%
3.1%	6.9%	1.4%	8.3%	11.4%
1.0%	9.6%	0.8%	10.4%	11.4%

[1] Includes seasonal recreational residential (cabins).

Tables 4-2 and *4-4* showed effective tax rates by income decile in 2012. A comparison with the effective tax rates for population deciles reveals some differences. First, the effective tax rate for the first income decile (13.2 percent) was much lower than that for the first population decile (28.3 percent). The first *income* decile included more than four times as many households as the first *population* decile. As a result, the effective tax rate for the first income decile is roughly equal to the average effective tax rate for households in the first four population deciles.

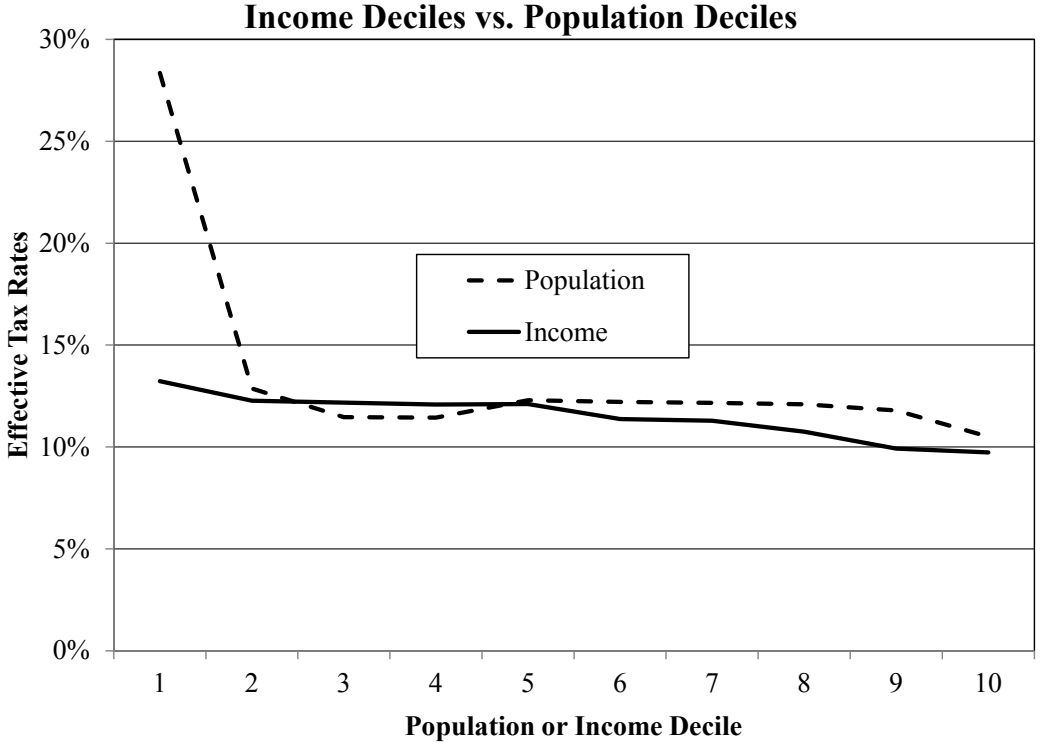
The pattern of effective tax rates also differs for the top deciles. The tenth income decile (with 5,568 households) had an effective tax rate of 9.7 percent. In contrast, the tenth population decile (with about 258,056 households) had an effective tax rate of 10.5 percent.

Figure 4-1 compares the pattern of effective tax rates by income decile to those by population decile.

- The first income decile includes roughly the same households as the first four population deciles. As a result, the line for income deciles hides the substantial variation among those first four population deciles.
- The top population decile includes roughly the same taxpayers as the top four income deciles. As a result, the line for population deciles hides the substantial variation among the top four income deciles.

The use of income deciles provides more detailed information about the burden on higher income households, but less information about the 58.5 percent of households who are combined in the first two income deciles.

Figure 4-1
State and Local Effective Tax Rates for 2012
Income Deciles vs. Population Deciles



Section B
An Alternative Methodology: Adjusting for the Federal Tax Offset

In estimating the incidence of existing Minnesota taxes, this study has made no adjustment for the "federal tax offset" due to the deductibility of Minnesota taxes in calculating the federal income tax. Individuals can generally deduct what they pay in state income tax and homeowner property taxes (and a portion of their motor vehicle registration tax) as itemized deductions. Those who itemize deductions pay less federal income tax as a result. For a taxpayer in the 28 percent federal tax bracket, each additional dollar of itemized deductions lowers federal income tax by 28 cents. As a result, 28 percent of deductible state and local taxes would be borne by the federal government in lower tax revenue. If no adjustment is made for this federal tax offset, the Minnesota tax burden is arguably overstated. Because itemizing deductions is more common for higher income households (and because they face higher federal tax rates), the federal tax offset will reduce taxes by much more in the upper deciles. A tax system that looks proportional in the absence of such an adjustment might look quite regressive after such an adjustment is made. A regressive system would look even more regressive.

This same reasoning applies to business taxes. If an additional dollar in business taxes reduces business income (rather than being passed forward to consumers in higher prices), this reduces the federal income tax paid by the corporation, partnership, or sole proprietor. A portion of the burden on Minnesota business owners would be borne by the federal government in lower tax revenue.

There is a strong argument, however, against making such an adjustment in this study. This study estimates the burden of Minnesota taxes in a multistate context. The incidence of Minnesota taxes depends on the level of taxes in other states. If all states levy deductible taxes, then the federal government presumably makes up for the lost revenue by raising federal tax rates. It is unlikely that the deductibility of state and local taxes actually lowers the total federal tax burden on Minnesota residents. Minnesota's share of itemized deductions is roughly equal to its share of federal income tax payments. Whether the combination of deductible taxes and higher tax rates reduces a particular decile's tax burden is unknown; it depends on how the federal tax structure has been adjusted to make up for the lost tax revenue.

The results presented elsewhere in this study include no adjustment for the federal tax offset. The impact of such an adjustment is shown only in this section.

The impact of the federal tax offset for non-business taxes is shown in *Tables 4-5* and *4-6*, and *Figure 4-2*. For all households combined, the federal offset for non-business taxes would reduce Minnesota tax burdens by almost 10 percent, reducing the effective tax rate from 11.5 percent to 10.6 percent of income. There are small changes in the lowest deciles, which include few who itemize deductions. As expected, the impact of the federal tax offset rises with income. Despite the federal Alternative Minimum Tax and the limitation on itemized deductions for high-income taxpayers, the effective tax rate in the tenth decile would fall from 10.5 percent to 9.2 percent. The adjusted tax burden for all taxes combined is noticeably more regressive, with the full-sample Suits index falling from -0.052 to -0.082.

In summary, the federal tax offset (even if limited to individual taxes) would have a significant impact on the distribution of the Minnesota tax burden. Because a strong argument can be made against such an adjustment in a study of this kind, however, no federal tax offset is included in the results presented elsewhere in this study.

As explained in *Section D* of this chapter, though, the federal tax offset *should* be included in estimates of the incidence of *changes* in Minnesota taxes.

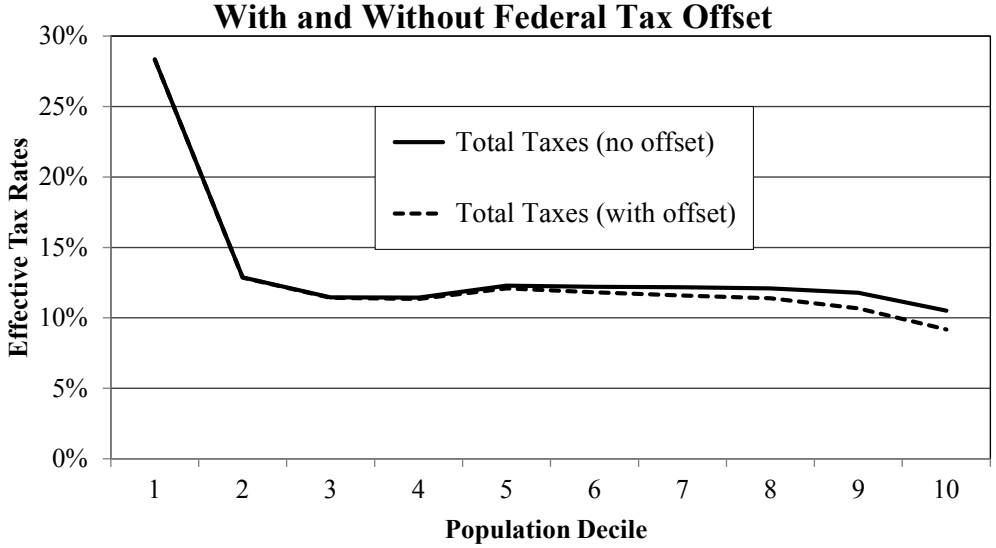
Table 4-5
Impact of Federal Tax Offset on Effective State and Local Tax Rates by Population Decile
(Minnesota Residents, 2012)

Population Decile	Household Income	Effective Tax Rate		
		No Federal Tax Offset	Change Due to Federal Tax Offset	Adjusted for Federal Tax Offset
First	$ 10,902 & Under	28.3%	0.0%	28.3%
Second	10,903 - $ 17,554	12.9%	0.0%	12.9%
Third	17,555 - 24,767	11.5%	0.0%	11.4%
Fourth	24,768 - 33,333	11.4%	0.1%	11.3%
Fifth	33,334 - 43,553	12.3%	0.2%	12.1%
Sixth	43,554 - 56,666	12.2%	0.4%	11.8%
Seventh	56,667 - 73,485	12.2%	0.6%	11.6%
Eighth	73,486 - 96,670	12.1%	0.7%	11.4%
Ninth	96,671 - 140,691	11.8%	1.1%	10.7%
Tenth	$ 140,692 & Over	10.5%	1.3%	9.2%
Total		11.5%	0.9%	10.6%
Top 5%	$ 201,567 & Over	10.3%	1.3%	9.0%
Top 1%	$ 493,603 & Over	9.9%	1.6%	8.3%

Table 4-6
Suits Index With and Without Federal Tax Offset

	Without Offset	With Offset
All Taxes	-0.052	-0.082

Figure 4-2
Effective Tax Rates for 2012
With and Without Federal Tax Offset



Section C
The Impact of Refundable Income Tax Credits and Property Tax Refunds

The tax burden results presented elsewhere in this report include the impact of refundable tax credits and the property tax refund. The Working Family Credit, Dependent Care Credit, and K-12 Credit are considered "negative taxes." Because these negative taxes are included, the average income tax rate in the first two population deciles is negative. Similarly, the property tax refunds for homeowners and renters are treated as "negative property taxes," offsetting the burden of the gross property tax on homes and rental housing.

Most of these payments are intended to make the tax system more progressive than it otherwise would be. To evaluate their effectiveness, it is useful to compare the current system to the tax system that would exist in their absence. *Table 4-7* shows the magnitudes of those payments in 2012. That table also shows the full-sample Suits index for each of the major categories of payments.

Table 4-7
Population-Decile Suits Index for Refundable Credits and Property Tax Refund Payments in 2012

Payments	Amount ($ Thousands)	Population-Decile Suits Index
Income Tax Credits		
Working Family Credit	$ 185,271	+0.898
Dependent Care Credit	13,933	+0.893
K-12 Education Credit	14,259	+0.885
Subtotal	$ 213,463	+0.896
Property Tax Refund		
Homeowners	$ 270,552	+0.723
Renters	181,064	+0.901
Subtotal	$ 451,616	+0.795
Total	$ 665,079	+0.827

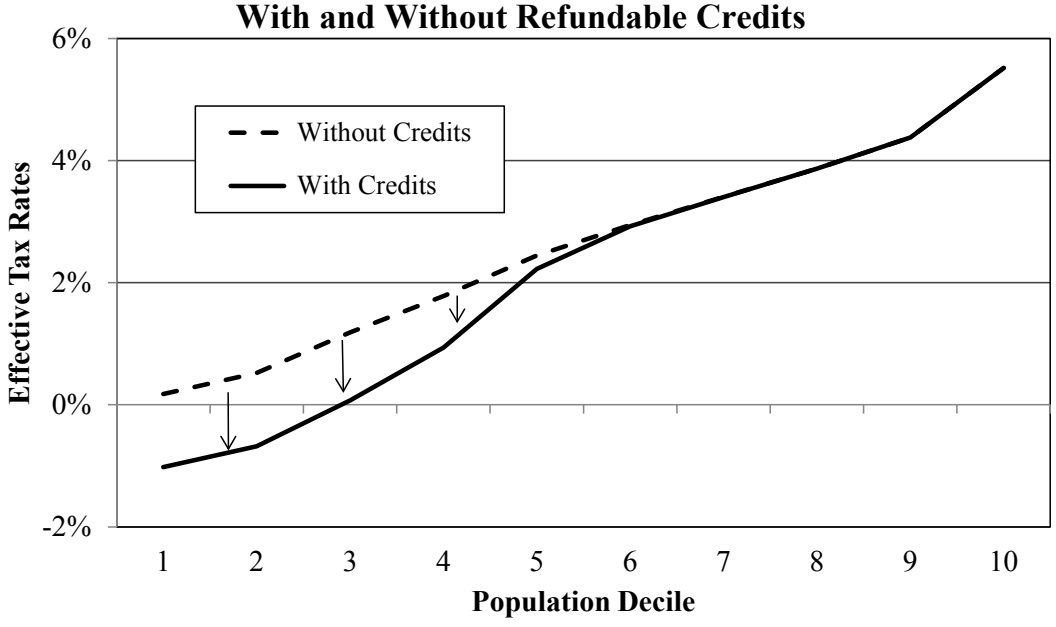
Total dollars of property tax refunds and refundable credits increased by 4.2 percent between 2010 and 2012, growing more slowly than total tax collections (which increased by 13.2 percent). The refundable income tax credits fell by 3.8 percent; property tax refunds rose by 8.5 percent. Homeowner property tax refunds fell by 2.6 percent, but renter refunds rose by 30.5 percent (rebounding from a 16 percent drop between 2008 and 2010).

Table 4-8 and *Figure 4-3* show the impact of the refundable income tax credits on effective income tax rates by population decile in 2012. Without those credits, effective tax rates would be noticeably higher in each of the first five deciles. For example, the effective income tax rate in the second decile would rise from -0.7 percent to +0.5 percent. The refundable credits make the income tax more progressive. In their absence, the full-sample Suits index for the income tax would be +0.194 rather than the +0.223.

Table 4-8
Impact of Refundable Income Tax Credit on Effective Income Tax Rates

Population Decile	Household Income	Effective Tax Rates (Income Tax)		
		With Credits	Change If No Credits	Without Credits
First	$ 10,902 & Under	-1.0%	+1.2%	0.2%
Second	10,903 - $ 17,554	-0.7%	+1.2%	0.5%
Third	17,555 - 24,767	0.1%	+1.1%	1.2%
Fourth	24,768 - 33,333	0.9%	+0.8%	1.8%
Fifth	33,334 - 43,553	2.2%	+0.2%	2.4%
Sixth	43,554 - 56,666	2.9%	0.0%	2.9%
Seventh	56,667 - 73,485	3.4%	0.0%	3.4%
Eighth	73,486 - 96,670	3.9%	0.0%	3.9%
Ninth	96,671 - 140,691	4.4%	0.0%	4.4%
Tenth	140,692 & Over	5.5%	0.0%	5.5%
Total		4.1%	+0.1%	4.2%

Figure 4-3
Effective Income Tax Rates by Population Decile, With and Without Refundable Credits



In the absence of property tax refunds, residential property taxes would be almost as regressive as the sales tax, with a Suits index of -0.219 rather than -0.159. As shown in *Figure 4-4* and the last column of *Table 4-9*, effective tax rates would be 3.5 percent in the second decile and fall to 1.5 percent in the tenth decile. Property tax refunds reduce effective tax rates in the first eight deciles. With the PTR, effective tax rates fall to 1.6 percent in the second decile, then rise to 2.8 percent in the sixth decile before falling to 2.4 percent in the ninth decile and 1.5 percent in the tenth. Net residential property taxes (after PTR) are still regressive (with a full-sample Suits index of -0.159, but much less regressive than in the absence of the PTR.

Table 4-9
Residential Property Taxes Before and After Property Tax Refunds for 2012 (Homesteads and Rental Housing)

Population Decile	Household Income	Effective Tax Rates (Property Tax)		
		With PTR	Change If No PTR	Without PTR
First	$ 10,902 & Under	5.3%	+2.6%	7.9%
Second	10,903 - $ 17,554	1.6%	+1.9%	3.5%
Third	17,555 - 24,767	1.9%	+1.5%	3.4%
Fourth	24,768 - 33,333	2.3%	+1.0%	3.3%
Fifth	33,334 - 43,553	2.7%	+0.7%	3.4%
Sixth	43,554 - 56,666	2.8%	+0.5%	3.3%
Seventh	56,667 - 73,485	2.8%	+0.2%	3.0%
Eighth	73,486 - 96,670	2.7%	+0.1%	2.8%
Ninth	96,671 - 140,691	2.4%	0.0%	2.4%
Tenth	140,692 & Over	1.5%	0.0%	1.5%
Total		2.1%	+0.2%	2.4%

Figure 4-4
Effective Residential Property Tax Rates by Population Decile, Before and After Property Tax Refunds

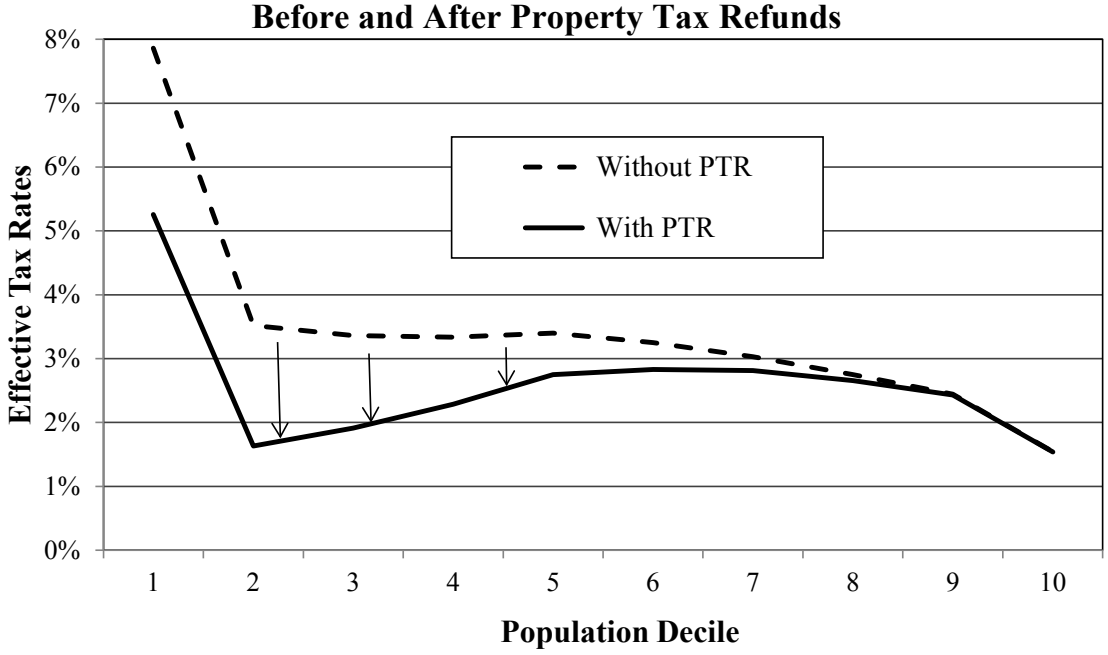
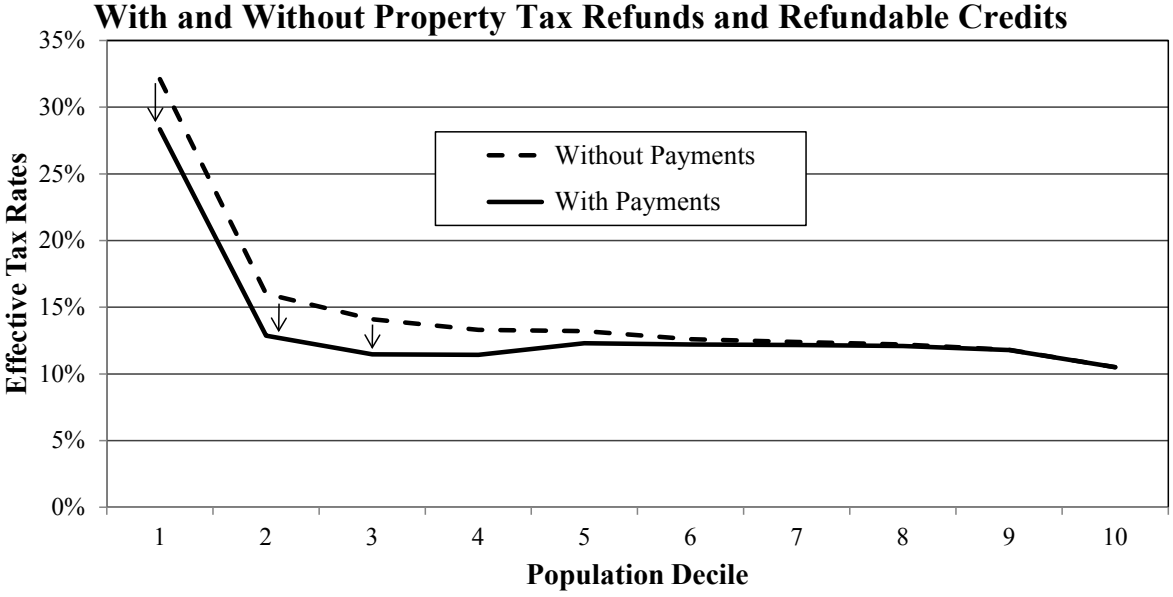


Table 4-10 and *Figure 4-5* show the combined impact of both the income tax credits and property tax refunds on the overall effective tax rates by population decile. Without the credits or property tax refunds, effective tax rates would be higher in the first eight deciles. These payments make the overall tax system less regressive. In their absence, the full-sample Suits index for all taxes would be -0.075 rather than -0.052.

Table 4-10
Combined Impact of Property Tax Refunds and Refundable Income Tax Credits on Effective State and Local Tax Rates

Population Decile	Household Income	Effective Tax Rates (All Taxes)		
		With PTR & Credits	Change If No PTR or Credits	Without PTR or Credits
First	$ 10,902 & Under	28.3%	+3.8%	32.1%
Second	10,903 - $ 17,554	12.9%	+3.1%	16.0%
Third	17,555 - 24,767	11.5%	+2.6%	14.1%
Fourth	24,768 - 33,333	11.4%	+1.9%	13.3%
Fifth	33,334 - 43,553	12.3%	+0.9%	13.2%
Sixth	43,554 - 56,666	12.2%	+0.4%	12.6%
Seventh	56,667 - 73,485	12.2%	+0.2%	12.4%
Eighth	73,486 - 96,670	12.1%	+0.1%	12.2%
Ninth	96,671 - 140,691	11.8%	0.0%	11.8%
Tenth	140,692 & Over	10.5%	0.0%	10.5%
Total		11.5%	+0.3%	11.8%

Figure 4-5
Effective State and Local Tax Rates by Population Decile, With and Without Property Tax Refunds and Refundable Credits



Section D
Incremental Incidence: Estimating the Incidence of a Change in Business Taxes

The incidence of proposed changes in business taxes has, on occasion, been mistakenly assumed to be identical to the incidence reported in the *Tax Incidence Study*. This is a mistake. The incidence results reported here cannot be applied to proposals for business tax changes.

The *Tax Incidence Study* estimates the burden of business taxes under the assumption that all states levy their existing taxes at the same time. Under that assumption, the ultimate burden of business taxes depends on how Minnesota's taxes compare to the taxes in other states. A tax on capital (other than land) is divided into three parts:

- The "average national tax rate on all capital."
- The "sector differential," defined as any portion of the tax that reflects higher national tax rates for a particular business sector.
- The "Minnesota differential," defined as any excess of Minnesota's tax over the average national level of tax levied on this sector.

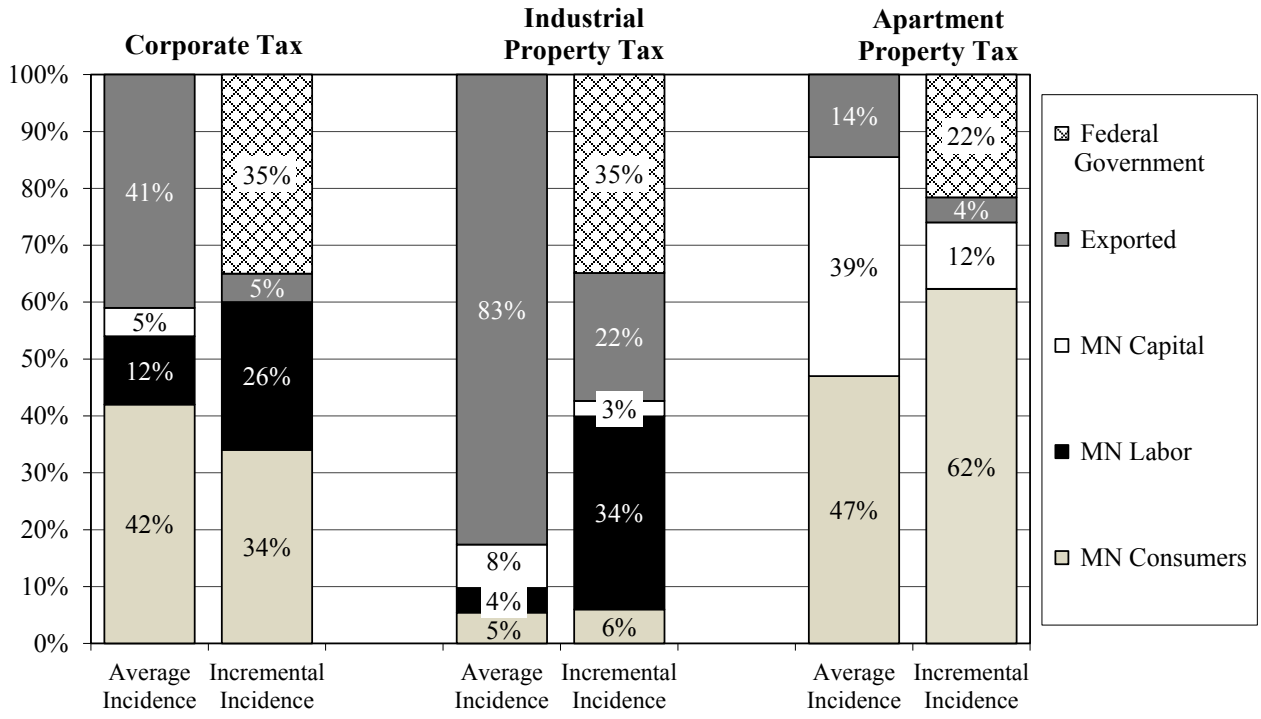
The portion of Minnesota's tax representing the national average tax on capital has a different incidence than the "Minnesota differential." The tax burden reported in this study is the "average" incidence of a tax that is partly a tax levied at average national rates and partly a tax in excess of what is typical in other states. (A more detailed explanation of the modeling of business tax incidence is found in *Appendix C*.)

The burden of *existing* business taxes (the "average" incidence reported in this study) can be much different from the incidence of a *change* in tax ("incremental incidence"). If Minnesota changes its tax alone – with no changes in other states – then *all* of that tax change should be considered a change in the Minnesota differential.

Compared to the "average" incidence reported in this study, the burden of an *increase* in a business tax is less likely to fall on capital and more likely to fall on labor and consumers. Similarly, a *cut* in business taxes is more likely to benefit labor and consumers and less likely to benefit capital owners than is suggested by the results reported in this study. The ability to export the tax burden to residents of other states is often less than is suggested by the results for "average incidence" reported here. However, the incidence of change in tax – unlike existing taxes – should take the federal tax offset into account. Part of a tax increase may be "exported" to the federal government. As a result, the exported share is sometimes larger than suggested by the results for "average incidence" reported in this study. (See *Section B* of this chapter for a discussion of the federal tax offset.)

Three examples are provided in *Figure 4-6* to illustrate the potential differences. The figure contrasts the average incidence reported in this study with the incremental incidence of a change in the corporate tax, industrial property taxes, or property taxes levied on apartments.[26] These results should be considered rough approximations, provided for illustration only. In calculating the federal tax offset, the federal tax rate is assumed to be 35 percent for those paying the federal corporate tax, while the federal tax rate for non-corporate businesses is assumed to be 20 percent.

Figure 4-6
Average vs. Incremental Incidence



[26] Apartments are only a portion of the rental housing category shown on *Table B-2*, so the average-incidence results differ somewhat.

Section E
Tax Incidence in Other States

Minnesota is the only state that completes a comprehensive tax incidence study on a regular basis. This makes it difficult to know how to put the Minnesota results in context. Given the questions raised about how Minnesota compares to other states, this section summarizes the results of a 50-state study of state and local tax incidence. That study, entitled *Who Pays? A Distributional Analysis of Tax Systems in All 50 States* (5th Edition), was published by the Institute on Taxation and Economic Policy (ITEP) in January 2015.[27] It uses a methodology that is relatively close to what is used in this study.

The ITEP study is of high quality, but its results should be used with caution for several reasons.

- The population is limited to non-senior households.
- The results are based on 2012 income levels adjusted for the impact of tax changes enacted in 2013 and 2014.
- Because all 50 states are included, there is obviously a less detailed analysis of each individual state's tax structure than in Minnesota's studies.
- The assumptions about business tax incidence are different (though the results for Minnesota are close).
- The results include only 7 population groups rather than either population deciles or income deciles:
  - Bottom 20 percent
  - Second 20 percent
  - Third 20 percent
  - Fourth 20 percent
  - Next 15 percent
  - Next 4 percent
  - Top 1 percent

Given these differences, it would be misleading to compare the "7-point" Suits indexes for 2014 law reported in the ITEP study with those reported in the current edition of the *Tax Incidence Study* for 2017 (which is also based on 2014 law). However, the ITEP Study's "7-point" Suits index for Minnesota (-0.015) is not far from a similar "7-point" Suits index calculated from this study's database. If limited to non-senior households, the "7-point" Suits index in 2017 would be -0.029.

[27] Available at: www.itepnet.org/whopays.htm. The "7-point" Suits indexes were calculated by Jeff Van Wychen for Growth and Justice. A forthcoming Growth and Justice policy brief will feature a more in-depth analysis of state-by-state Suits indexes based on data from the 2015 ITEP report.

Table 4-11 lists the 7-point Suits indexes for each state (for non-senior households), based on the ITEP study. The variation across states is striking. Although the tax system of only three states are progressive (with a Suits indexes greater than zero), 6 states are estimated to be less regressive than Minnesota. In contrast, nineteen states had Suits indexes below -0.100, and six of those were below -0.200. The 7-point Suits based on the average of effective tax rates for the seven population groups in all states was -0.069.

Minnesota (at -0.015) was among the less regressive states. This would be expected for several reasons:

- Minnesota is more reliant on the income tax than most states. Minnesota's income tax share of state and local taxes is exceeded in only a few other states. The eleven most regressive state tax systems, as measured by ITEP's 7-point Suits index, include all eight states with no broad-based income tax.
- Minnesota's income tax is one of the more progressive. The most regressive states that have an income tax generally have a flat-rate tax.
- Minnesota also has among the most generous refundable income tax credits for low-income households, along with one of the most generous income-conditioned property tax refunds for homeowners and renters. As seen in *Section C* of this chapter, these credits significantly reduce the regressivity of Minnesota's overall tax system.

Table 4-11 also shows each state's average overall effective tax rate as estimated by ITEP for non-senior households. Minnesota's effective tax rate (at 9.8 percent of income) was above the U.S. average reported by ITEP (at 8.6 percent). The correlation (R) between the average effective tax rate and the Suits index (+0.63) suggests that the tax structures of states with high average taxes tend to be less regressive. The ten most regressive tax structures are in states with average effective tax rates at or below 8.0 percent. In contrast, of the 21 states with Suits indexes showing below-average regressivity, only four (Montana, Delaware, Idaho, and South Carolina) had average effective tax rates at or below 8.0 percent.

Table 4-11
ITEP "7-Point" Suits Index by State
Non-Senior Households in 2012 (2015 Law)

Listed Alphabetically

State	7-Point Suits Index	Average Effective Tax Rate
Alabama	-0.139	7.4%
Alaska	-0.127	3.7%
Arizona	-0.120	8.0%
Arkansas	-0.095	9.5%
California	0.046	9.5%
Colorado	-0.084	7.3%
Connecticut	-0.084	9.7%
Delaware	0.028	6.0%
Florida	-0.253	5.6%
Georgia	-0.072	8.8%
Hawaii	-0.080	9.9%
Idaho	-0.021	8.0%
Illinois	-0.124	9.4%
Indiana	-0.102	9.2%
Iowa	-0.054	9.3%
Kansas	-0.101	8.3%
Kentucky	-0.059	9.6%
Louisiana	-0.122	7.7%
Maine	-0.005	9.6%
Maryland	-0.030	10.1%
Massachusetts	-0.086	8.4%
Michigan	-0.078	8.4%
Minnesota	**-0.015**	**9.8%**
Mississippi	-0.102	8.6%
Missouri	-0.055	8.5%
Montana	-0.014	6.3%
Nebraska	-0.055	9.3%
Nevada	-0.222	4.8%
New Hampshire	-0.128	6.0%
New Jersey	-0.005	9.9%
New Mexico	-0.098	8.6%
New York	-0.015	11.9%
North Carolina	-0.051	8.6%
North Dakota	-0.144	6.1%
Ohio	-0.076	9.4%
Oklahoma	-0.123	7.8%
Oregon	0.015	8.3%
Pennsylvania	-0.107	9.0%
Rhode Island	-0.042	9.9%
South Carolina	-0.042	7.3%
South Dakota	-0.230	5.8%
Tennessee	-0.192	6.2%
Texas	-0.202	6.5%
Utah	-0.074	7.8%
Vermont	-0.017	9.7%
Virginia	-0.048	8.2%
Washington	-0.236	7.4%
West Virginia	-0.025	8.6%
Wisconsin	-0.043	9.8%
Wyoming	-0.260	4.0%
All U.S.	**-0.069**	**8.6%**

Ranked from Most Progressive to Most Regressive

State Suits Rank	State	7-Point Suits Index	Average Effective Tax Rate
1	California	0.046	9.5%
2	Delaware	0.028	6.0%
3	Oregon	0.015	8.3%
4	Maine	-0.005	9.6%
5	New Jersey	-0.005	9.9%
6	Montana	-0.014	6.3%
7	**Minnesota**	**-0.015**	**9.8%**
8	New York	-0.015	11.9%
9	Vermont	-0.017	9.7%
10	Idaho	-0.021	8.0%
11	West Virginia	-0.025	8.6%
12	Maryland	-0.030	10.1%
13	Rhode Island	-0.042	9.9%
14	South Carolina	-0.042	7.3%
15	Wisconsin	-0.043	9.8%
16	Virginia	-0.048	8.2%
17	North Carolina	-0.051	8.6%
18	Iowa	-0.054	9.3%
19	Nebraska	-0.055	9.3%
20	Missouri	-0.055	8.5%
21	Kentucky	-0.059	9.6%
	All U.S.	**-0.069**	**8.6%**
22	Georgia	-0.072	8.8%
23	Utah	-0.074	7.8%
24	Ohio	-0.076	9.4%
25	Michigan	-0.078	8.4%
26	Hawaii	-0.080	9.9%
27	Connecticut	-0.084	9.7%
28	Colorado	-0.084	7.3%
29	Massachusetts	-0.086	8.4%
30	Arkansas	-0.095	9.5%
31	New Mexico	-0.098	8.6%
32	Kansas	-0.101	8.3%
33	Mississippi	-0.102	8.6%
34	Indiana	-0.102	9.2%
35	Pennsylvania	-0.107	9.0%
36	Arizona	-0.120	8.0%
37	Louisiana	-0.122	7.7%
38	Oklahoma	-0.123	7.8%
39	Illinois	-0.124	9.4%
40	Alaska	-0.127	3.7%
41	New Hampshire	-0.128	6.0%
42	Alabama	-0.139	7.4%
43	North Dakota	-0.144	6.1%
44	Tennessee	-0.192	6.2%
45	Texas	-0.202	6.5%
46	Nevada	-0.222	4.8%
47	South Dakota	-0.230	5.8%
48	Washington	-0.236	7.4%
49	Florida	-0.253	5.6%
50	Wyoming	-0.260	4.0%

Figures 4-7, *4-8*, and *4-9* illustrate the variation in patterns among the states more visually. *Figure 4-7* compares Minnesota to the national average and the state with the most progressive tax system (California). *Figure 4-8* shows three states with more regressive tax structures. *Figure 4-9* compares Minnesota with its neighboring states.

Figure 4-7
ITEP Study Results for Minnesota, California, and All States Combined (Non-Seniors)

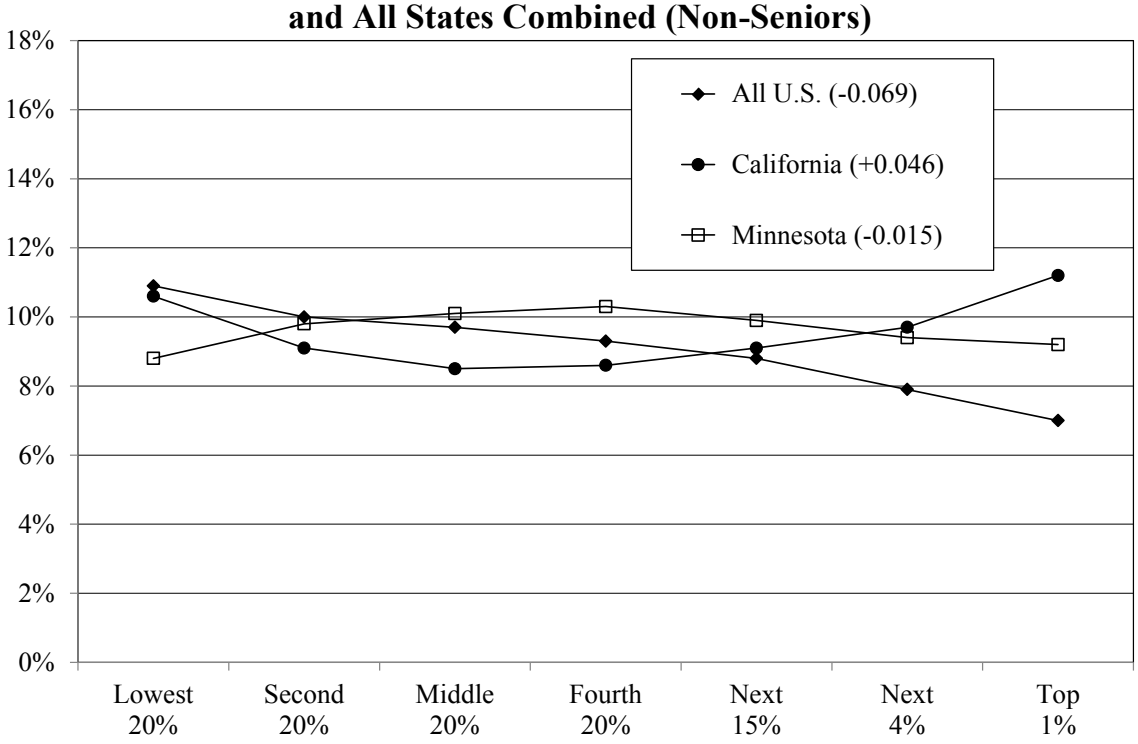


Figure 4-8
ITEP Study Results for Minnesota and Three States With More Regressive Tax Systems (Non-Seniors)

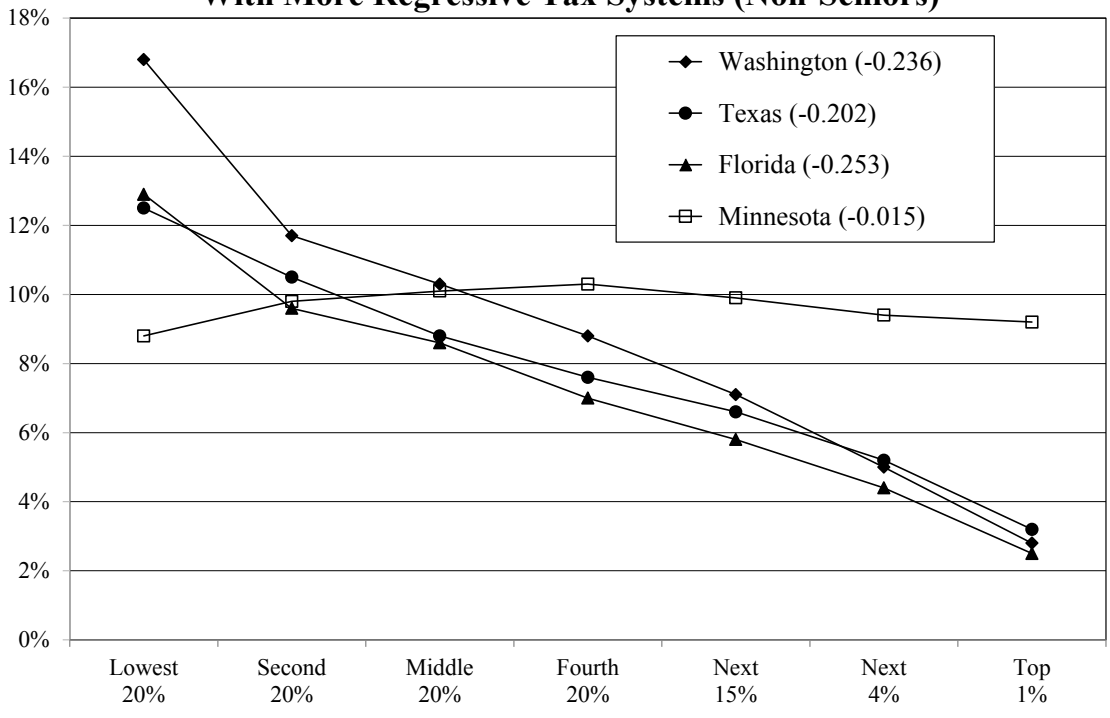
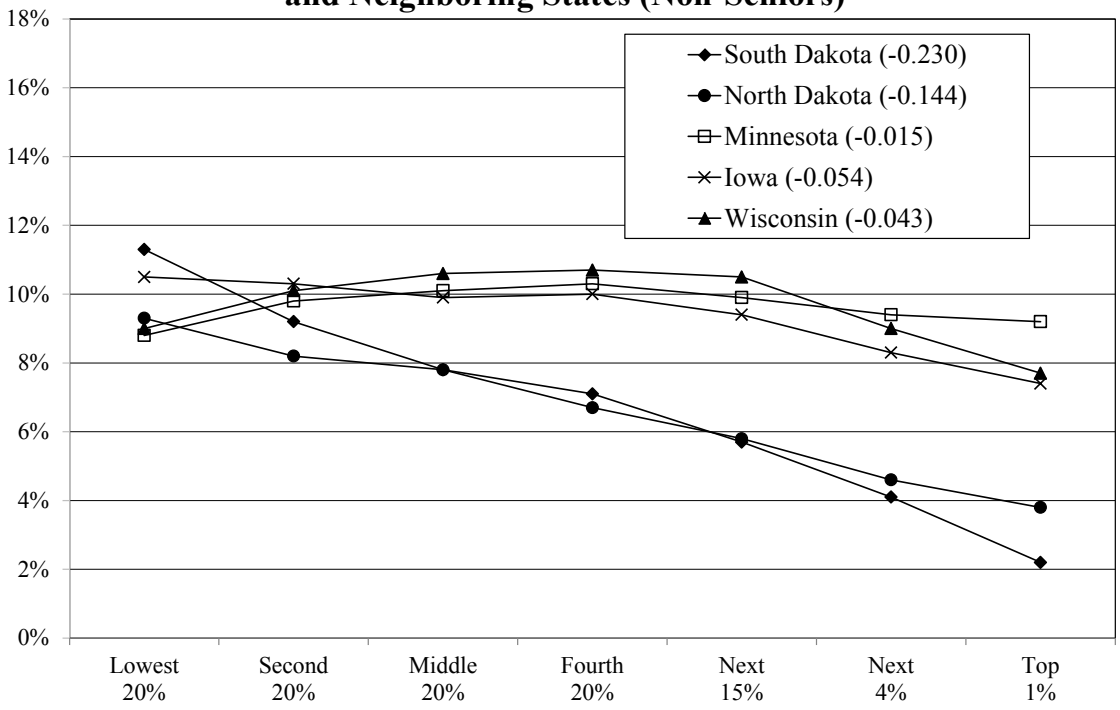


Figure 4-9
ITEP Study Results for Minnesota and Neighboring States (Non-Seniors)



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Chapter 5: Demographic Variation

Previous chapters show how effective tax rates vary by income when all households are considered together, regardless of household size, marital status, or age. This implicitly assumes that a single person with $50,000 of income is the same as a family of six with the same income. This chapter provides more detail by type of household, allowing comparisons of tax across similar households. For example, *Table 5-1* shows average tax burdens for married couples with children at different levels of income. This allows the reader to identify the average tax burden for representative households – a married couple with children and income of $100,000 or a non-senior single-person household with income of $40,000.

Household Types by Population Decile

The demographic makeup of individual deciles varies greatly, as shown in *Figure 5-1*. In the bottom three deciles, more than 70 percent of the households are single-person households; only 22 percent include children. In contrast, in the top two deciles only 11 percent of all households are single-person households, and 49 percent include children.

Figure 5-1 also shows that senior households (married and single) are distributed unevenly across deciles. Seniors account for about one-fifth of all households in deciles 2 through 4. In contrast, seniors comprise less than 17 percent of all households in the top decile – and 86 percent of those top-decile seniors are married. Single seniors far outnumber senior couples in the first five deciles; in the top deciles though, the number of senior couples far exceeds the number of single seniors.

In the first five deciles, three out of four households with children are single-parent households. The proportion of all households with children that include two parents increases steadily with income. Almost 90 percent of all households in the top two deciles are married couples (with or without children).

Figure 5-1
Family Type by Population Decile

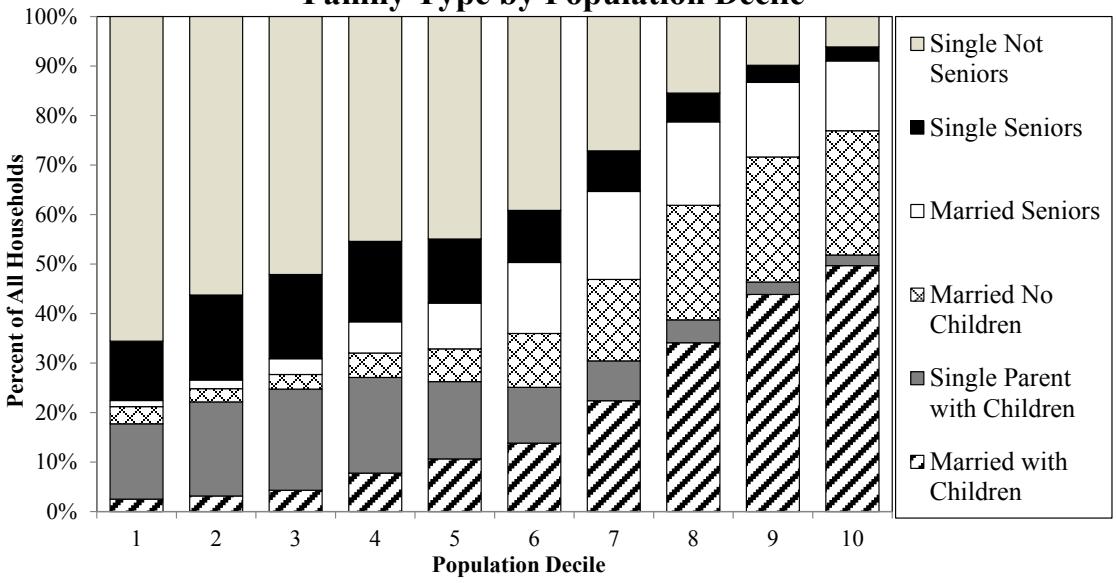
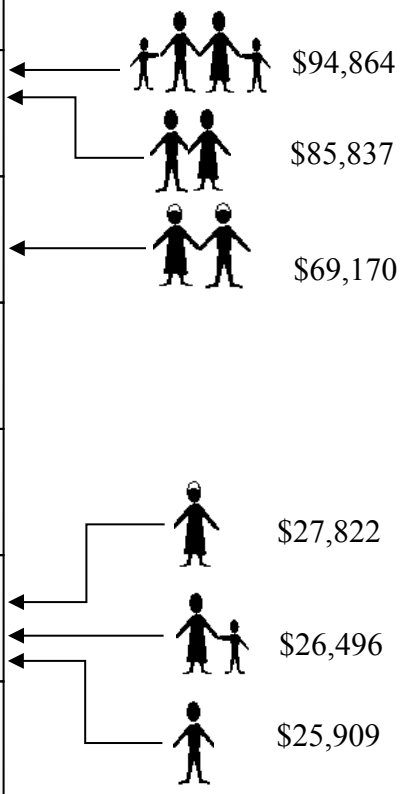


Figure 5-2 illustrates the great differences in median incomes for each of the six family types. In 2012, the median income for a single-parent family was $26,496, so the typical single-parent family was in the fourth population decile. The median income for a married couple with children was $94,864 (in the eighth decile). The median income for senior couples ($69,170) puts them in the seventh decile. In contrast, the median single senior (at $27,822) is in the fourth decile.

Figure 5-2
Median Income by Household Type (2012)

Population Decile	Household Income
10	$140,692 & Over
9	96,671 – 140,691
8	73,486 – 96,670
7	56,667 – 73,485
6	43,554 – 56,666
5	33,334 – 43,553
4	24,768 – 33,333
3	17,555 – 24,767
2	10,903 – 17,554
1	10,902 & Under



Average Tax Burdens by Household Type

Tables 5-1 through *5-5* each show how average tax burdens and demographic characteristics vary with income for a particular type of household. *Figure 5-1* is limited to Minnesota's 496,021 married couples with children. The couples are divided into ten groups, each with 49,602 couples, ordered from lowest income to highest income.

For example, consider the third decile of married couples with children (the shaded column on *Table 5-1*). These households have incomes between $52,832 (the maximum income for the second decile) and $68,454 (the maximum income for the third decile). This is the third decile, so 20 percent of married couples with children have lower incomes; 70 percent of such families have higher incomes. For those in the third decile, average income is $61,160, and 99 percent have earned income (averaging $56,547). Almost all are homeowners (78 percent when farm homesteads are included), with homes valued an average of $150,613. Twenty-one percent are renters (paying an average of $976 per month), and 1 percent are neither owners nor renters (perhaps living with parents).

These married couples with children pay state and local taxes equal to 12.6 percent of their income (an average of $7,696 of tax). This includes $1,571 in residential property tax (net of PTR), $1,618 of income tax, $1,310 in state sales tax, $468 in excise taxes (motor fuels, cigarettes, and alcohol), $903 in other types of taxes levied on individuals, and $1,827 in business taxes.

Similar information is provided for other household types.

When the population is limited to a single household type, the variation of effective tax rates with income is easier to interpret. For married couples with children (*Table 5-1*), the effective tax rate falls steadily from 14.5 percent of income for the poorest 10 percent to 10.5 percent for the richest 10 percent. The Suits index for the population limited to married couples with children is -0.041 – fairly close to the all-household Suits index (-0.052).

Table 5-6 shows the full-sample Suits index for each of the five household types considered separately. The tax is most regressive for married couples with no children (at -0.074) and non-senior single-person households (at -0.072). It is progressive for single parents (Suits index of +0.034). The Suits index for seniors (married and single) is -0.041, which is close to that for all households combined.

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Table 5-1

Household Characteristics and Average Tax Burden Amounts by Population Decile
Married Couples with Children

Each Decile Contains 49,602 Married Couples with Children

HOUSEHOLD CHARACTERISTICS	Population Decile										Total
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	
Number of Households	49,602	49,602	49,602	49,602	49,602	49,602	49,602	49,602	49,602	49,602	496,021
Average Number of Children	2.3	2.2	2.1	2.0	1.9	2.1	1.9	1.9	2.0	2.1	2.1
Average Household Income	$22,359	$43,668	$61,160	$75,296	$88,360	$102,199	$119,282	$143,728	$189,562	$552,302	$139,791
Maximum Household Income	$34,492	$52,832	$68,454	$81,689	$94,864	$109,770	$129,759	$160,547	$231,935		
Percent with Earned Income	84%	97%	99%	99%	99%	100%	100%	100%	99%	98%	97%
Average Earned Income	$24,854	$40,643	$56,547	$68,827	$80,548	$92,200	$105,454	$124,275	$158,068	$327,135	$108,934
Housing Status											
Homeowners	39%	58%	74%	84%	89%	90%	95%	96%	95%	96%	82%
Renters	47%	34%	21%	12%	8%	6%	2%	1%	2%	1%	13%
Farmers	5%	5%	4%	4%	3%	4%	3%	3%	3%	3%	4%
Other	10%	2%	1%	0%	0%	0%	0%	0%	0%	0%	1%
Average Taxable Market Value	$169,551	$141,921	$150,613	$168,714	$171,280	$193,681	$208,906	$240,709	$253,506	$403,143	$218,041
Average Monthly Rent	$468	$771	$976	$1,102	$1,165	$1,248	$1,322	$1,399	$1,595	$1,590	$803
AVERAGE TAX BURDENS											
Local Property Tax											
All Households											
Total Tax	$1,028	$1,386	$1,788	$2,046	$2,176	$2,511	$2,661	$3,269	$3,374	$5,610	$2,585
-Property Tax Refund	-$483	-$359	-$217	-$135	-$77	-$50	-$12	-$2	-$2	-$3	-$134
Tax after PTR	$545	$1,027	$1,571	$1,911	$2,099	$2,461	$2,648	$3,267	$3,371	$5,607	$2,451
Renters Only											
Total Tax on Rental Unit	$1,086	$1,652	$2,056	$2,322	$2,456	$2,630	$2,787	$2,949	$3,361	$3,351	$1,735
Renters Share of Tax	$364	$554	$690	$779	$824	$882	$935	$989	$1,127	$1,124	$582
-Property Tax Refund	-$524	-$326	-$70	-$24	-$1	-$1	$0	$0	$0	$0	-$280
Tax after PTR	-$159	$229	$619	$755	$823	$881	$935	$989	$1,127	$1,124	$302
Homeowners Only											
Total Tax on Home	$1,956	$1,871	$2,103	$2,222	$2,291	$2,614	$2,701	$3,300	$3,413	$5,659	$2,938
-Property Tax Refund	-$546	-$391	-$260	-$151	-$83	-$53	-$13	-$2	-$2	-$3	-$113
Homeowners Tax after PTR	$1,410	$1,480	$1,844	$2,072	$2,208	$2,561	$2,689	$3,299	$3,411	$5,656	$2,824
State Income Tax	-$749	$528	$1,618	$2,350	$3,136	$4,014	$5,000	$6,292	$9,239	$33,486	$6,491
State Sales Tax	$851	$1,113	$1,310	$1,450	$1,569	$1,692	$1,833	$2,028	$2,378	$4,092	$1,832
State Excise Taxes	$426	$450	$468	$480	$491	$502	$509	$511	$528	$668	$503
Other Taxes	$570	$771	$903	$1,037	$1,132	$1,248	$1,327	$1,409	$1,510	$3,252	$1,316
Business Taxes[1]	$1,606	$1,587	$1,827	$2,082	$2,109	$2,558	$2,756	$3,171	$3,738	$10,700	$3,213
Total State and Local Tax Burden	$3,250	$5,476	$7,696	$9,310	$10,536	$12,477	$14,072	$16,679	$20,763	$57,806	$15,807
Effective Tax Rate for all Taxes	14.5%	12.5%	12.6%	12.4%	11.9%	12.2%	11.8%	11.6%	11.0%	10.5%	11.3%

[1]For these tables only, Business Taxes does not include the share of Rental Property Taxes borne by the renter.

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Table 5-2

Household Characteristics and Average Tax Burden Amounts by Population Decile
Non-Senior Married Couples without Children

Each Decile Contains 31,351 Non-Senior Married Couples without Children

HOUSEHOLD CHARACTERISTICS	Population Decile										Total
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	
Number of Households	31,351	31,351	31,351	31,351	31,351	31,351	31,351	31,351	31,351	31,351	313,508
Average Household Income	$17,003	$39,794	$55,517	$68,034	$79,815	$92,242	$106,729	$128,775	$169,923	$464,383	$122,222
Maximum Household Income	$30,520	$48,373	$61,824	$74,121	$85,837	$98,286	$116,286	$142,741	$204,434		
Percent with Earned Income	57%	89%	94%	98%	98%	98%	98%	100%	97%	98%	93%
Average Earned Income	$22,567	$32,801	$47,152	$58,576	$66,968	$77,884	$85,980	$105,617	$130,264	$252,151	$91,639
Housing Status											
Homeowners	42%	58%	68%	72%	82%	86%	85%	89%	91%	92%	76%
Renters	30%	30%	22%	20%	13%	8%	9%	8%	4%	1%	14%
Farmers	5%	8%	6%	5%	5%	6%	6%	4%	5%	7%	6%
Other	23%	4%	4%	3%	0%	0%	0%	0%	0%	0%	3%
Average Taxable Market Value	$168,978	$168,448	$171,508	$168,264	$180,659	$178,769	$198,424	$213,950	$248,374	$367,783	$212,971
Average Monthly Rent	$399	$792	$1,000	$1,024	$1,150	$1,154	$1,296	$1,308	$1,447	$1,583	$910
AVERAGE TAX BURDENS											
Local Property Tax											
All Households											
Total Tax	$998	$1,377	$1,606	$1,693	$1,944	$2,068	$2,332	$2,677	$3,080	$4,791	$2,257
-Property Tax Refund	-$256	-$254	-$137	-$76	-$48	-$21	-$5	-$2	-$7	-$5	-$81
Tax after PTR	$742	$1,124	$1,469	$1,617	$1,896	$2,047	$2,327	$2,676	$3,073	$4,785	$2,175
Renters Only											
Total Tax on Rental Unit	$896	$1,688	$2,110	$2,158	$2,423	$2,432	$1,855	$2,757	$1,893	$3,337	$1,933
Renters Share of Tax	$301	$566	$708	$724	$813	$816	$622	$925	$635	$1,119	$648
-Property Tax Refund	-$200	-$178	-$26	$0	-$1	-$1	$0	-$11	$0	$0	-$83
Tax after PTR	$100	$388	$682	$724	$812	$814	$622	$914	$635	$1,119	$566
Homeowners Only											
Total Tax on Home	$1,913	$1,817	$1,959	$2,013	$2,117	$2,173	$2,479	$2,821	$3,176	$4,822	$2,632
-Property Tax Refund	-$415	-$301	-$177	-$99	-$55	-$23	-$6	-$1	-$7	-$6	-$84
Homeowners Tax after PTR	$1,498	$1,515	$1,782	$1,914	$2,061	$2,150	$2,473	$2,820	$3,169	$4,816	$2,548
State Income Tax	$100	$811	$1,693	$2,533	$3,107	$3,915	$4,708	$5,982	$8,586	$27,070	$5,850
State Sales Tax	$830	$1,050	$1,211	$1,322	$1,418	$1,512	$1,613	$1,744	$1,967	$2,841	$1,551
State Excise Taxes	$454	$449	$454	$459	$464	$468	$473	$468	$461	$483	$463
Other Taxes	$584	$847	$914	$994	$1,096	$1,161	$1,285	$1,293	$1,397	$2,706	$1,228
Business Taxes [1]	$1,607	$1,567	$1,855	$1,780	$1,995	$2,137	$2,265	$2,486	$4,107	$9,234	$2,903
Total State and Local Tax Burden	$4,317	$5,848	$7,596	$8,705	$9,975	$11,240	$12,671	$14,649	$19,591	$47,119	$14,171
Effective Tax Rate for all Taxes	25.4%	14.7%	13.7%	12.8%	12.5%	12.2%	11.9%	11.4%	11.5%	10.1%	11.6%

[1]For these tables only, Business Taxes does not include the share of Rental Property Taxes borne by the renter.

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Table 5-3

Household Characteristics and Average Tax Burden Amounts by Population Decile
Non-Senior Single-Person Households

Each Decile Contains 93,431 Non-Senior Single-Person Households

HOUSEHOLD CHARACTERISTICS	Population Decile										
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Total
Number of Households	93,431	93,431	93,431	93,431	93,431	93,431	93,431	93,431	93,431	93,431	934,306
Average Household Income	$4,124	$9,629	$13,737	$18,195	$23,086	$29,383	$36,728	$45,792	$59,007	$133,800	$37,348
Maximum Household Income	$7,389	$11,610	$16,031	$20,446	$25,909	$32,883	$40,791	$51,375	$69,798		
Percent with Earned Income	60%	53%	65%	75%	87%	92%	95%	95%	96%	97%	81%
Average Earned Income	$5,032	$8,707	$12,205	$16,401	$21,781	$27,173	$33,851	$41,476	$52,927	$93,350	$34,911
Housing Status											
Homeowners	14%	10%	12%	16%	21%	27%	35%	49%	63%	77%	32%
Renters	38%	54%	55%	55%	58%	57%	53%	41%	32%	21%	46%
Farmers	2%	1%	0%	0%	1%	0%	1%	2%	2%	2%	1%
Other	46%	35%	33%	29%	20%	16%	11%	8%	3%	0%	20%
Average Taxable Market Value	$162,357	$112,118	$122,275	$99,289	$105,337	$109,291	$125,240	$129,628	$137,399	$175,167	$137,406
Average Monthly Rent	$94	$213	$308	$387	$504	$630	$802	$888	$1,021	$1,204	$550
AVERAGE TAX BURDENS											
Local Property Tax											
All Households											
Total Tax	$346	$263	$324	$379	$540	$680	$947	$1,181	$1,469	$2,190	$832
-Property Tax Refund	-$161	-$167	-$191	-$183	-$189	-$150	-$137	-$114	-$83	-$31	-$141
Tax after PTR	$185	$95	$133	$196	$350	$531	$810	$1,067	$1,386	$2,160	$691
Renters Only											
Total Tax on Rental Unit	$360	$540	$745	$867	$1,089	$1,337	$1,693	$1,873	$2,152	$996	$1,205
Renters Share of Tax	$121	$181	$250	$291	$365	$448	$568	$628	$722	$334	$404
-Property Tax Refund	-$213	-$244	-$275	-$253	-$213	-$148	-$82	-$31	-$8	-$3	-$166
Tax after PTR	-$93	-$63	-$25	$38	$152	$300	$486	$597	$714	$331	$238
Homeowners Only											
Total Tax on Home	$1,907	$1,510	$1,505	$1,360	$1,486	$1,559	$1,772	$1,806	$1,902	$2,547	$1,918
-Property Tax Refund	-$509	-$330	-$325	-$276	-$302	-$241	-$257	-$199	-$123	-$38	-$190
Homeowners Tax after PTR	$1,398	$1,180	$1,179	$1,084	$1,184	$1,318	$1,516	$1,607	$1,779	$2,509	$1,728
State Income Tax	-$16	-$10	$104	$289	$541	$870	$1,288	$1,855	$2,629	$6,957	$1,451
State Sales Tax	$342	$424	$487	$543	$597	$657	$719	$787	$879	$1,283	$672
State Excise Taxes	$251	$271	$284	$296	$307	$319	$330	$343	$349	$332	$308
Other Taxes	$172	$172	$213	$261	$293	$346	$399	$467	$527	$825	$368
Business Taxes [1]	$767	$506	$610	$694	$790	$867	$947	$1,044	$1,251	$2,667	$1,014
Total State and Local Tax Burden	$1,701	$1,458	$1,831	$2,279	$2,877	$3,590	$4,495	$5,562	$7,022	$14,224	$4,504
Effective Tax Rate for all Taxes	41.2%	15.1%	13.3%	12.5%	12.5%	12.2%	12.2%	12.1%	11.9%	10.6%	12.1%

[1] For these tables only, Business Taxes does not include the share of Rental Property Taxes borne by the renter.

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Table 5-4

Household Characteristics and Average Tax Burden Amounts by Population Decile
Senior Households (Single or Married)

Each Decile Contains 53,173 Senior Households

HOUSEHOLD CHARACTERISTICS	Population Decile										
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	Total
Number of Households	53,173	53,173	53,173	53,173	53,173	53,173	53,173	53,173	53,173	53,173	531,729
Percent that are Married	8%	11%	19%	33%	48%	61%	68%	73%	80%	83%	48%
Average Household Income	$9,458	$17,105	$24,401	$32,280	$41,520	$51,805	$63,627	$78,833	$105,456	$330,561	$75,505
Maximum Household Income	$13,736	$20,593	$28,184	$36,494	$46,408	$57,592	$70,657	$88,772	$128,941		
Percent with Earned Income	7%	10%	13%	25%	29%	38%	47%	45%	55%	61%	33%
Average Earned Income	$18,338	$6,865	$8,931	$10,452	$14,630	$16,949	$22,374	$30,200	$40,603	$109,775	$39,188
Housing Status											
Homeowners	27%	44%	62%	68%	75%	76%	82%	84%	84%	89%	69%
Renters	41%	40%	28%	23%	15%	15%	9%	8%	7%	4%	19%
Farmers	6%	4%	4%	5%	8%	6%	9%	7%	9%	7%	6%
Other	27%	12%	7%	4%	2%	2%	0%	1%	0%	0%	6%
Average Taxable Market Value	$164,121	$134,675	$142,156	$145,924	$175,329	$179,925	$194,739	$227,905	$248,629	$338,179	$205,560
Average Monthly Rent	$216	$360	$541	$692	$834	$975	$1,033	$1,119	$1,229	$1,516	$603
AVERAGE TAX BURDENS											
Local Property Tax											
All Households											
Total Tax	$588	$842	$1,271	$1,469	$1,715	$1,888	$2,034	$2,410	$2,727	$4,149	$1,909
-Property Tax Refund	-$259	-$427	-$499	-$463	-$328	-$319	-$190	-$127	-$46	-$11	-$267
Tax after PTR	$329	$414	$772	$1,006	$1,387	$1,569	$1,844	$2,283	$2,681	$4,138	$1,643
Renters Only											
Total Tax on Rental Unit	$568	$903	$1,264	$1,641	$1,837	$2,185	$2,254	$2,358	$2,591	$3,195	$1,386
Renters Share of Tax	$191	$303	$424	$550	$616	$733	$756	$791	$869	$1,071	$465
-Property Tax Refund	-$327	-$460	-$490	-$499	-$280	-$191	-$69	-$5	-$4	-$1	-$340
Tax after PTR	-$137	-$157	-$66	$52	$336	$542	$687	$785	$865	$1,071	$124
Homeowners Only											
Total Tax on Home	$1,562	$1,494	$1,758	$1,810	$1,951	$2,149	$2,165	$2,569	$2,874	$4,268	$2,406
-Property Tax Refund	-$386	-$509	-$553	-$477	-$346	-$351	-$203	-$139	-$49	-$11	-$268
Homeowners Tax after PTR	$1,176	$985	$1,204	$1,333	$1,605	$1,797	$1,963	$2,429	$2,825	$4,256	$2,139
State Income Tax	$9	-$7	$23	$145	$463	$844	$1,628	$2,668	$4,321	$16,948	$2,704
State Sales Tax	$424	$536	$648	$772	$908	$1,044	$1,165	$1,307	$1,555	$2,730	$1,109
State Excise Taxes	$127	$157	$184	$212	$237	$263	$285	$299	$316	$353	$243
Other Taxes	$283	$345	$433	$535	$646	$736	$822	$884	$986	$1,895	$756
Business Taxes [1]	$855	$673	$907	$1,065	$1,487	$1,540	$1,671	$2,212	$3,069	$8,055	$2,153
Total State and Local Tax Burden	$2,027	$2,118	$2,967	$3,736	$5,128	$5,996	$7,416	$9,653	$12,929	$34,119	$8,609
Effective Tax Rate for all Taxes	21.4%	12.4%	12.2%	11.6%	12.4%	11.6%	11.7%	12.2%	12.3%	10.3%	11.4%

[1]For these tables only, Business Taxes does not include the share of Rental Property Taxes borne by the renter.

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Table 5-5

Household Characteristics and Average Tax Burden Amounts by Population Decile
Single-Parent Households

Each Decile Contains 30,500 Single-Parent Households

HOUSEHOLD CHARACTERISTICS	Population Decile										Total
	One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	
Number of Households	30,500	30,500	30,500	30,500	30,500	30,500	30,500	30,500	30,500	30,500	304,997
Average Number of Children	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.7	1.6	1.4	1.7
Average Household Income	$5,812	$11,806	$15,963	$19,858	$24,239	$29,144	$35,022	$43,049	$56,399	$131,816	$37,311
Maximum Household Income	$9,331	$14,085	$17,934	$22,009	$26,496	$31,899	$38,501	$48,363	$66,216		
Percent with Earned Income	61%	82%	88%	90%	94%	94%	95%	96%	98%	97%	90%
Average Earned income	$6,015	$10,605	$14,198	$18,285	$22,176	$27,084	$31,957	$39,086	$51,387	$95,571	$33,399
Housing Status											
Homeowners	10%	14%	16%	19%	18%	33%	40%	52%	67%	83%	35%
Renters	70%	71%	67%	69%	65%	57%	50%	42%	29%	15%	53%
Farmers	0%	0%	0%	0%	1%	1%	1%	1%	0%	1%	1%
Other	20%	15%	16%	11%	16%	9%	10%	5%	4%	0%	11%
Average Taxable Market Value	$112,187	$117,152	$124,829	$78,881	$109,533	$108,271	$116,947	$126,277	$143,961	$221,117	$144,891
Average Monthly Rent	$127	$249	$333	$402	$489	$575	$724	$802	$984	$1,121	$480
AVERAGE TAX BURDENS											
Local Property Tax											
All Households											
Total Tax	$235	$402	$488	$484	$537	$830	$1,023	$1,263	$1,701	$2,823	$979
-Property Tax Refund	-$143	-$299	-$391	-$362	-$378	-$408	-$311	-$242	-$195	-$104	-$283
Tax after PTR	$91	$103	$96	$122	$159	$422	$713	$1,021	$1,505	$2,719	$695
Renters Only											
Total Tax on Rental Unit	$344	$642	$860	$925	$1,094	$1,244	$1,543	$1,693	$2,073	$1,679	$1,079
Renters Share of Tax	$116	$215	$288	$310	$367	$417	$518	$568	$695	$563	$362
-Property Tax Refund	-$149	-$339	-$454	-$416	-$436	-$435	-$283	-$178	-$104	-$21	-$321
Tax after PTR	-$34	-$124	-$166	-$106	-$69	-$18	$235	$390	$592	$542	$41
Homeowners Only											
Total Tax on Home	$1,535	$1,722	$1,775	$1,361	$1,593	$1,679	$1,848	$1,891	$2,216	$3,192	$2,167
-Property Tax Refund	-$397	-$419	-$526	-$383	-$516	-$467	-$419	-$313	-$246	-$119	-$312
Homeowners Tax after PTR	$1,138	$1,303	$1,249	$979	$1,078	$1,212	$1,430	$1,578	$1,970	$3,072	$1,855
State Income Tax	-$298	-$643	-$802	-$832	-$749	-$396	$216	$1,028	$1,836	$6,336	$570
State Sales Tax	$541	$631	$686	$730	$772	$814	$858	$911	$1,009	$1,662	$861
State Excise Taxes	$298	$298	$307	$315	$323	$330	$339	$349	$353	$350	$326
Other Taxes	$218	$259	$313	$334	$391	$450	$526	$605	$721	$1,199	$502
Business Taxes [1]	$610	$669	$728	$807	$925	$939	$1,025	$1,131	$1,281	$2,850	$1,097
Total State and Local Tax Burden	$1,461	$1,317	$1,329	$1,477	$1,820	$2,558	$3,676	$5,045	$6,706	$15,117	$4,051
Effective Tax Rate for all Taxes	25.1%	11.2%	8.3%	7.4%	7.5%	8.8%	10.5%	11.7%	11.9%	11.5%	10.9%

[1] For these tables only, Business Taxes does not include the share of Rental Property Taxes borne by the renter.

Table 5-6
Full-Sample Suits Index
Calculated Separately for Each Household Type

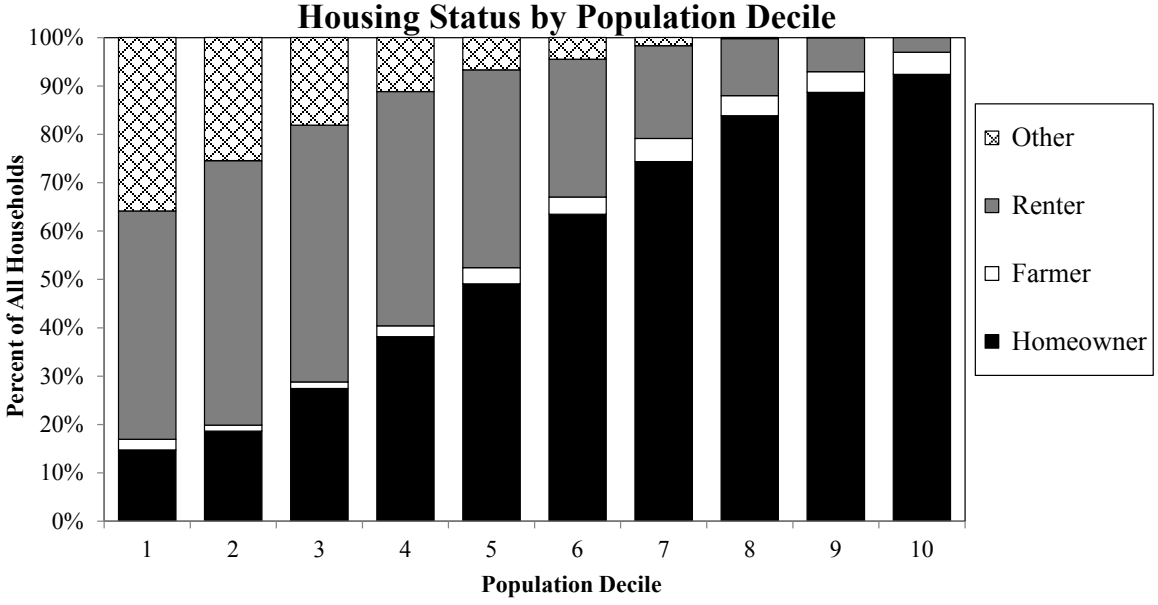
Household Type	Full Sample Suits Index
Married With Children	-0.044
Married No Children (Non-Senior)	-0.075
Single-Person Household (Non-Senior)	-0.073
Seniors (Single or Married)	-0.056
Single Parents	+0.031
All Family Types	-0.052

Housing Status by Population Decile

Figure 5-3 shows how housing status varied with income. As expected, home ownership rates (including farmers) rose steadily with income, from 17 percent in the first decile to 97 percent in the tenth decile. For all households, 58 percent were homeowners. Renter households outnumbered homeowners in each of the first four deciles; the top three deciles contained 13 homeowner households for every renter household. There were twice as many farmers in the top three deciles as in the bottom three deciles.[28]

Figure 5-3 also shows that a significant proportion of the households in the first five deciles were classified as neither homeowners nor renters. This "other" category is the result of this study's definition of a household. While the Census defines a household to include all individuals living in a particular housing unit, this study (like other tax incidence studies) defines a household as a taxpayer, a taxpayer's spouse, and all others claimed as dependents for income tax purposes.

Figure 5-3
Housing Status by Population Decile



[28] In this study, farm households are defined as those living on farm homestead property, so every farmer owns a home. This definition excludes active farmers who farm only rented land or do not live on a farm homestead. The home ownership rates cited in this chapter include both farm and non-farm homesteads.

In this study, a secondary household living with a primary household is assumed to pay no property tax. For example, an older child living with parents (but not claimed as dependent) would generally be classified as neither renter nor homeowner. Other examples would include elderly parents living with their children or an unrelated single person living with a homeowner. In such cases, the entire property tax burden was assigned to the homeowner; the second household is assumed to pay no property tax.[29] Although the second incidence household might be considered to have paid part of the homeowner property tax, it is not possible to link the two households using available information (nor would it be clear how to split the tax between them).

Most of the non-renter/non-owner households were single persons in the lower income deciles, reflecting the characteristics of such persons in the Census data. Those living in group quarters (including nursing homes) were also included in this category. None of those living in group quarters would have been considered a separate household by the Census.

Incidence Households Compared to Census Households

By extrapolating from the incidence database, the tax incidence study estimates a total of 2,580,561 Minnesota households in 2012, with a median income of $43,553. In contrast, the U.S. Census reports a total of 2,111,943 Minnesota households in 2012, with a median income of $58,906. Census households average 2.48 persons, while the incidence study households average 2.02 persons. This section explains the differences between the numbers presented in this study and those reported by the Census.

The Census defines a household to include all persons who live together in a housing unit. The precise Census definition is:

> A household includes all the persons who occupy a housing unit . . . in which the occupants live and eat separately from any other persons in the building and which has direct access from the outside of the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.

In contrast, the incidence study defines a household as an actual or potential income tax filer and all dependents, even if not living under the same roof.

[29] If a home is owned jointly, the property tax is split equally among all owners.

There are three basic reasons why Census and incidence households differ. First, some Census households are not counted as incidence study households. For example, a full-time college student living in an apartment and claimed as a deduction on a parent's tax return is a Census household but would be combined with the parents in the incidence study. Second, Census households often contain two or more incidence households. For example, three single persons sharing an apartment would be counted as one Census household but might be three incidence households. Third, individuals living in "group quarters" are not part of any Census household, but some are defined as a household in the incidence study. Examples include a financially independent college student living in a college dorm, or a nursing home resident not claimed as a dependent on someone else's tax return. As a result, the incidence study reports 22 percent more households than the Census, and the median household income in the incidence study is only 74 percent of that reported by the Census.

In summary, the incidence study's population is consistent with the Census.[30] The U.S. Census estimate of Minnesota's 2012 population exceeds the Incidence Study population by less than one percent. This difference is primarily due to this study's exclusion of part-year residents. The lower median income reported in this study occurs largely because the same total income is spread over a larger number of households. The incidence definition of a household is more appropriate than the Census definition when describing the distribution of the tax burden.

[30] More details about the cross-walk between Census data and the data used in tax incidence studies can be found in the 1999 *Tax Incidence Study*, pp. 19-21. Total household income reported in the *Tax Incidence Study* exceeds that in Census estimates by almost 20 percent. This reflects both the study's broader definition of income and income underreporting in the Census.

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Appendix A
The Incidence Study Database

The 2012 incidence study database includes detailed information on income and taxes for a stratified random sample of 109,597 Minnesota households. This sample is then "blown up" to represent 2.58 million Minnesota households. Individual income tax returns and property tax refund returns filed with the Department of Revenue were the primary sources of information and were supplemented with data on nontaxable income obtained from various sources. The additional nontaxable income information provides a more accurate measure of total income, particularly for low-income households who did not meet tax filing requirements.

The use of social security numbers to merge income data from different sources for specific individuals is a unique and important aspect of this study. Income data was matched, for example, with property tax and market value information for individual homeowners. Because of these "hard matches," the need to impute estimated values of income and tax variables to households in the database was minimized.

The incidence study database was constructed from a number of different sources. First, data was taken from state and federal income tax returns filed in Minnesota. Then, data was added from property tax refund returns. More information concerning homestead property taxes was obtained from data provided by Minnesota counties to the Department of Revenue. Additional income and data came from several state agencies. Information obtained from the American Community Survey of the United States Bureau of the Census was used to estimate annual rent expenditures for renter households. Finally, estimates of household spending patterns were derived using several years of Consumer Expenditure Survey data from the United States Department of Labor.

Measurement of Household Income

An appropriate measure of income is critical to any study of tax incidence. By definition, a tax incidence study compares taxes paid to some measure of a household's economic well-being or ability-to-pay. In this study, tax burdens are expressed as ratios of taxes paid to a broad measure of household money income. This comprehensive measure of money income includes not only income taxable on income tax returns but also nontaxable income, such as public assistance payments, tax-exempt interest, and nontaxable social security and pension income.

Definition of Income

The definition of income should be as consistent as possible with the public's perception of economic well-being. Households with equal incomes should be viewed as being equally well off, and those with higher incomes should be considered consistently better off than those in lower income groups. This argues for a comprehensive definition of income. An incidence study using too narrow a definition of income would overstate the ratio of taxes to income; it might also give a distorted picture of the regressivity or progressivity of the tax system.

Comprehensive income in this study includes only monetary sources of income. Capital gains and pension benefits are included when realized, not as they accrue, and no adjustment is made for inflation or for the impact of family size on ability-to-pay.

Components of Household Income in 2012

Table A-1 summarizes the measure of household income used in this study. Minnesota households are divided into three groups.

- Income tax filers (87.6 percent of all households and 96.8 percent of all income)
- Property Tax Refund filers who file no income tax return (4.4 percent of all filers and 1.2 percent of all income)
- Nonfilers (8.0 percent of all households and 2.0 percent of all income)

Federal Gross Income (FGI) reported on federal income tax returns accounts for 85.5 percent of total income. Nontaxable interest and retirement income reported on tax returns adds another 7.8 percent.

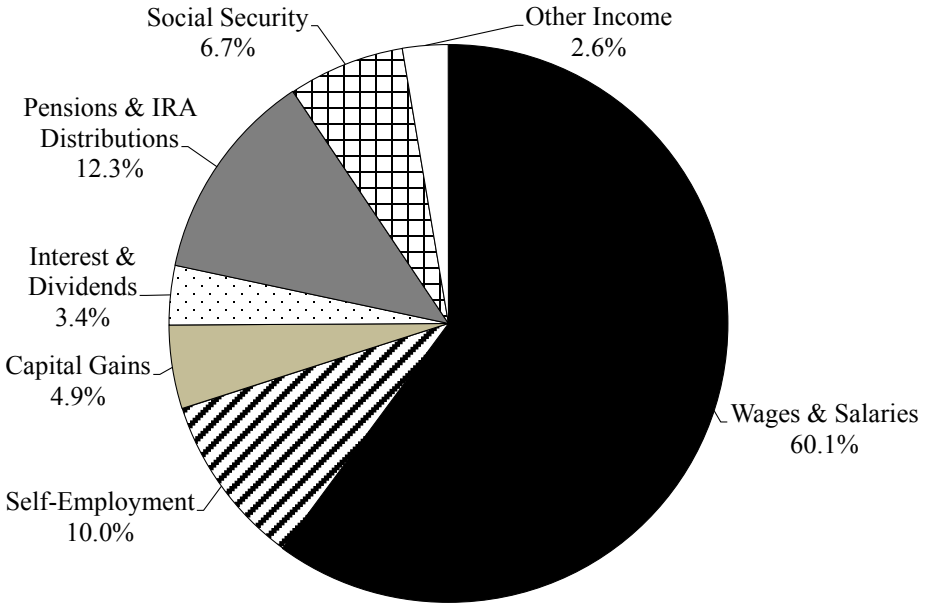
Table A-1
Components of Total Household Income in 2012 ($ Millions)

Group	Source of Income	Amount
File income tax 2,276,800 households	Wages	$ 115,001
	Taxable interest & dividends	5,453
	Business income (Schedules C, E, and F)	18,685
	Capital gains & other gains	9,340
	Taxable IRA distributions	4,768
	Taxable pension & annuity income	9,829
	Taxable unemployment benefits	952
	Taxable social security benefits	4,527
	Other taxable income	(429)
	Federal Gross Income (FGI)	**$ 168,126**
	Adjustments to FGI	
	Taxable refunds of state income taxes	(525)
	Half of Self-employment tax	(485)
	Self-employed health insurance deduction	(661)
	Penalty on early withdrawal of savings	(1)
	Alimony paid	(218)
	Nontaxable interest	1,090
	Nontaxable IRA distributions	983
	Nontaxable pension & annuity income	7,550
	Nontaxable social security income	5,596
	Other nontaxable income	5,761
	Public assistance cash payments	255
	Workers' compensation	178
	Total Household Income	**$ 187,649**
File Property Tax Refund (but not income tax) 98,000 households	Wages	$ 164
	Interest & dividends	21
	Unemployment benefits	7
	Pension income	170
	Social security income	1,097
	Public assistance cash payments	212
	Workers' compensation	7
	Other income	127
	Total Household Income	**$ 1,805**
Nonfilers 205,800 households	Wages	$ 547
	Interest & dividends	50
	Unemployment benefits	57
	Pension income	305
	Social security income	1,752
	Public assistance cash payments	135
	Workers' compensation	41
	Other income	165
	Total Household Income	**$ 3,052**
Total Population 2,580,600 households	**Total Household Income[1]**	**$ 192,506**

[1]Household income differs what is shown in *Table 2-2* because it includes negative income.

Figure A-1 shows the shares of income by type of income. Wages account for 60.1 percent of all income, and income from sole proprietors, farmers, pass-through entities, and rents accounts for another 10.0 percent. Capital income in the form of interest, dividends, and capital gains combines for 8.3 percent. Retirement income totals 19.0 percent.

Figure A-1
Shares of Total Income (2012)



Income Not Included in Incidence Study Income

Minnesota money income excludes many forms of income that would be included in the broadest income measure. It excludes all non-monetary forms of income (food stamps, housing subsidies, Medicare and Medicaid benefits, employer-provided fringe benefits, and imputed rent for homeowners). It includes capital gains and pension income only when realized, not when accrued. No adjustment is made for depreciation deductions in excess of economic depreciation, nor is a deduction made for the portion of interest income that represents inflation.

Minnesota money income also excludes some forms of cash income. Three particular omissions should be noted. First, due to data limitations, only a portion of wage and salary and other income could be added to other sources of income, such as public assistance and social security benefits, for taxpayers who file neither an income tax nor a property tax refund return. This results in an understatement of money income and an overstatement of tax burdens for the lowest income groups. Second, veterans' benefits are excluded (except for those reported on property tax refund returns). Third, child support payments are not included as income for the recipient, nor are they subtracted from the income of the payer.

Comparison to Personal Income

A commonly used measure of income is "personal income" as reported by the U.S. Department of Commerce, Bureau of Economic Analysis. Personal income differs from the definition of income used in this study in a number of ways. The most important components of personal income that are not included here are employer contributions for employee pension and insurance funds and the investment income of life insurance carriers and pension plans. It should also be noted that personal income does not include some significant items that are included in FAGI and hence in this study. Personal income excludes the following: capital gains, taxable pensions, and the employee share of Social Security and Medicare taxes.

Accounting Period

Income received in a single year can be a misleading measure of economic well-being. Individual households may have unusually high or low income in a particular year due to business losses, unemployment, or the sale of capital assets. Because of such transitory income, a snapshot of the income distribution in a single year shows more income inequality than would a time exposure over several years. In addition, income varies over a household's life cycle. For these reasons, annual income may not be an accurate measure of a household's more permanent economic well-being.

In spite of these shortcomings, there are two strong reasons why this study uses annual rather than permanent income. First, an adequate record of the income of individual households over a longer period is rarely available. Consequently, state incidence studies have always used an annual accounting period. Second, an annual perspective may be preferred because taxes are paid out of a household's current income, not out of what might be earned in the future. If the purpose of an incidence study is to make policy decisions regarding current ability to pay taxes, then it is reasonable to argue that the appropriate measure should be based on annual rather than permanent income.

Definition of a Household

This study combines dependents who file their own income tax return with taxpayers claiming them as dependents to form a single household. The most common situation is a student working part-time and claimed as a dependent on the parent's tax return. If not combined into a single household, these part-time workers would be treated as separate, low-income individuals in the study, with misleading results.

Some income information for nonfilers was initially reported separately for each member of a family (e.g., spouses having separate social security payment records). When possible, available state agency files containing name and address information were used to combine such individuals into household units. This adjustment provides a more accurate picture of such households.

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Appendix B
The Incidence Analysis

Introduction

The results of any incidence study are determined by the study's incidence assumptions. This section explains both the incidence assumptions used in this study and the method of allocating tax burdens to specific households. This study's incidence assumptions are summarized as follows:

1. Incidence of Taxes on Households

   - The personal income tax is paid by individual taxpayers, and the incidence is the same as the initial impact of the tax.
   - Taxes on purchases by consumers (sales, solid waste management) are borne by consumers of the taxed items.
   - The property tax on homeowners is borne by the homeowner.
   - The motor vehicle registration tax on vehicles owned by households is borne by the owner of the vehicle.
   - Mortgage registration and deed transfer taxes on homes are borne by homeowners.
   - Excise taxes – those on motor fuels (bought by consumers), tobacco, and alcohol – are assumed fully shifted to consumers, as are the taxes on consumer purchases of insurance, MinnesotaCare taxes, and taxes on gambling. For purposes of this study, these are considered taxes on households even though they are paid by businesses. The term "business taxes" in this study does not include these taxes.

2. Incidence of Taxes on Business

   Most taxes on business property, business purchases, and corporate income are partially shifted to consumers and workers. The amount of tax shifting varies by tax and by business sector, depending on the scope of the product market (local or national) and the magnitude of Minnesota's tax rates compared to those in other states. To shift a tax, the individual or business legally liable to pay the tax must alter its economic behavior because of the tax. For example, a property tax paid by a business firm may lead the firm to raise its prices, lower its pay to employees, or the business owner may experience reduced profits.

The rationale for this study's incidence assumptions is discussed in the next two sections. First, taxes on households are discussed. The incidence of business taxes, which is discussed next, is much more complex. Many issues are unsettled, and a wide variety of approaches have been used in incidence studies other than Minnesota's approach. As a result, this section provides an extended discussion of the methodology underlying this study's approach to business tax incidence.

Taxes on Households

Taxes on Income or Wealth

Individual Income Tax. This study assumes that the burden of the individual income tax is not amenable to shifting through changes in either wages or interest rates. This assumption is correct if total hours worked and savings rates are unresponsive to after-tax returns and the package of public spending and taxes in Minnesota (compared to other states) does not cause significant migration. Given this assumption, the state income tax burden equals each household's tax liability, as listed in the study's database.

Estate Tax. Defining the incidence of the estate tax presents unique problems; the impact of the tax is on the estate, not on a currently acting economic entity (person or firm) as is true of all other taxes. There is no consensus among economists as to whether the incidence of the tax properly applies to the decedent or to the estate beneficiaries, and arguments can be made for either position. Given the information that was available for analysis, the computations reported here were carried out assuming that the incidence of the estate tax was on the decedent.

In order to eliminate the chance that decedent incomes were understated due to lack of a full year's income in the year of death, estate tax returns were matched against income tax returns for the last two full years prior to death. All returns filed between 2002 and 2012 were included in estimating how the tax varied with income.

Taxes on Consumer Purchases

Sales and Excise Taxes. This study, like most other incidence studies, assumes that businesses legally liable for sales and excise taxes on final products and services will be able to raise product prices by the full amount of the tax, leaving wages and the return to capital unchanged. Therefore, the tax burden is fully shifted to consumers in higher prices. The sales and excise tax burdens were allocated in proportion to each household's consumption of taxed items, as estimated in the study's database.

Insurance Premiums Taxes. The insurance premiums tax equals a flat percentage of the premium paid on selected types of insurance. This tax was assumed to raise insurance premiums by the full amount of the tax, so its burden was distributed in proportion to each household's purchase of insurance subject to the tax. For auto, life, and household insurance, the tax burden allocation was in proportion to expenditures as estimated from the *Consumer Expenditure Survey*.

The premiums tax on insurance provided through employers (most health and workers' compensation) was assumed borne by the employee. By raising the cost of these fringe benefits, the tax either reduced cash wages or other fringe benefits. The tax on health insurance premiums was assigned according to the distribution of total health insurance premiums. In Minnesota, workers' compensation policies are purchased from private insurers. Given the structure of medical and wage replacement benefits, the premium per employee was assumed to increase with wages, subject to a minimum (for workers earning less than half the average state wage) and a maximum (for those earning more than 150 percent of the average state wage).

Gambling Taxes. Gross receipts taxes on pulltabs, tipboards, bingo, raffles, and horse racing were assumed to be borne by the bettor. A 1994 survey by the Minnesota Lottery[31] provided substantial information about how gambling varies by income level. That information was supplemented by data from a Wisconsin Lottery Tracking Study and from the Consumer Expenditure Survey.

The pattern of expenditures on pulltabs (the primary source of revenue) was similar to that for the lottery, so the more detailed distributional information about lottery expenditures was used to distribute these gambling taxes.

MinnesotaCare Taxes. The two percent gross receipts tax on most medical bills (including hospital, physician, dental, and laboratory services along with prescription drugs) was assumed to be paid by consumers in higher out-of-pocket medical costs or higher costs for insurance (except for Medicare premiums). The higher costs of employer-provided health insurance were assumed to be borne by households in reduced wages or other fringe benefits. MinnesotaCare taxes were distributed in proportion to the sum of the cost of health insurance plus out-of-pocket costs for medical services and prescription drugs.

Property Taxes on Non-Business Property

Homeowner Property Taxes. The homeowner is both the owner and consumer of housing. As a result, the homeowner bears the full tax burden, regardless of how the burden is split between consumers and owners. The tax burden on the household was assumed to be the total property tax paid on the homestead, as identified in the incidence study database. Similarly, the property tax on cabins was assumed borne by the owners.

Motor Vehicle Registration Tax. The registration tax on motor vehicles owned by households was assumed to be fully borne by the owner. In this study, the actual tax paid by sample households was found by matching sample households to the motor vehicle registration files.

[31] Minnesota State Lottery (1994). *Gambling in Minnesota.* St. Cloud University Survey Research, February.

Mortgage Registration and Deed Transfer Taxes. The homeowner portion of these taxes was assumed to be borne by the owner of the home. Given a lack of information about the identity of those buying homes or obtaining mortgages in 2012, the burden of the mortgage registration tax was distributed over all mortgage holders (in proportion to mortgage interest paid in 2012); the deed transfer tax burden was distributed over all homeowners (in proportion to the estimated market value of the home).

Adjustment for Burdens on Nonresident Households

The proportion of the total receipts from each of these taxes that was allocated to Minnesota households was given in *Table 1-2*. For the general sales and use tax and the excise taxes, the Minnesota household share was estimated by the Minnesota Consumption Tax Model. For the other taxes (insurance premiums tax, property tax on cabins, gambling taxes, MinnesotaCare taxes, motor vehicle registration tax, and mortgage and deed taxes), the total burden on Minnesota households was defined as total collections minus the estimated taxes paid by business and nonresident visitors and tourists.

Some incidence studies reduce state and local tax burdens to reflect the "federal tax offset." State income taxes and homeowner property taxes are both deductible in calculating federal income tax liability, so households paying these Minnesota taxes will pay less in federal income tax (if they itemize deductions). A portion of these deductible taxes is sometimes considered to be shifted to the federal government in lower federal tax revenue. Although no such adjustment is included in this study's general results, the impact of such an adjustment (and the arguments for and against it) are presented earlier. (See *Chapter 4, Section B.)*

Taxes on Business

Introduction

This study includes $9.2 billion in business taxes in 2012, as summarized in *Table 2-1*. These business taxes (including rental property taxes) account for a significant percent of Minnesota's state and local tax revenue. Business taxes include both taxes on capital (structures, capital equipment, and land) and taxes on business purchases of short-lived intermediate inputs (such as gasoline and restaurant meals).

This study estimated the incidence of each of these business taxes. While the initial impact of these taxes is on business, they are partially shifted forward to consumers in higher prices or backward to labor in lower wages. Much of the tax is paid by nonresidents, either as consumers of goods and services produced in Minnesota or as owners of capital and land located in Minnesota. This section summarizes how this study estimated the incidence of business taxes, and how business tax burdens were allocated to Minnesota households.

Conceptual Structure

The following six principles define this study's approach to estimating the incidence of Minnesota's existing business taxes.

1. *Capital moves to where it earns the highest return.* If a tax on capital in a single state (or industry) reduces the after-tax rate of return, investors will move their capital to lower-tax locations (or industries). As production falls, prices will rise or costs (including wages) will fall until the after-tax rate of return is again equal to the after-tax rate of return elsewhere. Only the average tax on all forms of capital in all states — a tax which owners of capital cannot avoid — will be fully borne by capital so long as capital is free to move in search of the highest rate of return.

2. *Minnesota's taxes do not occur in isolation.* Every state levies business taxes. The incidence of a tax levied at the same rate in all states differs greatly from the incidence of a tax levied only in Minnesota. For example, a one percent tax levied on business capital in only Minnesota will be largely shifted to consumers and workers; capital is unlikely to bear much of the final burden due to the ease of capital movement. In contrast, if all states impose the identical one percent tax on the value of all business capital, investors cannot escape the tax. Such a "national" tax on capital is much more likely to be borne by capital, reducing the after-tax rate of return on capital throughout the nation.

   This distinction between a single-state tax and a nation-wide tax is crucial to the results of this study. The incidence of a particular Minnesota tax on business depends on how Minnesota's tax rate compares to those of other states. If, for example, a particular Minnesota business tax rate is 10 percent above the national average, the incidence of this 10 percent "Minnesota differential" will differ greatly from the incidence of the remainder of the tax.

3. *Minnesota's tax structure evolved over time.* In describing the incidence of existing business taxes, this study assumes that businesses, consumers, and workers have fully adjusted to tax differences across states.

4. *Some businesses, depending on their market, can shift Minnesota business taxes forward to consumers in higher prices.* Given time for full adjustment, the ability to shift taxes forward to consumers depends on the nature of the product being sold. Some producers, such as restaurants, compete only with other Minnesota companies; tax increases would affect all restaurants equally, and prices would rise to cover this higher cost. In contrast, a higher Minnesota tax on manufacturers is much harder to shift to consumers because firms compete in a national market. Therefore, Minnesota manufacturers cannot raise prices to cover higher state taxes. In this study, producers of "local market products" are assumed to pass tax differentials on to consumers but producers of "national market products" cannot.

5. *A tax that reduces the competitiveness of Minnesota businesses will be borne by immobile resources — those either unable or unwilling to leave the state.* If capital is mobile and prices cannot be increased (due to competition), the burden of business taxes will reduce payments to inputs that are geographically tied to the state, including labor and land.

6. *An increase in taxes reflects an increase in state and local government spending.* This study assumes that workers do not move between Minnesota and other states in response to changes in state taxes, because tax changes are offset by expenditure changes, leaving the net benefits to Minnesota taxpayers unchanged. In other words, labor (along with land) is assumed to be immobile. In contrast, changes in taxes on business income are assumed not to be offset by changes in benefits from government expenditures.

In summary, these six concepts have guided this study's approach to estimating the incidence of Minnesota's existing business taxes. The study provides an answer to the question: What is the burden of Minnesota taxes on Minnesota residents, in a multistate context where Minnesota's taxes coexist with those of other states, assuming that producers and consumers have fully adjusted to existing tax rate differences?

Allocation of Business Taxes

The six concepts discussed above are used in this section to determine the allocation of business taxes among the four major taxpayer categories: Minnesota consumers, Minnesota capital, Minnesota labor, and nonresidents. The methodology used in this step is discussed in detail before the results are presented.

Several major features of the tax incidence approach used in this study are important to keep in mind. First, this study emphasizes the importance of Minnesota tax rates relative to those in other states. In estimating the incidence of existing business taxes, it is the relative tax rate that matters, not the absolute level of taxes. The incidence of a property tax on manufacturers, for example, depends on how heavily other states tax such property.

Second, this study emphasizes the difference between the incidence of existing business taxes and the incidence of an incremental increase in those taxes. Much of an existing business tax is matched by taxes in other states. The incidence of an increase in such a tax (unmatched by increases in other states) would be quite different. The tax incidence results in this study measure the distribution of existing taxes, not the distribution of increasing Minnesota taxes relative to other states.

Third, this study estimates the burden of business taxes after businesses, consumers, and workers have fully adjusted to them in the long run. For example, relatively high tax rates on capital may reduce wages of Minnesota workers through less capital investment. This long-term perspective is appropriate for estimating the incidence of existing taxes.

Allocation of Business Taxes: An Example

To understand the allocation approach used in this study, suppose that Minnesota levied a $120 million tax on capital — manufacturing equipment, for example. The owners of that capital are legally liable for the tax, but who would bear the ultimate burden? The first step in answering this question is to determine how shifting spreads the tax to capital owners, consumers, and labor.

Allocating the Burden Among Capital, Consumers, and Labor

For each of the business taxes on capital, the tax paid by a particular economic sector is divided into three parts:

- The portion representing the *national average tax rate on all capital.*
- The portion representing the *national sector differential.*
- The portion representing the *Minnesota sector differential*.

This 3-part division of the tax is based on the answers to three questions. The approach is summarized in *Figure B-1*, using the example of a $120 million property tax on capital in the manufacturing sector.

Question 1. What portion of this $120 million Minnesota tax represents the national average tax on all capital? If all states levied an identical tax on *all* forms of capital, capital would be unable to shift that tax to others and the entire burden would be borne by capital. Given the variation in rates among the states, it is the "average national tax rate on capital" which is borne by capital owners.

The average tax rate on all capital is measured in this study as the average state tax rate on all capital — total tax revenue (in all states) divided by the total national stock of capital. If the Minnesota tax rate on a particular sector is equal to the national average tax rate on all capital, then the tax will be borne entirely by the owners of capital; if the Minnesota tax rate exceeds the national average tax rate the remainder of the Minnesota tax would be shifted either forward to consumers or backward to labor and other immobile inputs.

For each particular tax on capital, this study estimates the average national tax rate on all capital. If the Minnesota tax rate on a particular form of capital is twice the national average (as is assumed hypothetically in *Figure B-1*), then the burden of the first half of the tax is assumed to fall on capital. What happens to the remaining half ($60 million) depends on the answers to the next two questions.

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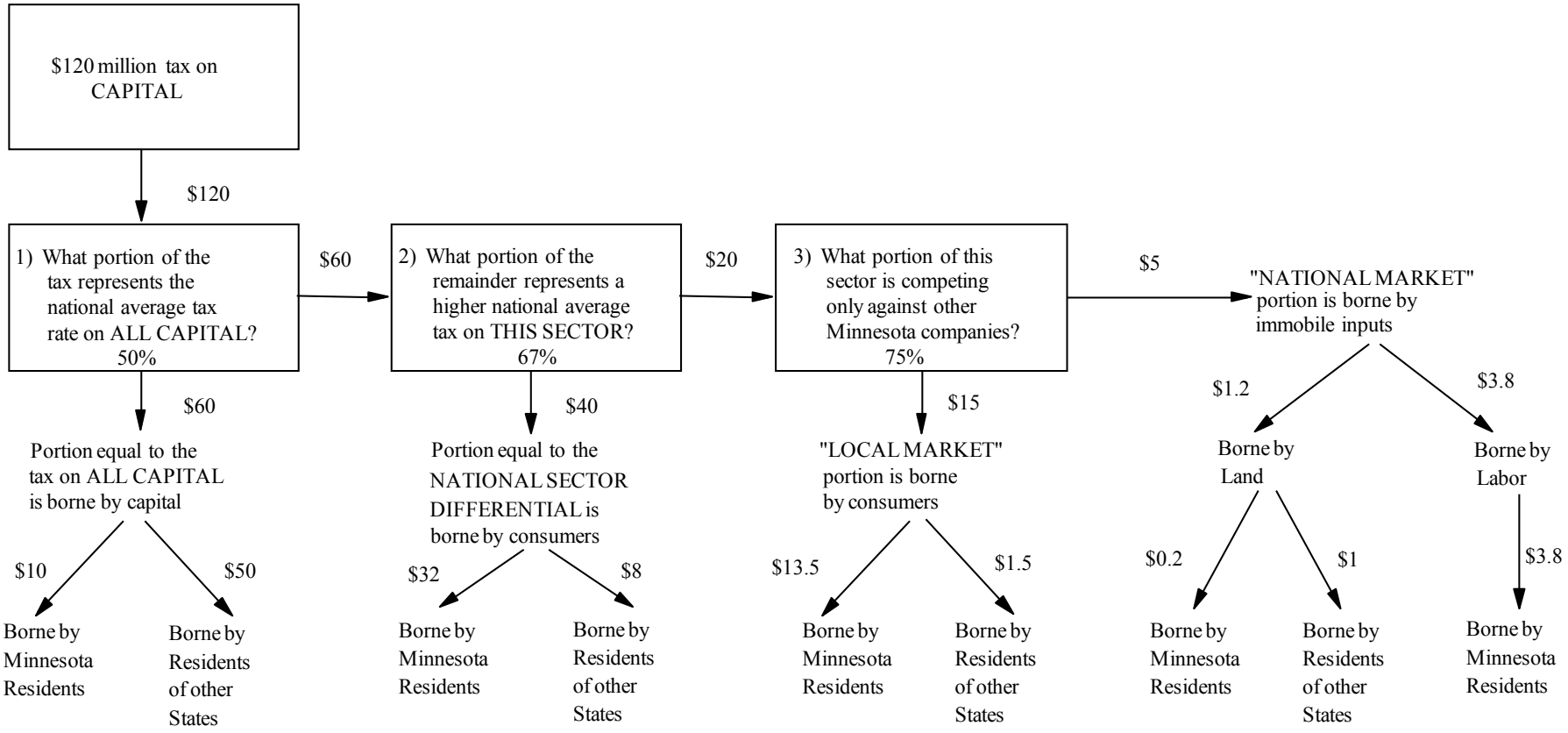
Figure B-1

Incidence of a Hypothetical $120 Million Tax on Capital



Summary of Tax Incidence
($ Millions)

Taxpayer Category	Total	Minnesota Residents	Residents of Other States
Capital*	$61.2	$10.2	$51.0
Consumers	55.0	45.5	9.5
Labor	3.8	3.8	0.0
Total	$120.0	$59.5	$60.5

*Capital includes land.

Question 2. What portion of the remaining $60 million in taxes on capital equipment represents a higher national average tax on this particular sector? Because capital taxes are levied at different rates on different forms of capital, some forms of capital are taxed in all states at a higher rate than all capital. For example, commercial property is taxed at a considerably higher rate than manufacturing property, and both are taxed more heavily than agriculture. In this example, suppose the national tax rate in the manufacturing sector is 1.67 times as high as the national average tax on all capital. This 67 percent higher-than-average tax rate difference for the manufacturing sector is referred to as its "national sector differential."

Despite these heavier taxes, however, the after-tax rate of return in manufacturing cannot remain lower (with mobile capital) than the rate of return available in other sectors. As firms adjust by reducing output, the portion of a tax on capital equal to this "national sector differential" is borne entirely by consumers in the form of higher prices. For each tax on capital, this study estimates the average national tax rate on capital invested in each sector. The share of the Minnesota tax representing the "national sector differential" is allocated to consumers of products produced in Minnesota. (See *Figure B-1*.)

The remaining tax (if any) is the "Minnesota sector differential" — the amount by which Minnesota's tax rate on capital invested in this sector exceeds the national average tax rate in this sector. To determine who bears the burden of this "Minnesota differential," it is necessary to answer the third question.

Question 3. What portion of this sector's producers compete only against other Minnesota producers in "local markets"? For products sold in local markets, the Minnesota differential will result in higher prices to consumers.

In contrast, prices for products that compete in national markets (including most manufactured products) are determined nationally. A "Minnesota sector differential" on producers of such national market products cannot usually be shifted to consumers, so that the burden of the tax must fall on immobile resources, land, and labor. This study assumes that immobile labor and landowners share the burden of any Minnesota sector differential for national market products in proportion to their relative shares in production.

In summary, to allocate the burden of taxes among capital owners, consumers, and labor, this study divides the tax into three parts (the percentages refer to the example in *Figure B-1*):

1. The portion representing the "national average tax on all capital" is borne by capital (50 percent).

2. The portion representing the "national sector differential" is borne by consumers (33 percent).

3. The portion representing the "Minnesota sector differential" is borne by:
   - Consumers for products sold in "local markets" (13 percent);
   - Labor and landowners for products sold in "national markets" (4 percent).

This approach requires an estimate, for each tax, of the national average tax on all capital. For each tax and each sector, it requires an estimate of the Minnesota differential — the excess of Minnesota taxes over the national average for that sector. The study also needs to estimate, for each sector, the extent to which its products are sold in local as opposed to national markets.

Allocating the Burden Between Minnesota Residents and Nonresidents

Exported Tax Burden. A large amount of capital located in Minnesota is owned by nonresidents. For the portion of any tax borne by capital and land, much of the burden will fall on residents of other states. This study assumed that nonresidents own 90 percent of the stock in corporations subject to Minnesota tax, and 20 percent of most noncorporate businesses (but only 5 percent of non-homestead residential property). As such, in sectors which are predominantly corporate, most of the burden falling on capital was exported.

Consumers located in other states will pay some of the "national sector differential" on Minnesota firms that is shifted forward in higher prices. In addition, nonresident visitors bear some of the tax shifted to in-state consumption. For each sector, this study estimated the proportion of sales made to (1) out-of-state consumers and (2) visitors.

The burden on labor (in the form of reduced wages) was assumed to fall entirely on Minnesota residents.

Imported Tax Burden. Both Minnesota consumers and Minnesota owners of capital and land located in other states pay taxes to other states. However, taxes that Minnesota residents pay to other states are ignored here; this study estimates and analyzes the incidence of Minnesota taxes on Minnesota residents.

Federal Tax Offset. In estimating the incidence of existing Minnesota taxes, this study makes no adjustment for the "federal tax offset" due to the deductibility of Minnesota business taxes in calculating federal taxable income. Given the "multistate" approach taken in this study, the federal tax offset is most likely to be quite small. All 50 states levy business taxes. Since approximately one-third of *every* state's business taxes are offset by a reduction in federal revenues, the federal government has essentially replaced this lost tax revenue through higher federal tax rates. A state's "net" federal tax offset would be its "gross" federal tax offset minus the state's share of those increased federal tax payments. As a result, the net offset for the average state would be zero; with above average business taxes, Minnesota's would be positive. However, given the offset's small and uncertain size, this study simply assumes it is zero.

The same argument also applies to the federal tax offset for non-business taxes (the individual income tax, homeowner property tax, and motor vehicle registration tax) deductible in calculating federal individual income tax liability; the net offset for the average state is again zero. Given the multistate perspective of this study, no federal tax offset for household taxes is included. For informational purposes, however, the impact of the federal tax offset for non-business taxes is presented in *Chapter 4, Section B*.

Taxes on Intermediate Business Inputs

The incidence of a tax on short-lived intermediate business inputs like gasoline, business meals, lodging, or liquor, is different from the incidence of a tax on capital. While a uniform national tax on all capital would be borne by capital, a uniform national tax on business purchases of gasoline, for example, would not. It would almost certainly be shifted forward to consumers in higher prices. Taxes on short-lived intermediate products raise the cost of production, but they do not raise the cost of capital.

As a result, the approach to the incidence of such taxes skips the first of the three questions asked about capital taxes. The tax on intermediate business purchases is divided into only two parts:

1. The portion representing the "average national tax rate" on this sector is shifted forward to consumers in higher prices.

2. The portion representing the "Minnesota differential" is borne by:

    a. Consumers for products sold in "local markets;"
    b. Labor and landowners for products sold in "national markets."

Business Tax Allocators

After estimating the share of Minnesota business taxes borne by Minnesota owners of capital and land, consumers, and labor, the final step was to allocate those taxes to specific households based on each household's characteristics contained in the database records. In most cases, the study allocated to each household the average tax burden for households with the same characteristics. *Table B-1* summarizes the allocators used in this final step.

Table B-1
Business Tax Allocators

Allocator	Used to Distribute Tax Borne By:
Dividend Income	Corporate Owners
Noncorporate Capital Ownership	Noncorporate Owners
Total Consumer Expenditures	Consumers
Labor Income	Workers
Adjusted Farm Property Tax	Farmers using their own land.
Farm Rents	Farmers leasing their land.

Burden on Consumers. Taxes shifted forward to consumers in higher prices were allocated based on their share of total consumer expenditures, as estimated from the *Consumer Expenditure Survey*. Total expenditures for a particular household were estimated based on household income and size.

Burden on Renters. Renters are the consumers of rental housing, so the proportion of the total rental property tax shifted forward to renters in higher rents is estimated using the same methodology used for other business taxes. That portion of total taxes on rental housing is distributed across renter households in proportion to each household's annual rent. For renter households receiving a property tax refund, annual rent is known. For others, rent is estimated based on the most recent information from the U.S. Census.

Burden on Corporate Capital. The burden on corporate capital was allocated to households in proportion to taxable dividends received. This allocator was used to estimate the total income received by owners of corporate stock, both as dividends and as capital gains on appreciated stock. Although dividends received may not be a good measure of corporate ownership for particular individuals, the decile-by-decile distribution of dividend income should match the distribution of corporate capital fairly closely.

Burden on Noncorporate Capital. Noncorporate business capital includes capital owned by sole proprietors, partnerships, and S corporations. This study used a variety of information from Schedules C and E to develop a reasonable estimate of each household's ownership of noncorporate capital. The construction of this measure guaranteed that: (1) households with large business losses are assigned some capital ownership (based on either claimed depreciation or the size of claimed losses); and (2) the shares of capital ownership imputed to those with sole proprietor income, rental income, and partnership and S corporation income are roughly proportional to each income source's aggregate share of claimed depreciation.

Burden on Farmers. Rental land accounts for about one-third of Minnesota farm land. Approximately half of all farm property taxes were paid on rented land, reflecting higher classification rates on non-homestead farms. Therefore about half of the farm property tax burden was allocated in proportion to farm rents (reported on Schedule E), with the rest allocated in proportion to farm homestead property taxes.

Burden on Labor. The burden on labor (through lower wages) was allocated based on each household's share of earned income, defined as the sum of wages and salaries, plus three-quarters of income reported by sole proprietors and farmers.

A summary description of the incidence results for the distribution of each business tax to consumers, capital, and labor (both residents and nonresidents) is provided in *Table B-2*.

Table B-2
Distribution of Business Tax Burden by Taxpayer Category (2012)

	Percent Borne by Minnesota Taxpayers			Percent Exported
	Capital	Labor	Consumers	
State Taxes				
Corporation Franchise Tax	5%	12%	43%	41%
Sales and Excise Taxes				
General Sales and Use Tax	6%	0%	58%	36%
Motor Vehicle Sales Tax	35%	1%	2%	62%
Motor Fuels Excise Taxes	0%	0%	25%	75%
Mortgage and Deed Taxes	60%	0%	10%	30%
Gross Earnings Taxes				
Insurance Premiums Taxes	11%	0%	39%	50%
In lieu of property taxes				
Motor Vehicle Registration Tax	18%	9%	30%	42%
Solid Waste Management Taxes	0%	0%	84%	16%
State Property Tax				
Commercial	17%	3%	33%	48%
Industrial	8%	4%	5%	83%
Utility	2%	5%	49%	44%
Local Taxes				
Property Taxes (Pay 2010)				
General Property Tax				
Commercial	17%	3%	33%	48%
Industrial	8%	4%	5%	83%
Farm (other than residence)	100%	0%	0%	0%
Rental Housing	54%	0%	38%	9%
Utility	2%	5%	49%	44%
Mining Production Taxes (taconite)	9%	1%	0%	90%
Local Sales Taxes	6%	0%	58%	36%
Local Gross Earnings Taxes	2%	5%	49%	44%

Incremental vs. "Average" Incidence

The analysis in this study assumes that markets are in equilibrium, with economic factors fully adjusted to tax rates here and in other states. Analyzing the effect of a tax change poses a different problem.

The incidence of a *change* in business taxes would be different from those presented in this study. Compared to the results in this study, economic theory suggests that the long-run incidence impact of a change in Minnesota business taxes would tend to fall:

- *less* on nonresidents,
- *less* on Minnesota owners of capital,
- *more* on Minnesota consumers, and
- *more* on Minnesota labor.

In addition, the incidence of a change in Minnesota tax should include the impact of the federal tax offset. (See *Chapter 4, Section B*.)

Illustrations of the magnitude of these differences are presented in *Chapter 4, Section D*.

The logic of business tax incidence described in this Appendix divides a business tax on capital into three parts:

- The portion representing the *national average tax rate on all capital.*
- The portion representing the *national sector differential.*
- The portion representing the *Minnesota sector differential.*

The incidence of each of the three portions of the tax will generally be different. For example, the first part might be borne entirely by capital (in lower returns), the second entirely by Minnesota consumers (in higher prices), and the third primarily by Minnesota labor (in reduced wages). The "average" incidence, as presented in this study, would be a mixture of all three. In contrast, a change in the tax would change only the third portion – the *Minnesota differential*. As a result, the "incremental incidence" of a change in tax can be very different from the "average incidence" of an existing tax. This study only reports the latter. Great care should be taken in applying the results reported here to a proposed change in a tax on business.

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Appendix C
Three Versions of the Suits Index

The Suits indexes reported in early editions this study were calculated using summary data for each of the ten population deciles. The calculations were based on (a) each decile's share of total income and (b) each decile's share of the total tax burden. Only ten observations (the ten deciles) were used to calculate this "population-decile" Suits index.

More recent editions of this study also reported "income-decile" Suits indexes. Income-decile Suits indexes are generally farther from zero than the corresponding population-decile Suits index. Use of the income-decile Suits makes regressive taxes appear to be more regressive and progressive taxes appear to be more progressive. The income-decile Suits index – like the population-decile one – is calculated using only ten observations.

In contrast, the "full-sample" Suits index (first reported in the 2007 study) uses each of the 117,771 sample records. It provides a more accurate measure of regressivity or progressivity. In almost every case, the full-sample Suits index for a particular tax is farther from zero than either the population-decile or income-decile Suits index. Using all sample records makes regressive taxes appear more regressive and progressive taxes appear more progressive.

For example, the full-sample Suits index for the income tax in 2012 is +0.223. This exceeds both the population-decile Suits index (+0.205) and the income-decile Suits index (+0.219). The full-sample Suits index shows the income tax to be more progressive. Similarly, the full sample Suits index shows the sales tax to be more regressive in 2012 (-0.253 compared to -0.232 and -0.247 for the population-decile and income-decile Suits indexes). For the tax system as a whole, the full-sample Suits (at -0.052) suggests greater regressivity than either the population or income decile Suits indexes (at -0.045 and -0.050).

The full-sample index is theoretically preferred because it is based on all available data, and computers can now quickly calculate an index based on every sample record. This study generally reports full-sample Suits indexes except in places where this would make it difficult to compare this study's results with those of earlier years, which did not report the full-sample indexes.

Both the full-sample Suits index and population-decile Suits index are reported on *Tables 2-1* and *3-1* (two far-right columns). For easy comparison, *Table C-1* shows all three versions of the Suits index for each tax category.

Table C-1

Suits Indexes: Population-Decile, Income-Decile, and Full-Sample (2012-2017)

Tax Type	2012 Suits Index			2017 Suits Index		
	Pop.-Decile	Inc.-Decile	Full-Sample	Pop.-Decile	Inc.-Decile	Full-Sample
State Taxes						
Taxes on Income and Estates						
Individual income tax	0.205	0.219	0.223	0.204	0.227	0.231
Corporation franchise tax [1]	-0.177	-0.192	-0.197	-0.178	-0.193	-0.198
Estate tax	0.525	0.828	0.841	0.535	0.848	0.862
Total Income and Estate Taxes	0.180	0.198	0.201	0.183	0.208	0.211
Taxes on Consumption						
Total sales tax	-0.232	-0.247	-0.253	-0.226	-0.241	-0.247
General sales/use tax	-0.248	-0.266	-0.272	-0.245	-0.262	-0.269
Sales tax on motor vehicles	-0.056	-0.055	-0.058	-0.056	-0.056	-0.060
Motor fuels excise taxes	-0.340	-0.363	-0.370	-0.351	-0.374	-0.381
Alcoholic beverage excise taxes	-0.223	-0.242	-0.248	-0.213	-0.235	-0.241
Cigarette and tobacco excise taxes [2]	-0.585	-0.585	-0.602	-0.598	-0.596	-0.614
Insurance premiums taxes	-0.318	-0.341	-0.347	-0.327	-0.350	-0.356
Gambling taxes	-0.497	-0.510	-0.517	-0.506	-0.518	-0.526
MinnesotaCare taxes	-0.303	-0.335	-0.340	-0.318	-0.348	-0.354
Solid waste management taxes	-0.398	-0.411	-0.422	-0.398	-0.412	-0.423
Total Consumption Taxes	-0.276	-0.293	-0.299	-0.278	-0.295	-0.302
Taxes on Property						
State Property Tax	-0.122	-0.120	-0.124	-0.121	-0.119	-0.124
Residential recreational property	-0.237	-0.271	-0.275	-0.249	-0.282	-0.286
Commercial [3]	-0.105	-0.097	-0.102	-0.103	-0.095	-0.100
Industrial	0.019	0.035	0.035	0.026	0.046	0.045
Utility	-0.217	-0.235	-0.240	-0.214	-0.232	-0.238
Motor vehicle registration tax	-0.187	-0.219	-0.222	-0.198	-0.229	-0.233
Mortgage and deed taxes	-0.041	-0.041	-0.044	-0.053	-0.053	-0.057
Total Property Taxes	-0.143	-0.159	-0.162	-0.155	-0.171	-0.175
Property Tax Refunds						
Homeowners	0.717	0.714	0.724	0.700	0.696	0.705
Renters	0.897	0.873	0.901	0.899	0.869	0.903
Total Property Tax Refunds	0.789	0.778	0.795	0.769	0.756	0.774
Total State Taxes	0.005	0.006	0.006	0.018	0.025	0.025
Local Taxes						
Property Taxes	-0.164	-0.185	-0.189	-0.166	-0.187	-0.191
General Property Tax	-0.164	-0.186	-0.190	-0.166	-0.188	-0.192
Homeowners (before PTR)	-0.165	-0.199	-0.202	-0.176	-0.209	-0.213
Residential recreational property	-0.237	-0.271	-0.275	-0.249	-0.282	-0.286
Commercial [3]	-0.105	-0.097	-0.102	-0.103	-0.095	-0.100
Industrial	0.019	0.035	0.035	0.026	0.046	0.045
Farm (other than residence) [4]	0.004	-0.049	-0.058	-0.012	-0.061	-0.069
Rental Housing (before PTR)	-0.295	-0.275	-0.282	-0.289	-0.269	-0.276
Utility	-0.217	-0.235	-0.240	-0.214	-0.232	-0.238
Mining Production Taxes (taconite)	0.244	0.304	0.308	0.266	0.337	0.340
Taxes on consumption						
Local Sales Taxes	-0.248	-0.266	-0.272	-0.245	-0.262	-0.269
Local Gross Earnings Taxes	-0.217	-0.235	-0.240	-0.214	-0.232	-0.238
Total Local Taxes	-0.167	-0.189	-0.193	-0.169	-0.190	-0.195
Total State and Local Taxes	-0.045	-0.050	-0.052	-0.033	-0.034	-0.035

[1] Includes taconite/iron ore occupation tax.
[2] Includes Health Impact Fee.
[3] Includes resorts and railroads.
[4] Includes Timber.

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Appendix D
Tax Incidence by Type of Tax (2012)

The tables in *Appendix D* provide more detail about the incidence of each of the taxes included in this study. For each tax, the following information is provided:

Top Table

- The total dollars of tax paid by Minnesota households, by non-resident households, and by business. The sum of these three parts equals the total tax collected in 2012. The business portion is based on this study's definition of business taxes. (See pages 8-10 of this study.)
- The total dollars of tax burden that fall on Minnesota residents – after shifting of any business portion of the tax. This equals the sum of (a) the tax imposed on Minnesota households and (b) any portion of the tax imposed on business that is borne by Minnesota residents.
- The total dollars of tax burden "exported" to nonresident households. This equals the sum of (a) the tax imposed on non-resident households and (b) any portion of the tax imposed on business that is shifted to nonresidents.
- The share of the total burden on Minnesota residents that is imposed directly on Minnesota households and the shares that represent business tax that is shifted to Minnesota consumers (in higher prices), shifted to Minnesota labor (in lower wages or benefits), or borne by Minnesota capital (as owners of businesses).

Chart

- The effective tax rate for this particular tax, by population decile – using the scale on the right-hand side of the chart.
- The effective tax rate for all Minnesota state and local taxes combined, by population decile – using the scale on the left-hand side of the chart.
- The average effective tax rate for this particular tax (and for all Minnesota state and local taxes combined).

Bottom Table

- Effective tax rates by population decile, and more detail for the top decile (divided into its first 5%, next 4%, and top 1%).
- The population-decile Suits index for this particular tax (and for all Minnesota state and local taxes combined).

Appendix D Tables

State Taxes

Income and Estate Taxes

Consumption Taxes

Property Taxes

Local Taxes

Appendix D Tables (cont.)

State and Local Property Taxes by Type of Property

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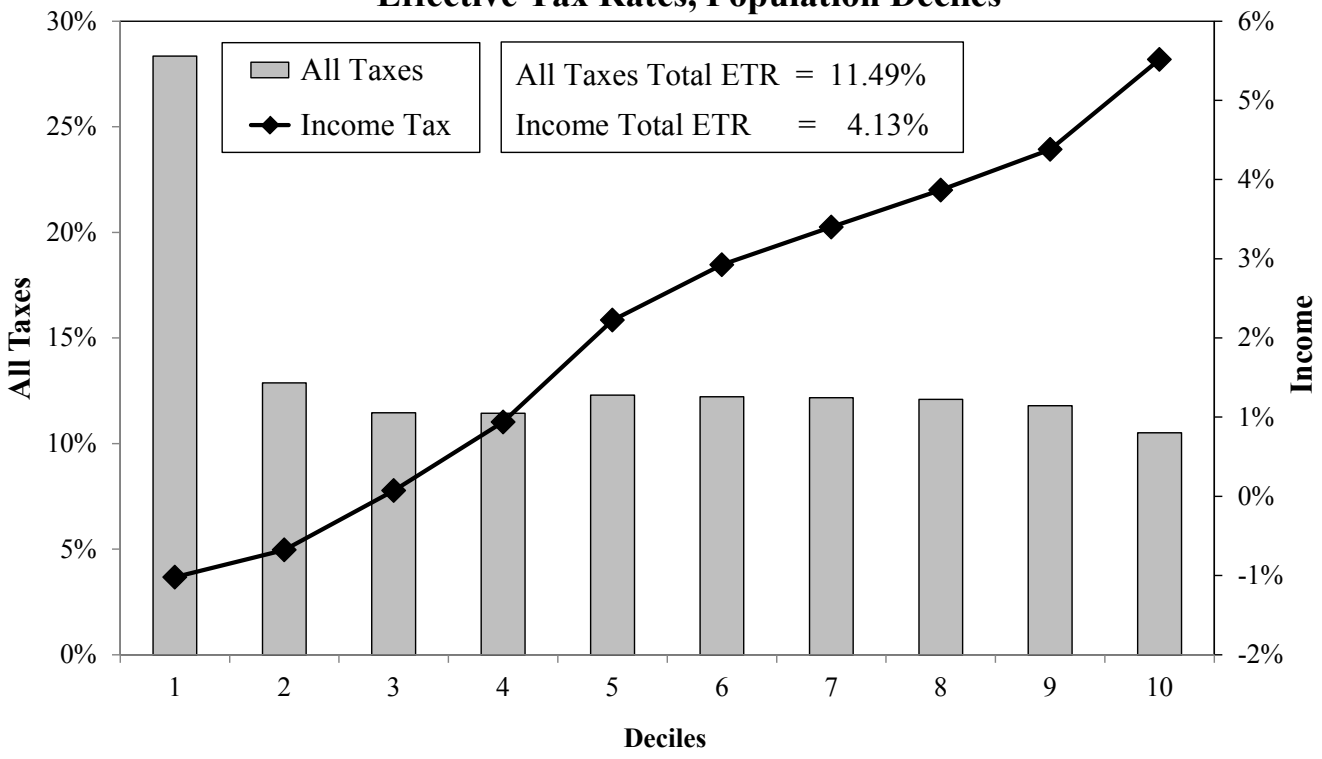
2012 Incidence Estimate for Individual Income Tax

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After Shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$8,493	$8,021	$471	$0	$8,021	$471

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%

Effective Tax Rates, Population Deciles



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Income	-1.02%	-0.68%	0.07%	0.94%	2.22%	2.92%	3.40%	3.87%	4.38%	5.52%	4.78%	5.28%	6.19%	0.223

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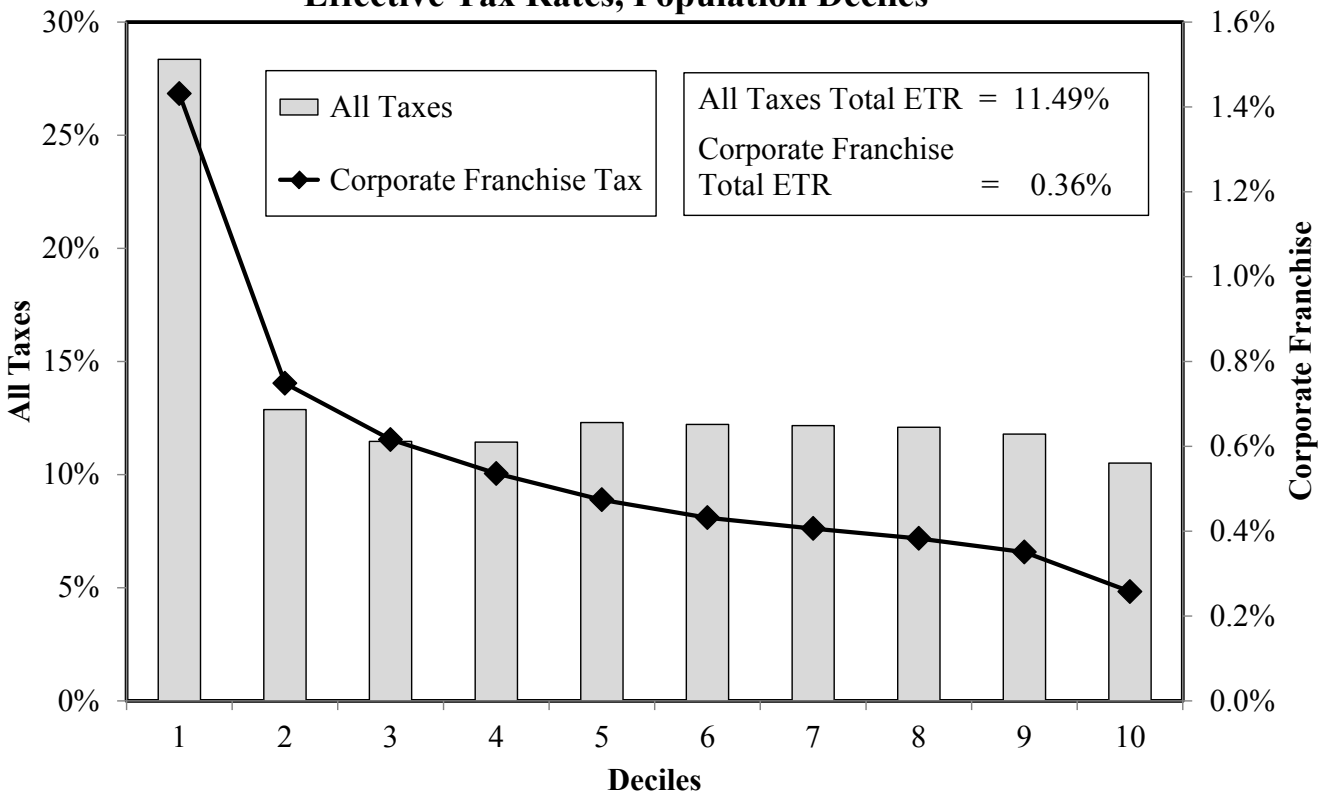
2012 Incidence Estimate for Corporate Franchise Tax[1]

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$1,183	$0	$0	$1,183	$701	$482

* Shifting allocations: Direct = 0%, Consumers = 72%, Labor = 20%, Capital = 8%

Effective Tax Rates, Population Deciles



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Corporate Franchise	1.43%	0.75%	0.62%	0.54%	0.47%	0.43%	0.41%	0.38%	0.35%	0.26%	0.33%	0.28%	0.19%	-0.197

[1]Includes the Corporate Franchise Tax ($1,044 million) and the Mining Occupation Tax (-$1 million).

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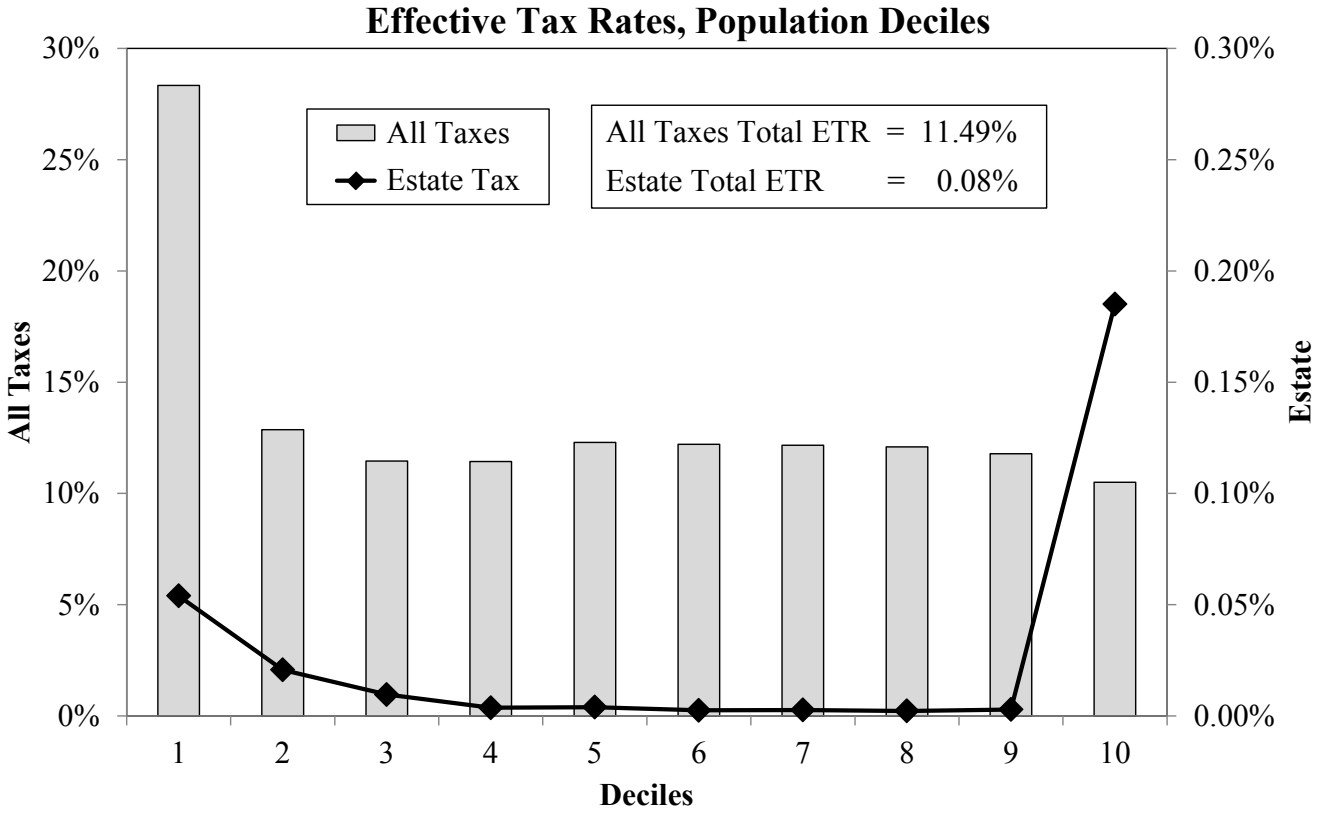
2012 Incidence Estimate for
Estate Tax

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$162	$162	$0	$0	$162	$0

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Estate	0.05%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.19%	0.00%	0.02%	0.45%	0.841

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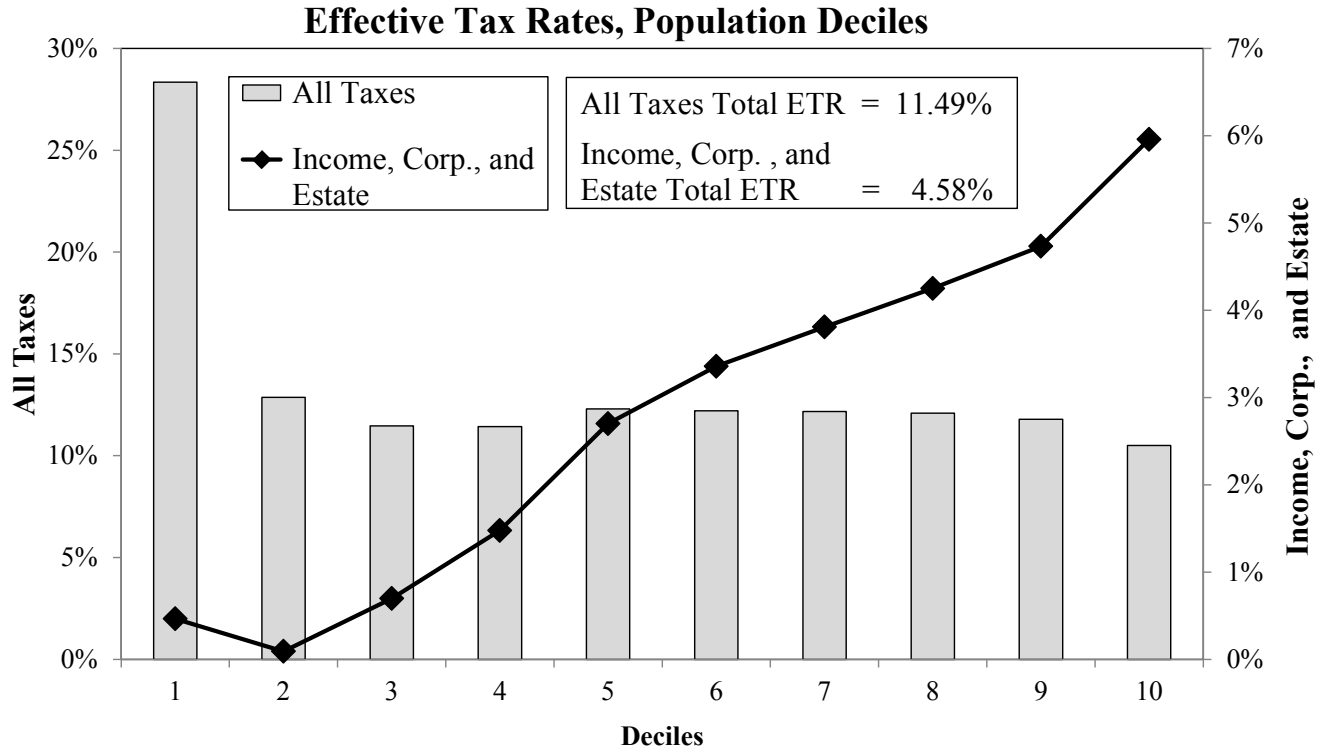
2012 Incidence Estimate for
Total Income, Corporate, and Estate Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$9,838	$8,183	$471	$1,183	$8,885	$953



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Income, Corp., and Estate	0.46%	0.09%	0.70%	1.48%	2.70%	3.36%	3.81%	4.25%	4.73%	5.96%	5.11%	5.58%	6.83%	0.201

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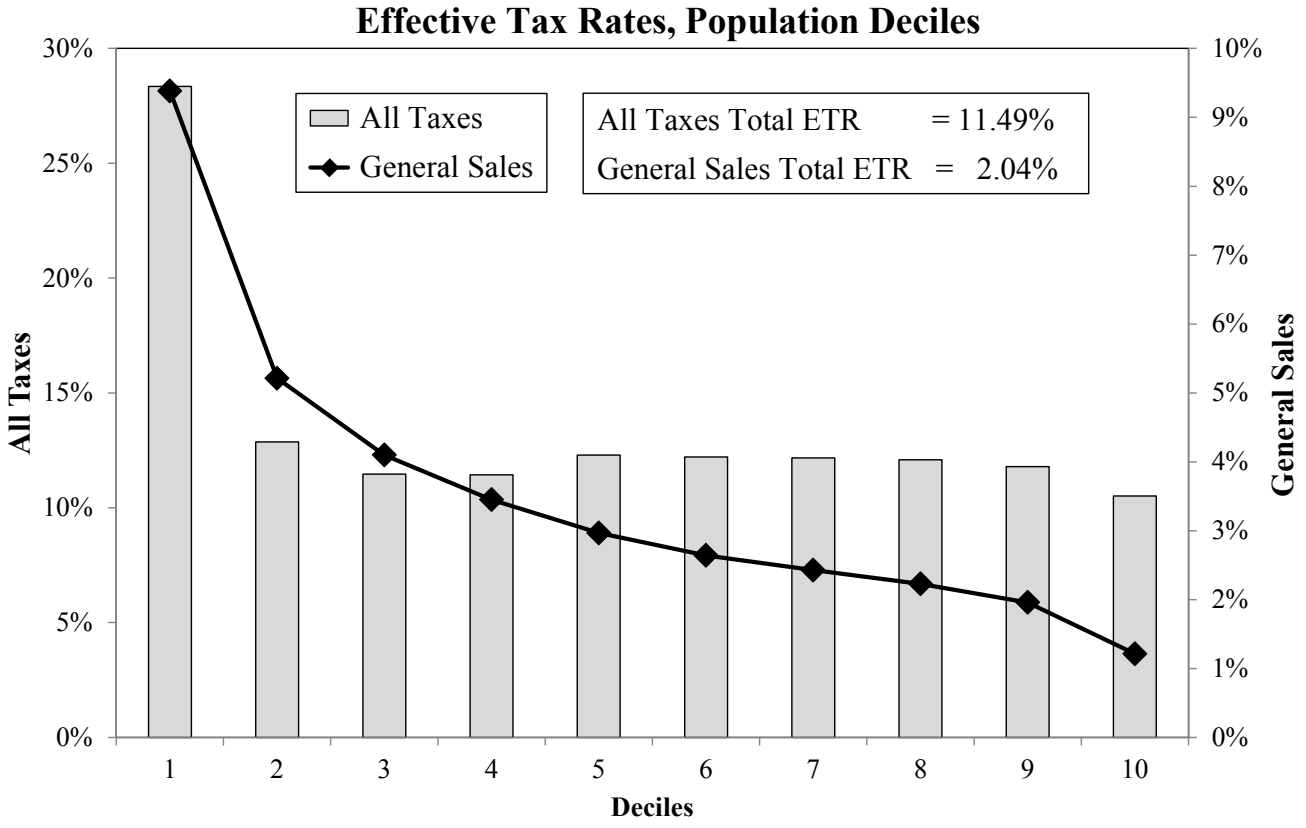
2012 Incidence Estimate for General Sales and Use Tax

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$5,026	$2,609	$308	$2,109	$3,968	$1,058

* Shifting allocations: Direct = 66%, Consumers = 31%, Labor = 0%, Capital = 3%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
General Sales	9.38%	5.21%	4.10%	3.45%	2.97%	2.64%	2.43%	2.23%	1.96%	1.21%	1.70%	1.36%	0.78%	-0.272

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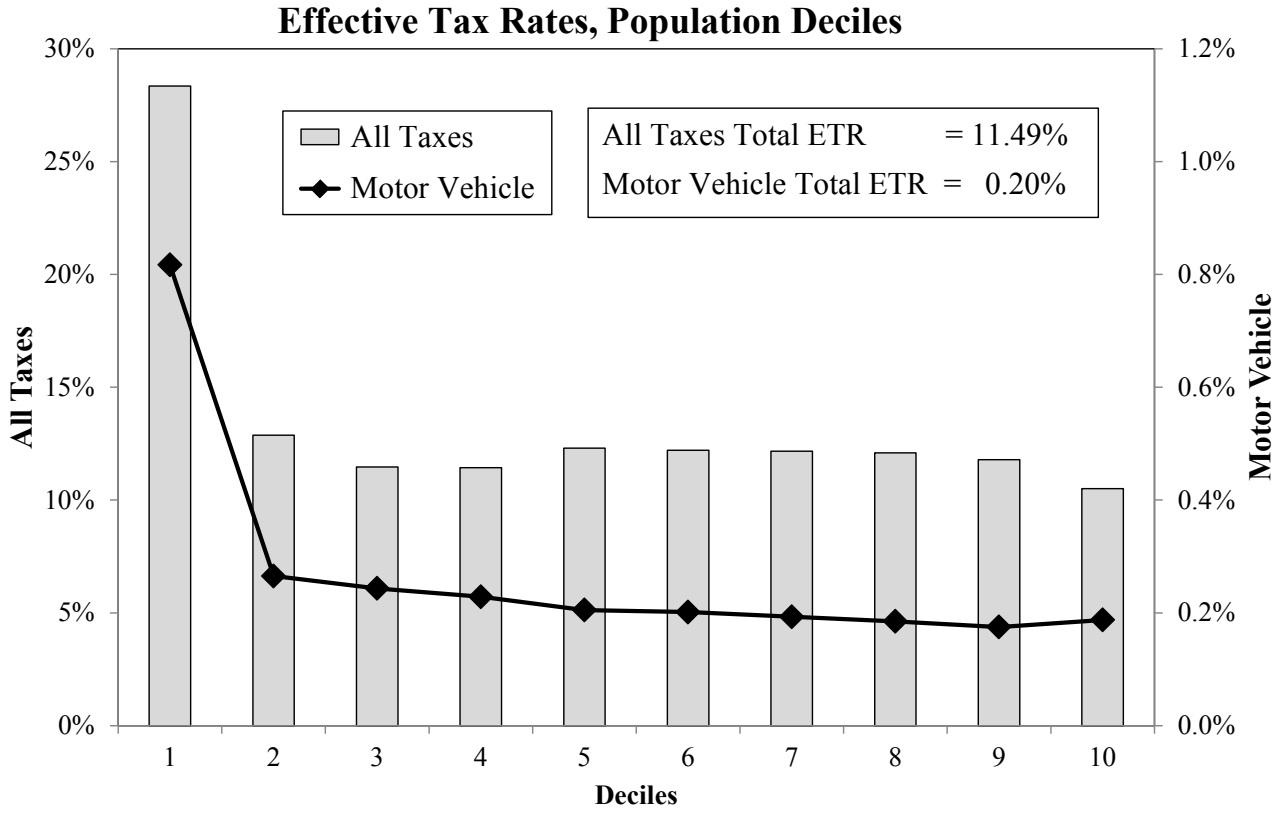
2012 Incidence Estimate for
Sales Tax on Motor Vehicles

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$578	$265	$0	$313	$384	$195

* Shifting allocations: Direct = 69%, Consumers = 2%, Labor = 1%, Capital = 28%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Motor Vehicle	0.82%	0.27%	0.24%	0.23%	0.21%	0.20%	0.19%	0.18%	0.17%	0.19%	0.19%	0.19%	0.18%	-0.058

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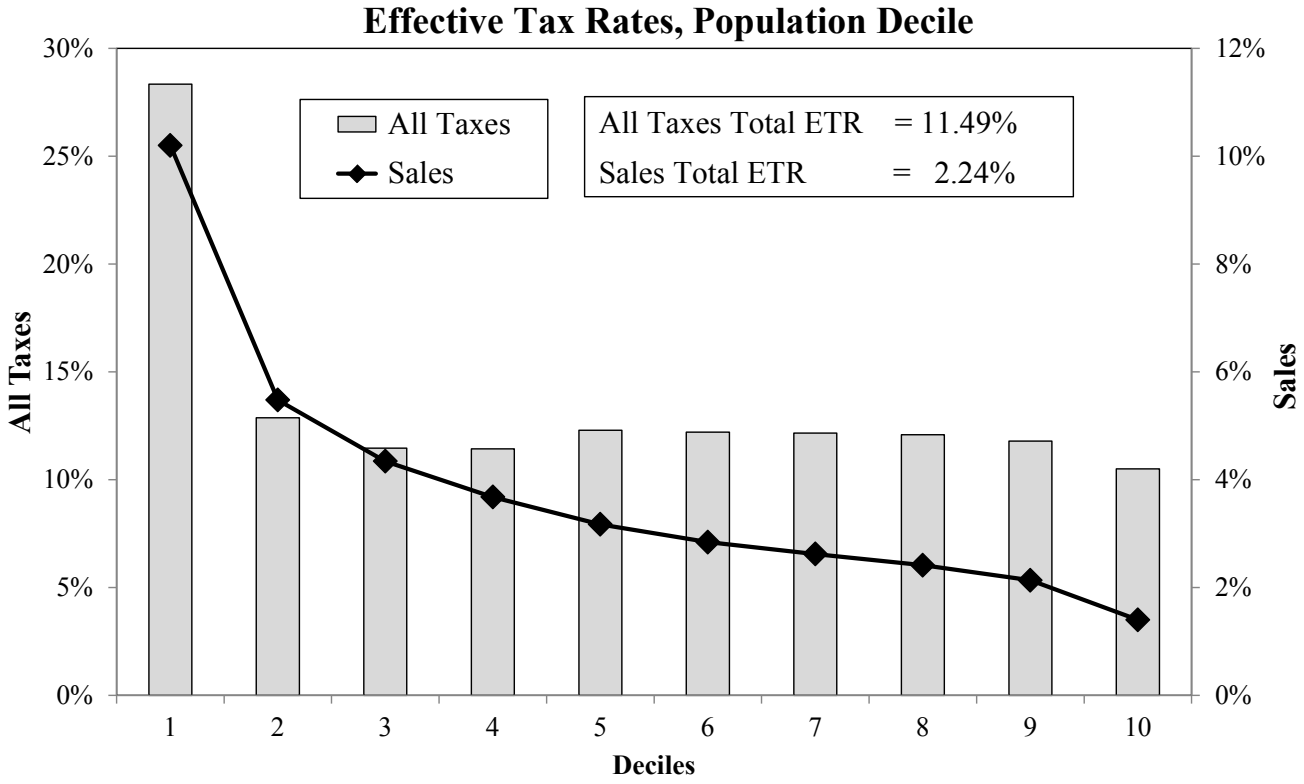
2012 Incidence Estimate for
Total State Sales Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$5,604	$2,875	$308	$2,422	$4,351	$1,253



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Sales	10.20%	5.48%	4.34%	3.68%	3.17%	2.84%	2.62%	2.41%	2.13%	1.40%	1.88%	1.55%	0.96%	-0.253

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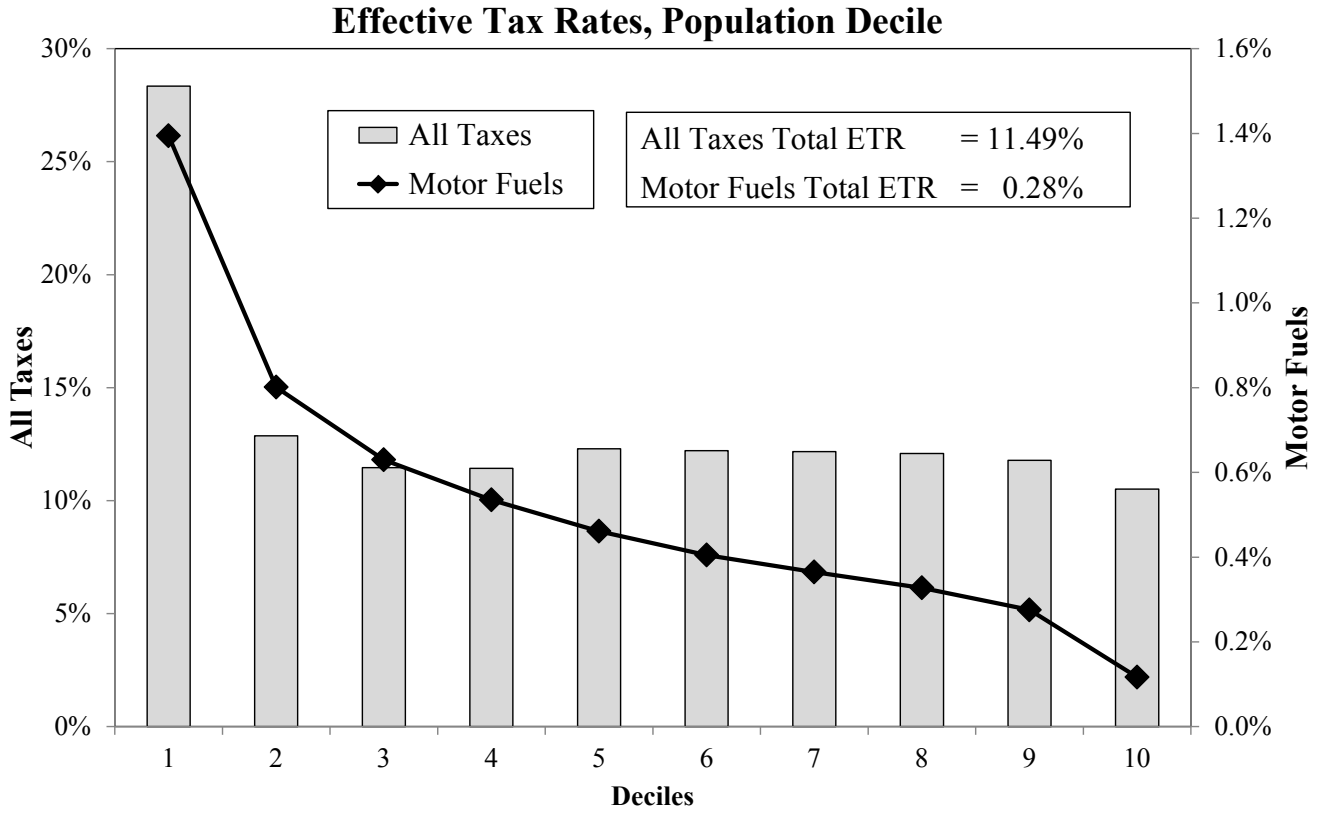
2012 Incidence Estimate for
Motor Fuels Excise Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$856	$454	$65	$337	$538	$318

* Shifting allocations: Direct = 84%, Consumers = 16%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Motor Fuels	1.39%	0.80%	0.63%	0.54%	0.46%	0.41%	0.36%	0.33%	0.28%	0.12%	0.21%	0.14%	0.04%	-0.370

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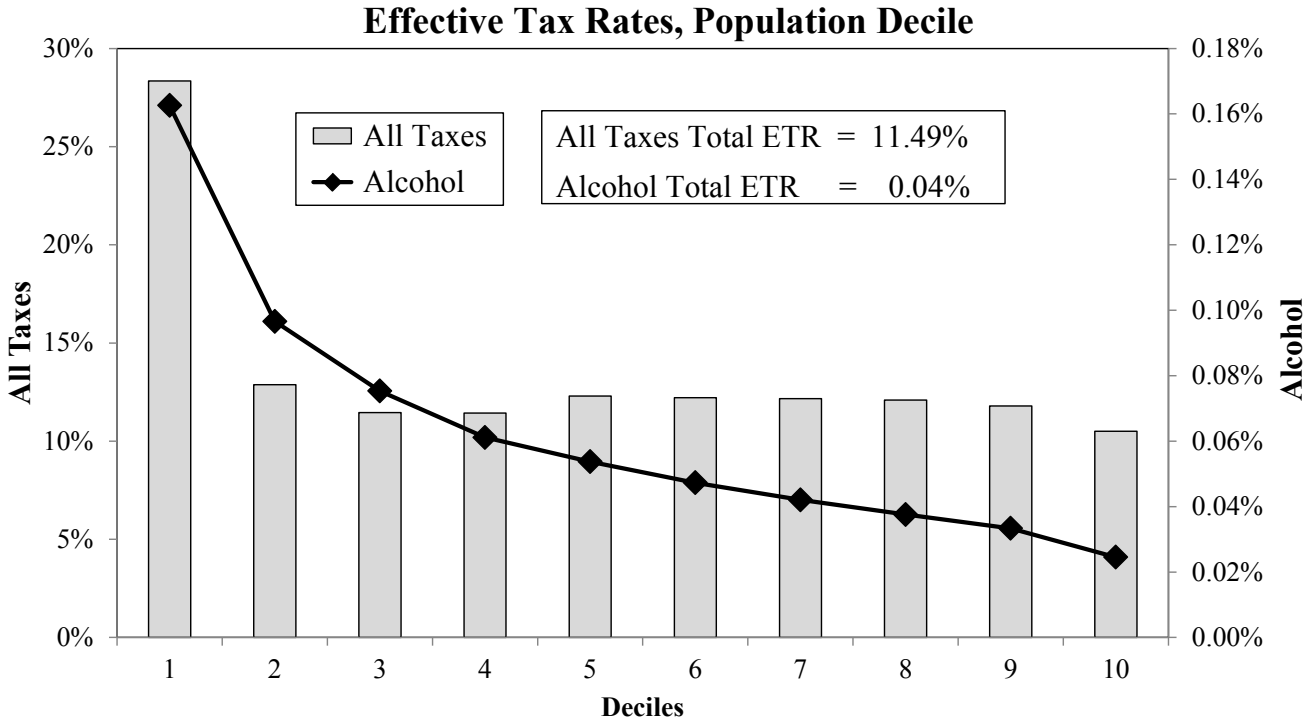
2012 Incidence Estimate for Alcoholic Beverage Excise Taxes

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$81	$72	$9	$0	$72	$9

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Alcohol	0.16%	0.10%	0.08%	0.06%	0.05%	0.05%	0.04%	0.04%	0.03%	0.02%	0.03%	0.03%	0.02%	-0.248

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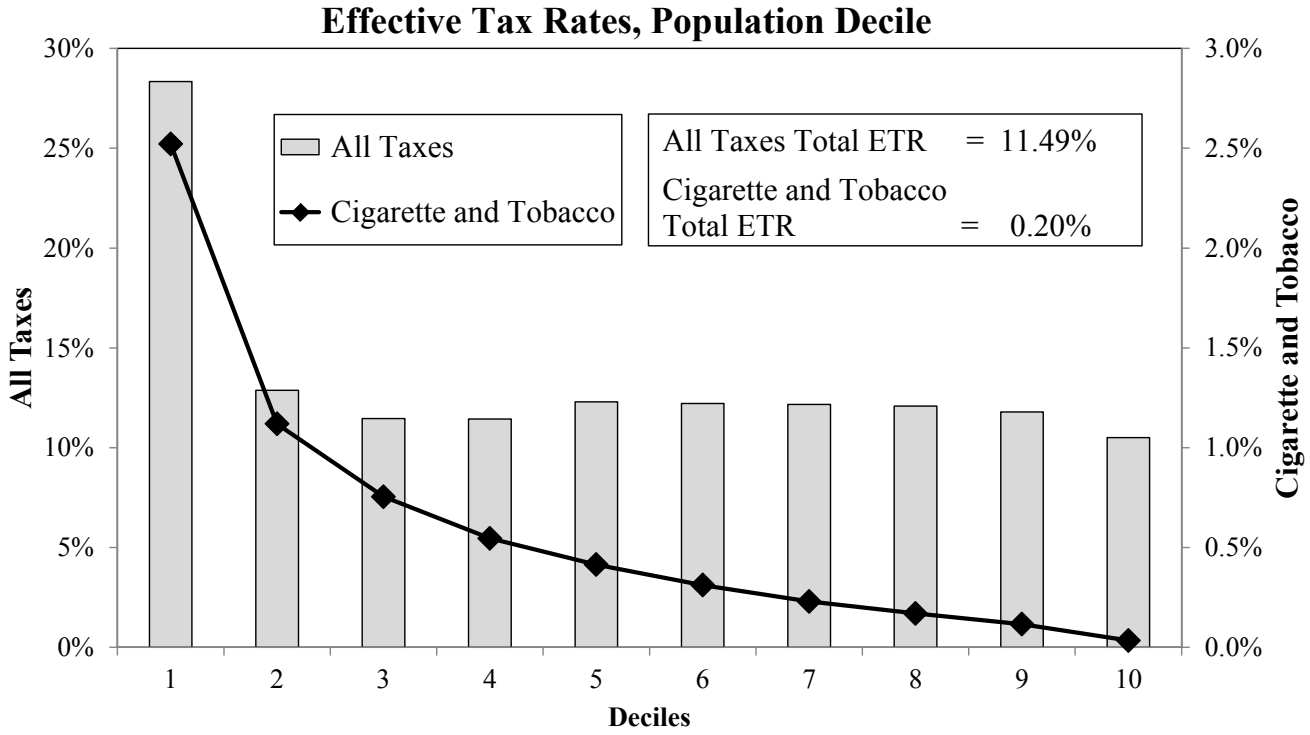
2012 Incidence Estimate for Cigarette and Tobacco Excise Taxes[1]

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$424	$386	$38	$0	$386	$38

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Cigatette and Tobacco	2.52%	1.12%	0.75%	0.55%	0.41%	0.31%	0.23%	0.17%	0.12%	0.03%	0.07%	0.04%	0.01%	-0.602

[1]Includes the Cigarette Tax and Fee ($371.3 million) and the Tobacco Products Tax and Fee ($53.1 million).

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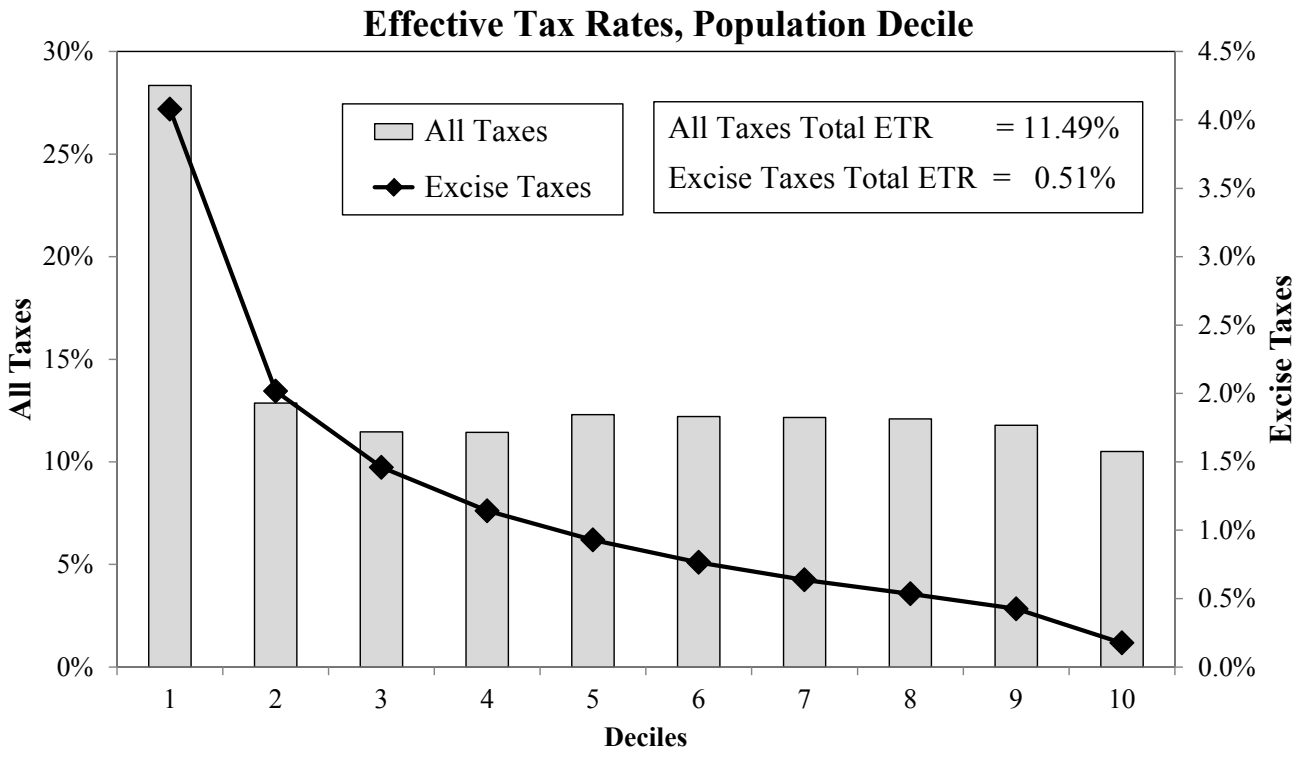
2012 Incidence Estimate for
Total Excise Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$1,362	$912	$112	$337	$996	$365



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Excise Taxes	4.08%	2.02%	1.46%	1.14%	0.93%	0.76%	0.64%	0.53%	0.42%	0.18%	0.31%	0.20%	0.07%	-0.451

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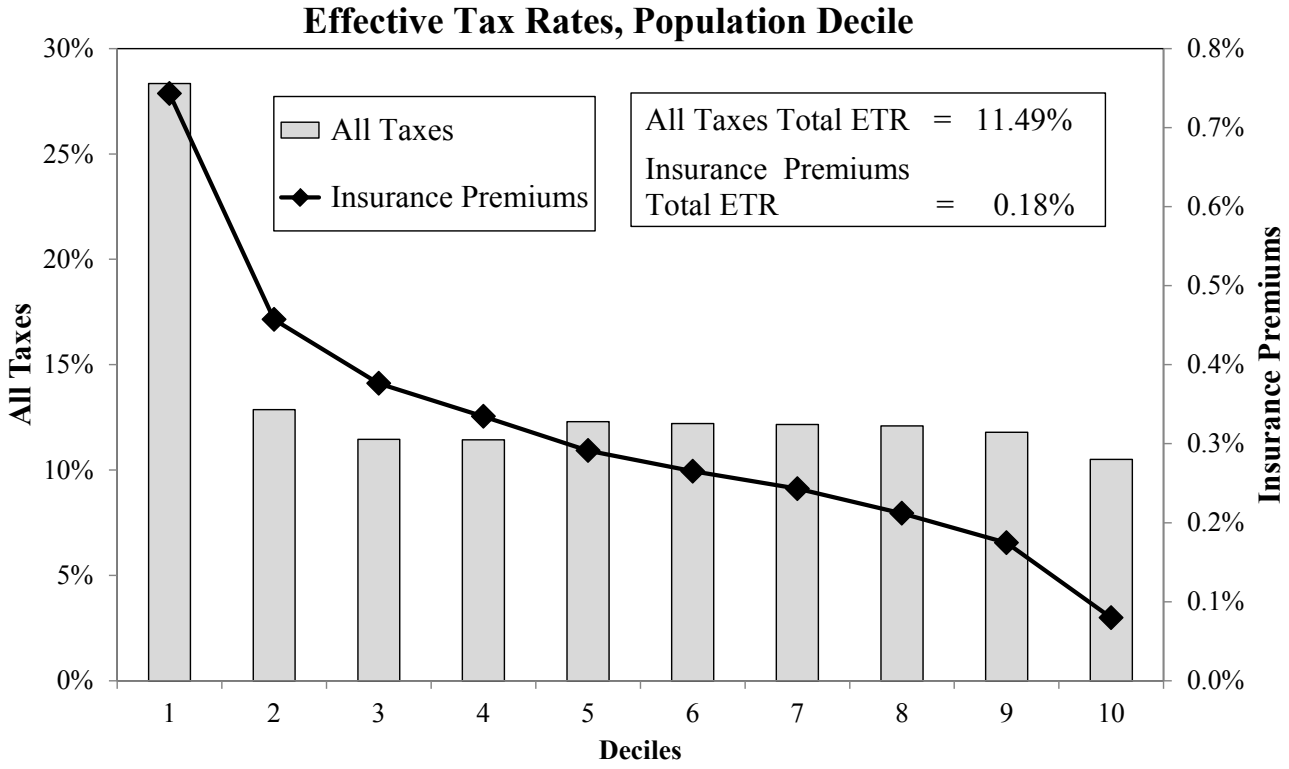
2012 Incidence Estimate for Insurance Premiums Taxes

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$397	$291	$0	$106	$344	$53

* Shifting allocations: Direct = 85%, Consumers = 12%, Labor = 0%, Capital = 3%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Insurance Premiums	0.74%	0.46%	0.38%	0.33%	0.29%	0.27%	0.24%	0.21%	0.17%	0.08%	0.14%	0.09%	0.04%	-0.347

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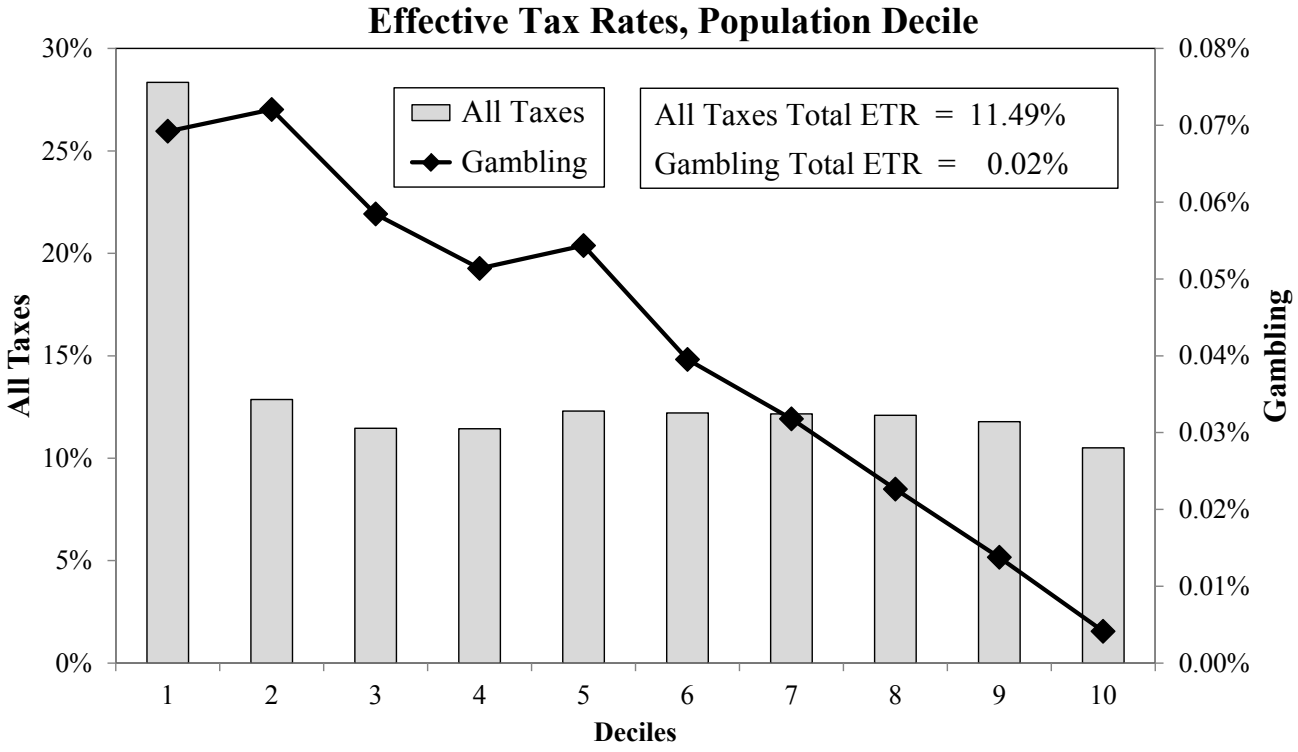
2012 Incidence Estimate for Gambling Taxes[1]

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$39	$39	$0	$0	$39	$0

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Gambling	0.07%	0.07%	0.06%	0.05%	0.05%	0.04%	0.03%	0.02%	0.01%	0.00%	0.01%	0.00%	0.00%	-0.517

[1]Gambling taxes include Lawful Gambling ($1.9 million), Pull Tabs ($18.9 million), Combined Receipts ($20.1 million), and Pari-Mutual (-$1 million).

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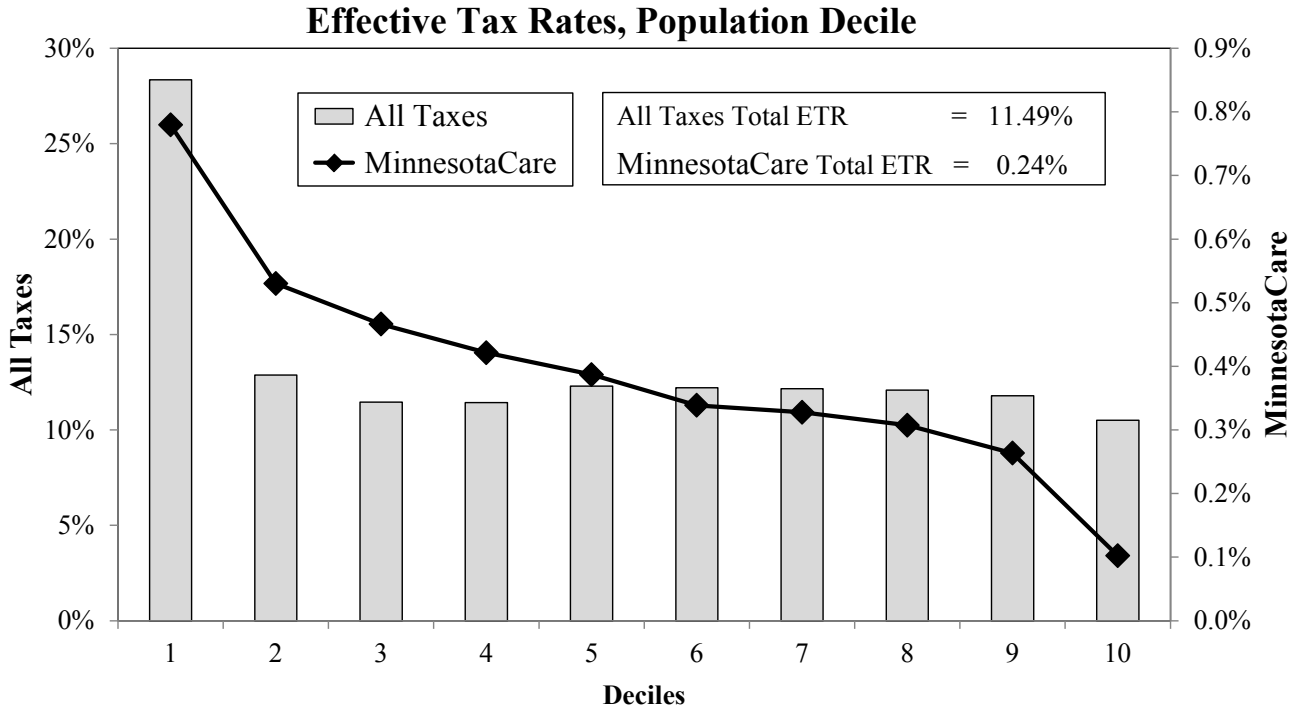
2012 Incidence Estimate for MinnesotaCare Taxes[1]

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$500	$458	$42	$0	$458	$42

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
MinnesotaCare	0.78%	0.53%	0.47%	0.42%	0.39%	0.34%	0.33%	0.31%	0.26%	0.10%	0.20%	0.12%	0.02%	-0.340

[1]Includes the Provider Tax ($199.9 million), the Hospitals Tax ($184.5 million), and the Drug Distributors Tax ($100.6 million).

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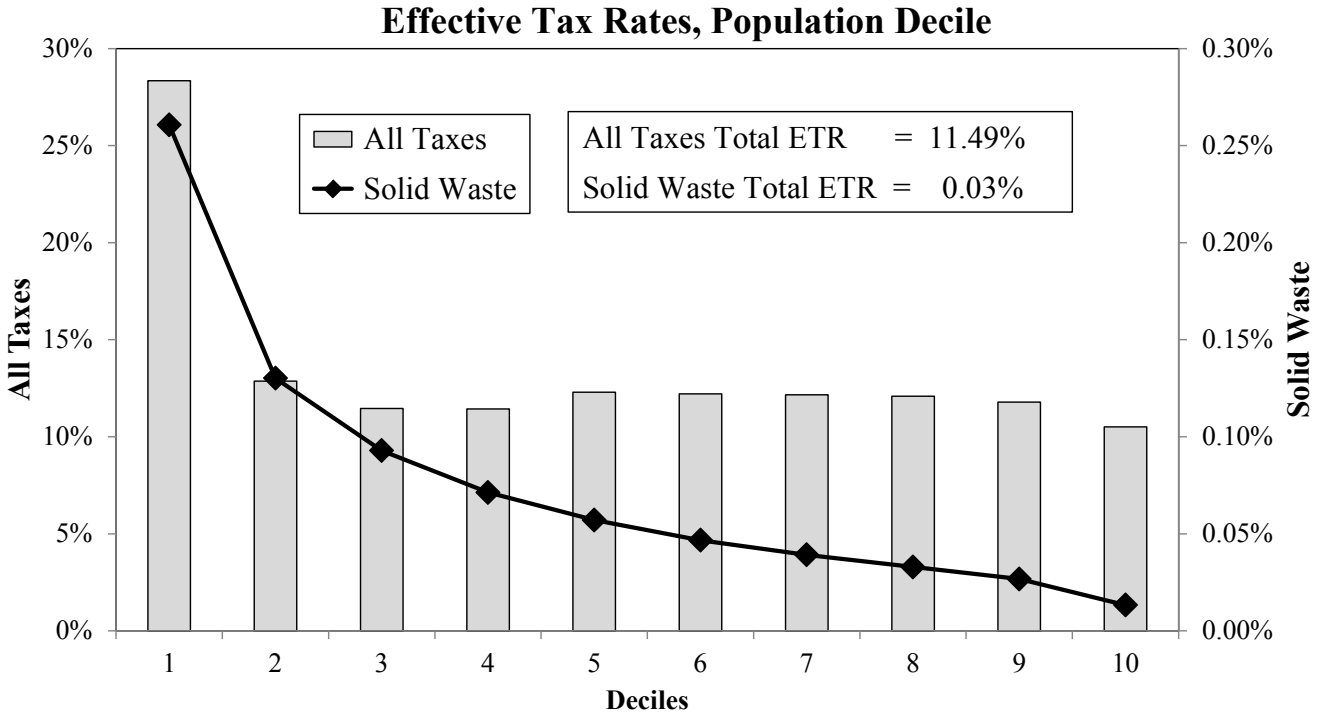
2012 Incidence Estimate for
Solid Waste Management Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$70	$33	$0	$37	$64	$6

* Shifting allocations: Direct = 51%, Consumers = 49%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Solid Waste	0.26%	0.13%	0.09%	0.07%	0.06%	0.05%	0.04%	0.03%	0.03%	0.01%	0.02%	0.02%	0.01%	-0.422

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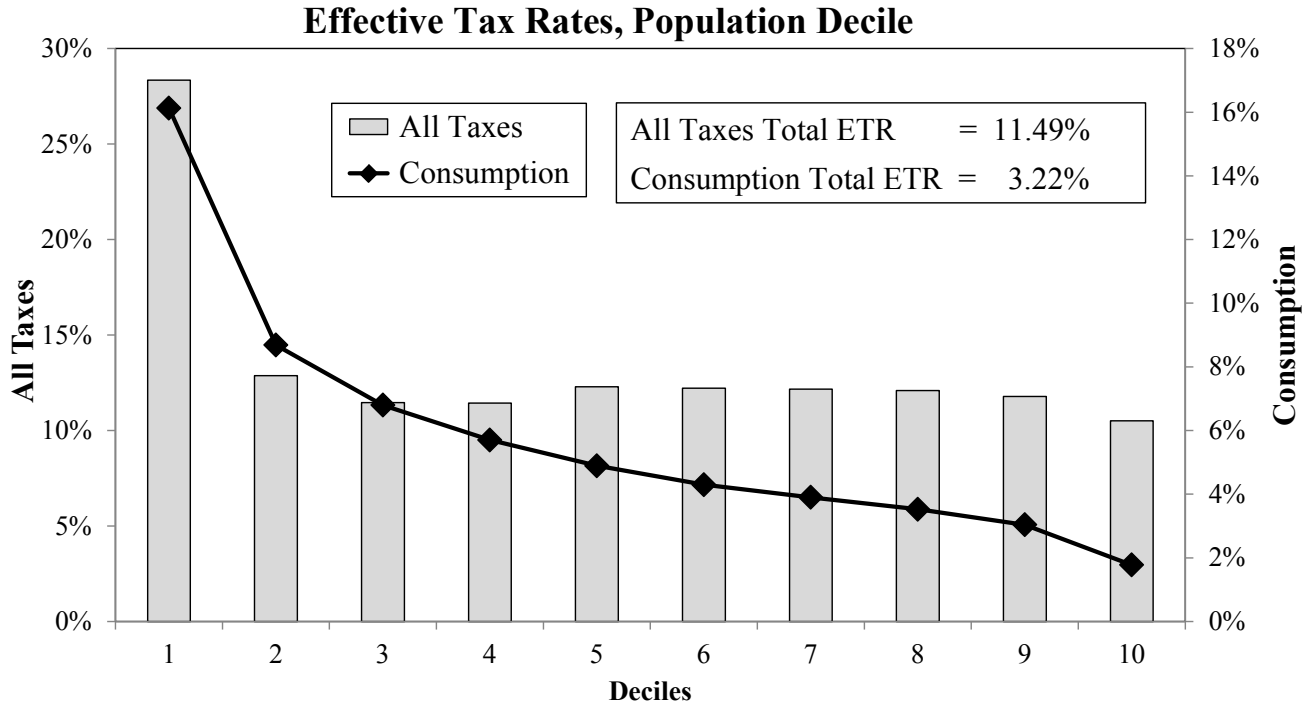
2012 Incidence Estimate for
Total Sate Consumption Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$7,972	$4,607	$462	$2,902	$6,253	$1,719



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Consumption	16.13%	8.68%	6.80%	5.70%	4.89%	4.30%	3.90%	3.52%	3.04%	1.78%	2.56%	1.98%	1.10%	-0.299

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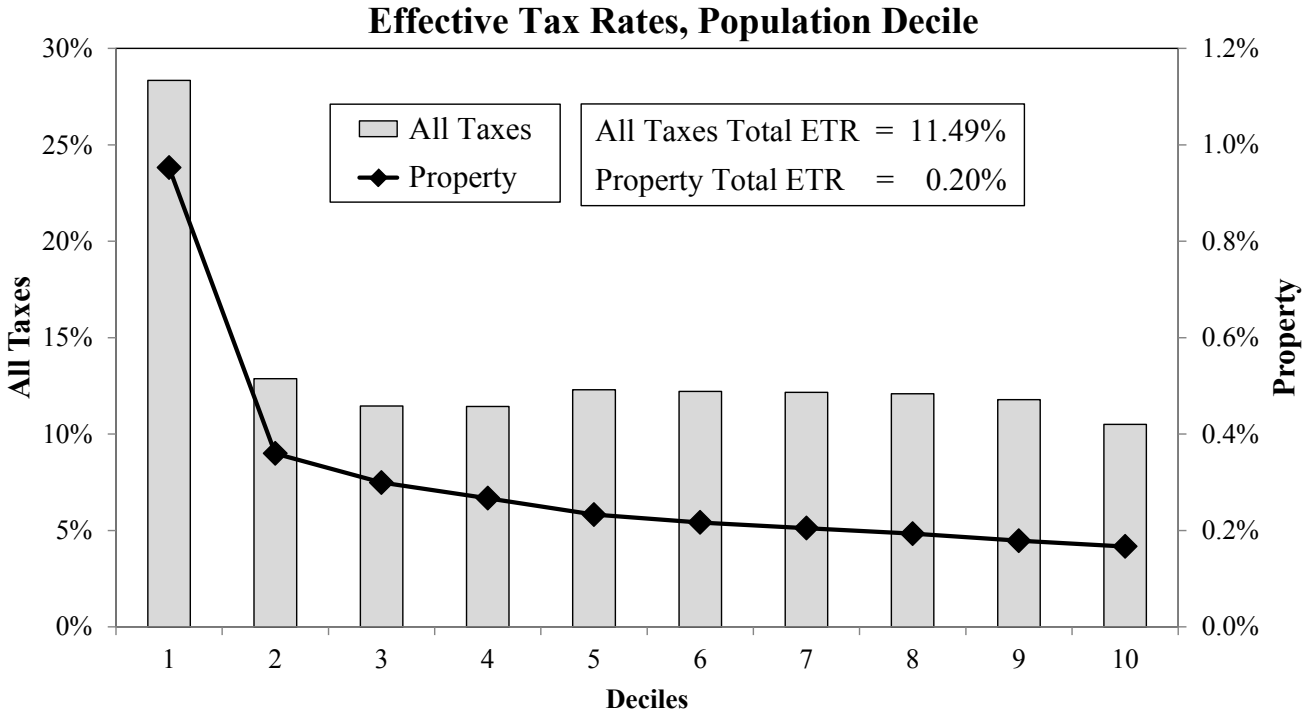
2012 Incidence Estimate for State Property Tax[1]

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$817	$32	$8	$778	$387	$430



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Property	0.95%	0.36%	0.30%	0.27%	0.23%	0.22%	0.20%	0.19%	0.18%	0.17%	0.17%	0.16%	0.17%	-0.124

[1]Includes taxes on Residential Recreational Property ($39.9 million), Commercial Property ($539.5 million), Industrial Property ($150.3 million), and Utility Property ($87.7 million).

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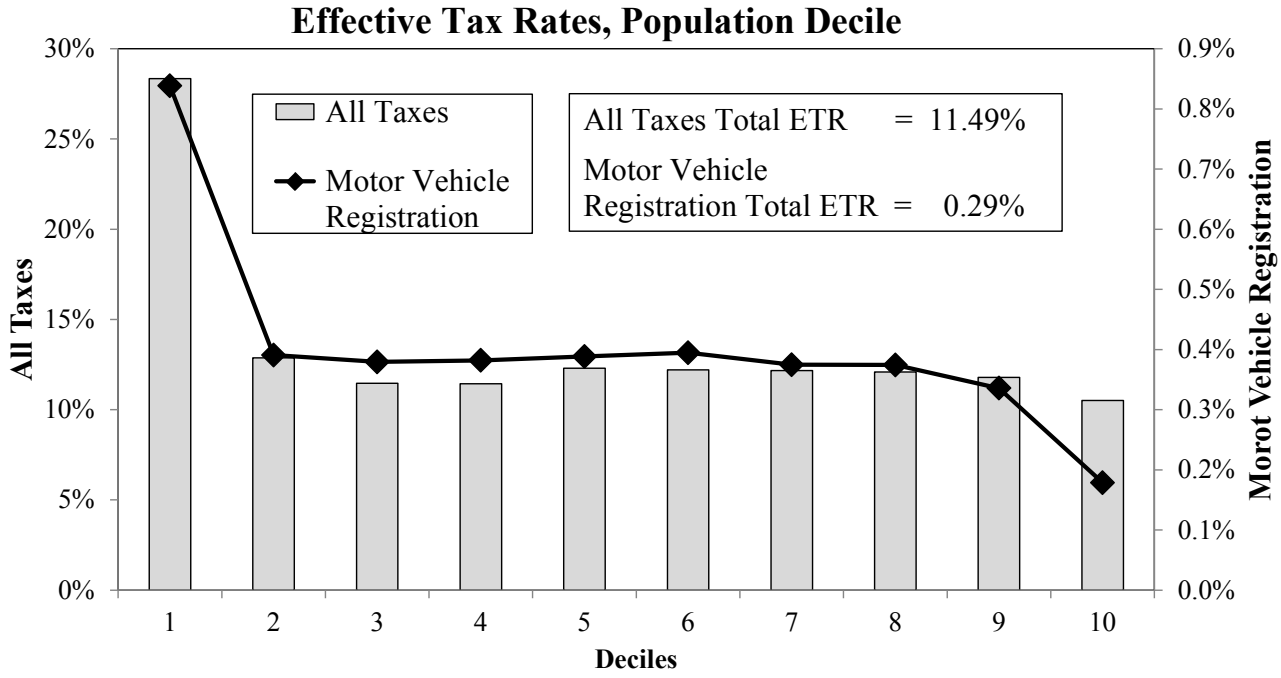
2012 Incidence Estimate for
Motor Vehicle Registration Tax

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$601	$509	$0	$92	$562	$39

* Shifting allocations: Direct = 91%, Consumers = 5, Labor = 2, Capital = 3%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Motor Vehicle Registration	0.84%	0.39%	0.38%	0.38%	0.39%	0.39%	0.37%	0.37%	0.34%	0.18%	0.29%	0.21%	0.09%	-0.222

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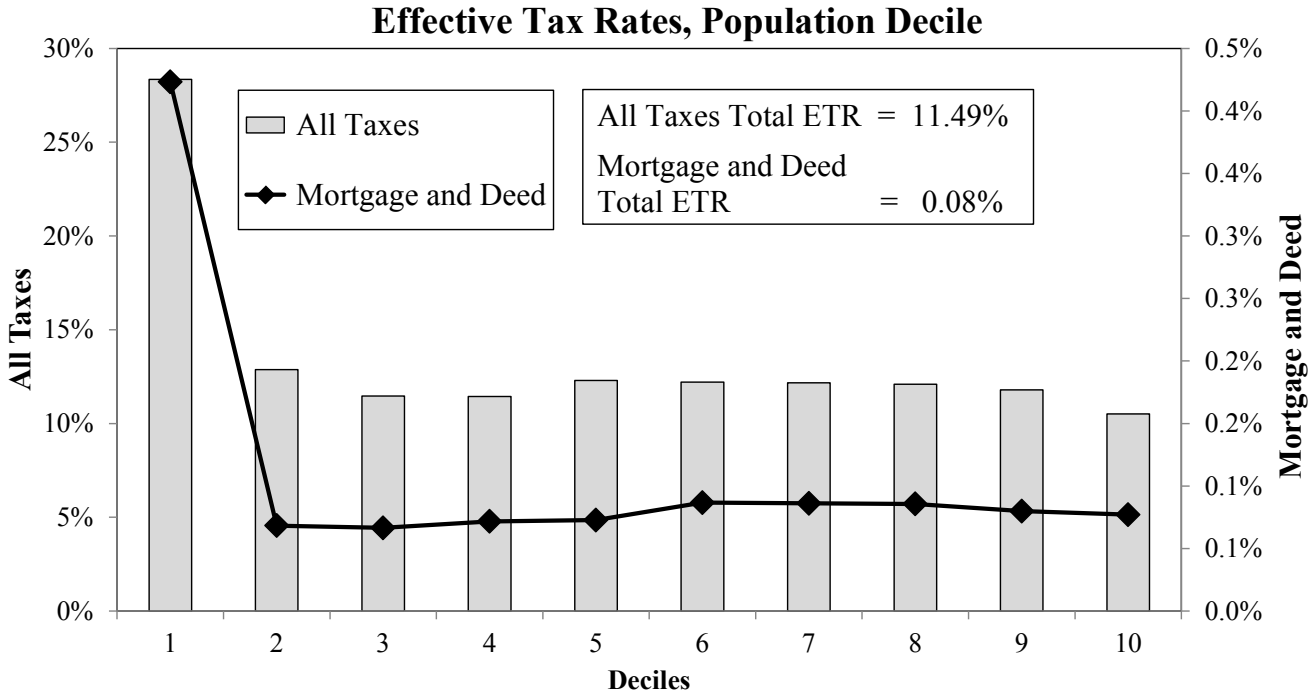
2012 Incidence Estimate for Mortgage and Deed Taxes[1]

Tax Collection Amounts 2012 ($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$188	$93	$0	$94	$159	$29

* Shifting allocations: Direct = 59%, Consumers = 6%, Labor = 0%, Capital = 35%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Mortgage and Deed	0.42%	0.07%	0.07%	0.07%	0.07%	0.09%	0.09%	0.09%	0.08%	0.08%	0.08%	0.07%	0.08%	-0.044

[1]Includes Mortgage Registry Tax ($103 million) and Deed Transfer Tax ($57 million).

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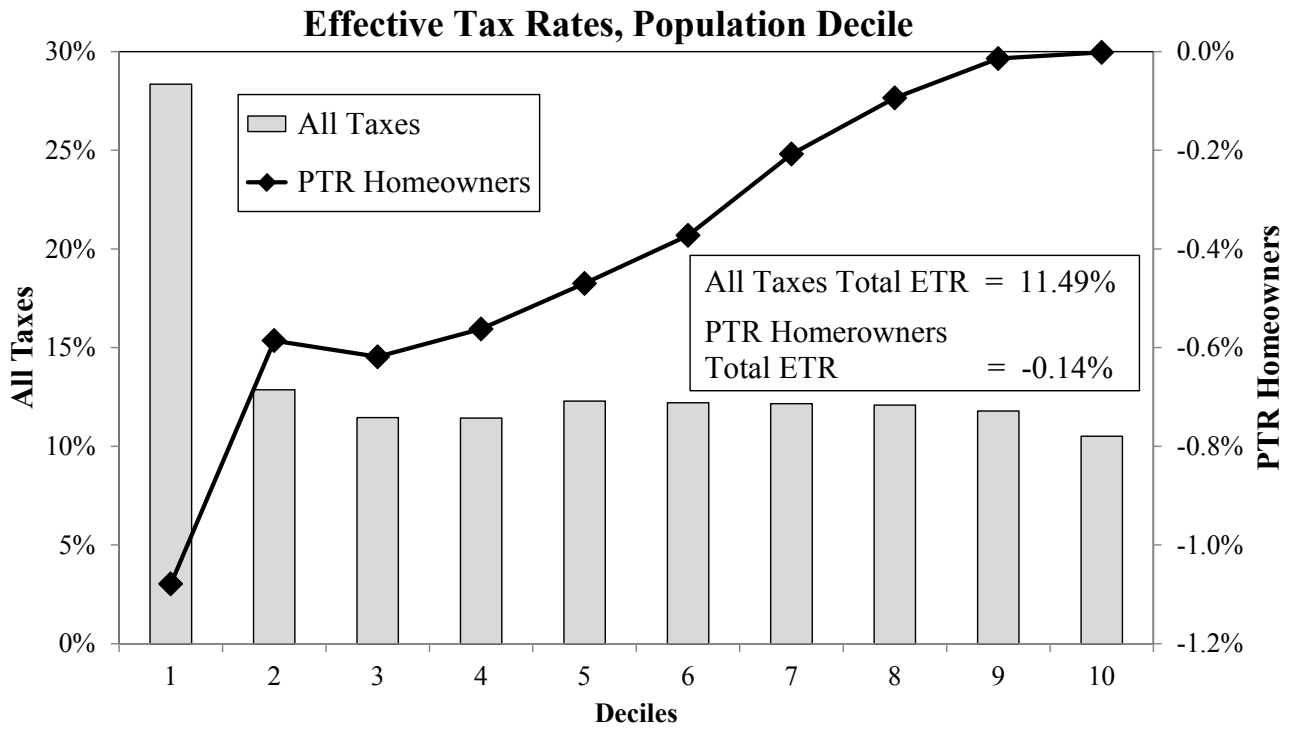
2012 Incidence Estimate for
Property Tax Refunds - Homeowners

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
-$271	-$271	$0	$0	-$271	$0

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
PTR Homeowners	-1.08%	-0.59%	-0.62%	-0.56%	-0.47%	-0.37%	-0.21%	-0.09%	-0.01%	0.00%	0.00%	0.00%	0.00%	0.724

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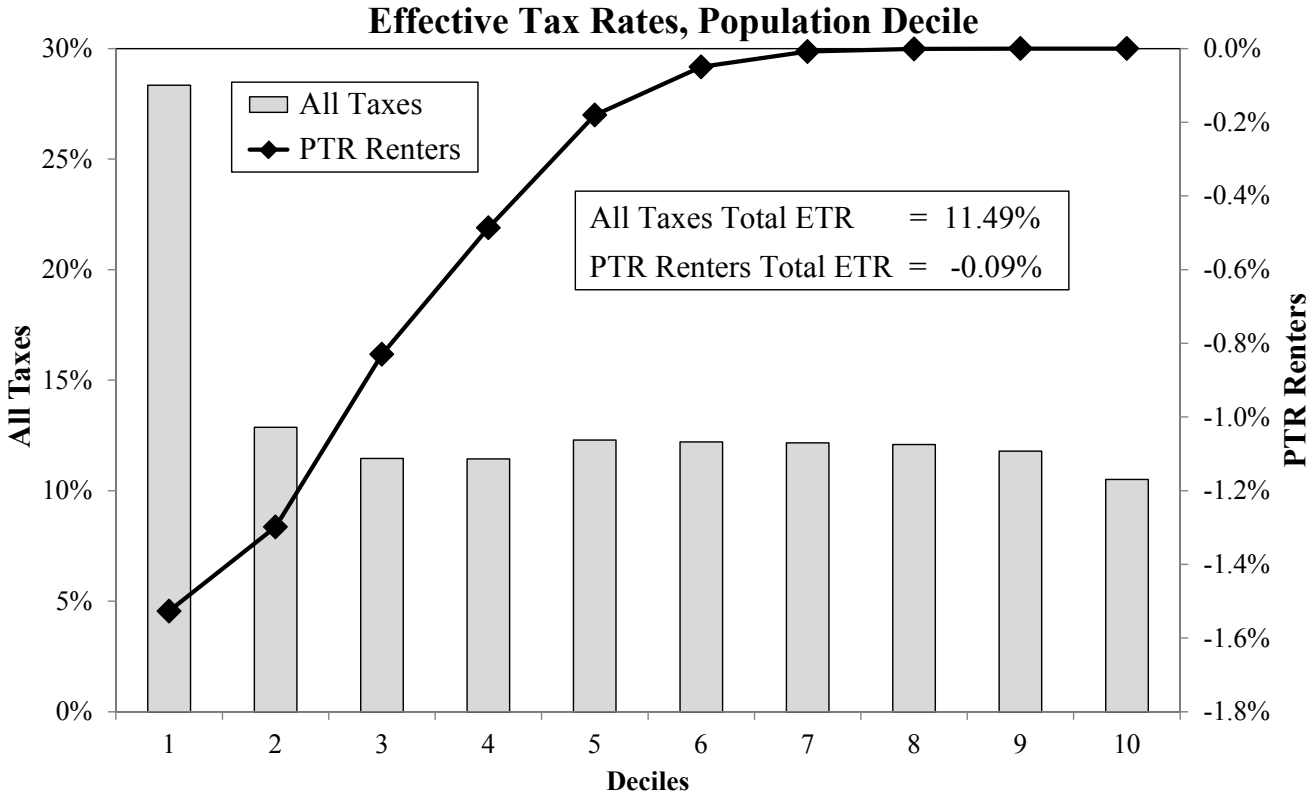
2012 Incidence Estimate for
Property Tax Refunds - Renters

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
-$181	-$181	$0	$0	-$181	$0

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
PTR Renters	-1.53%	-1.30%	-0.83%	-0.49%	-0.18%	-0.05%	-0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.901

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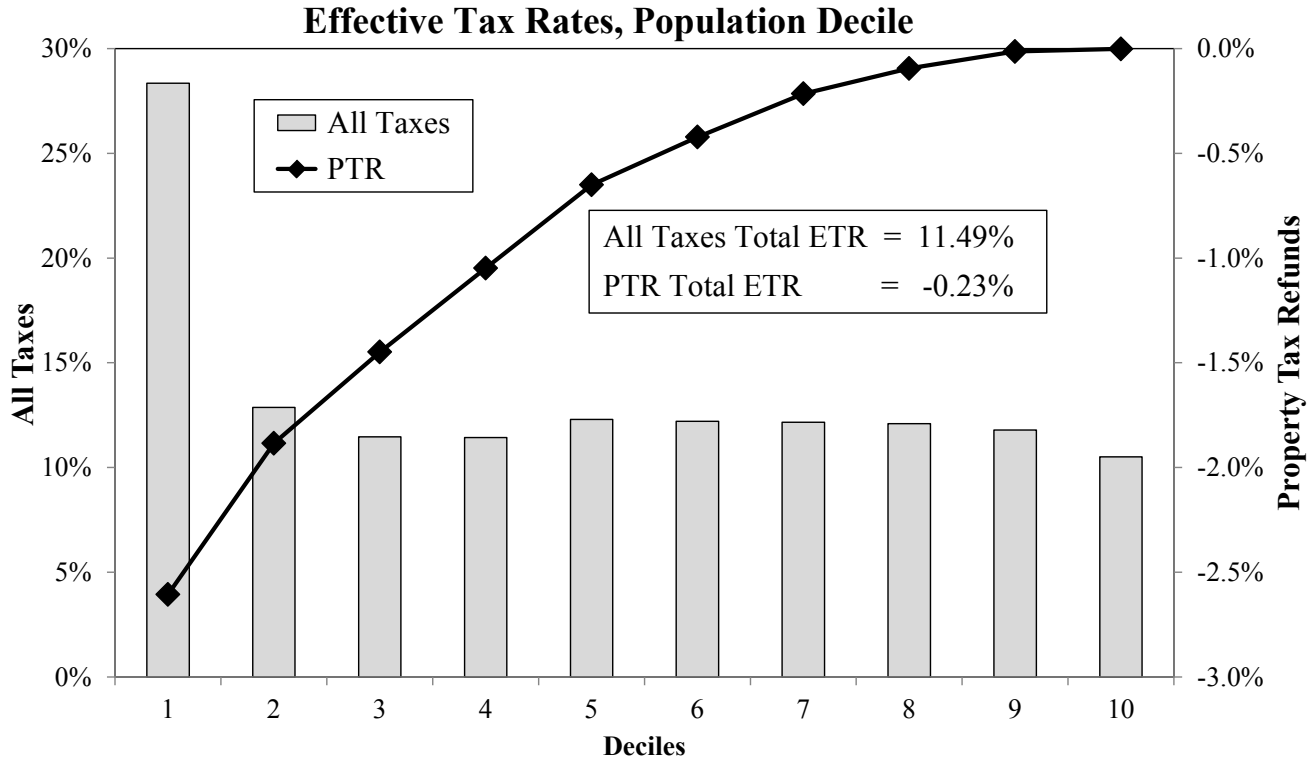
2012 Incidence Estimate for
Total Property Tax Refunds

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
-$452	-$452	$0	$0	-$452	$0

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
PTR	-2.61%	-1.88%	-1.45%	-1.05%	-0.65%	-0.42%	-0.22%	-0.09%	-0.01%	0.00%	0.00%	0.00%	0.00%	0.795

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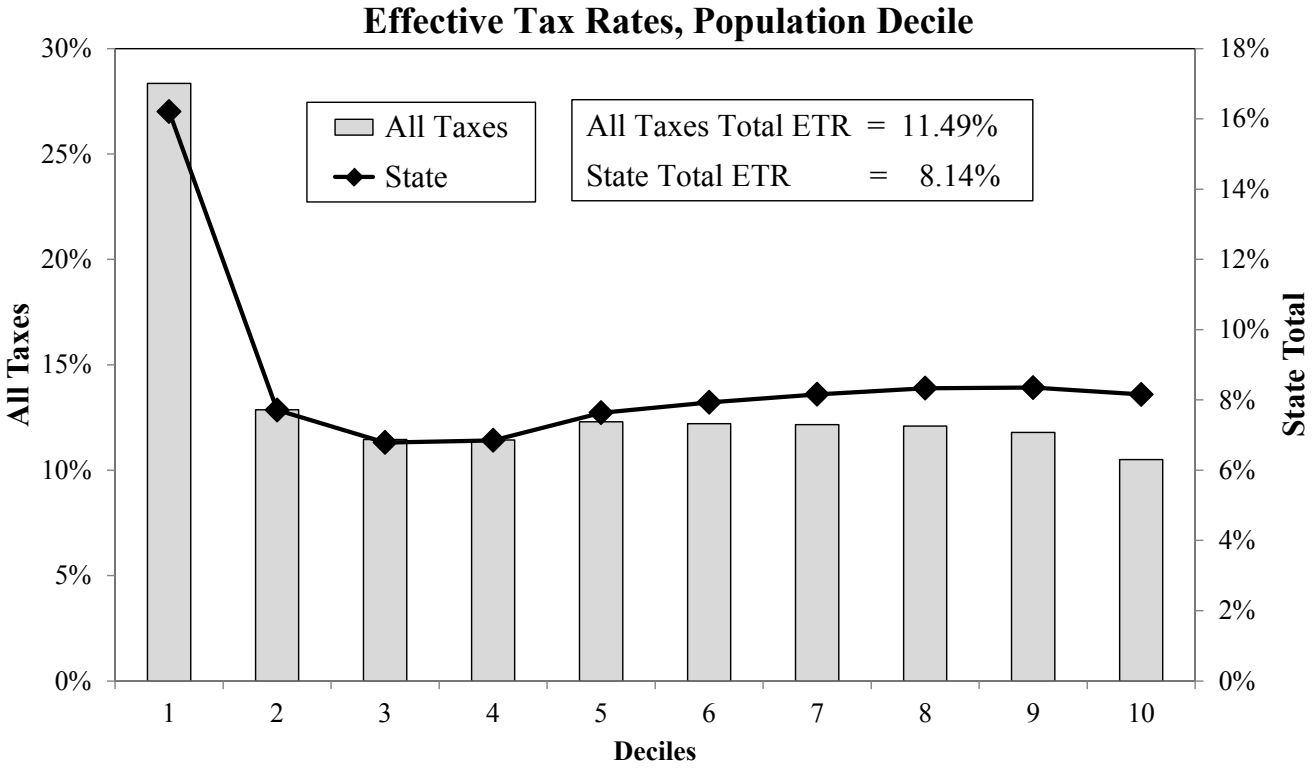
2012 Incidence Estimate for
Total State Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$18,964	$12,974	$942	$5,049	$15,795	$3,170



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
State	16.20%	7.71%	6.79%	6.85%	7.64%	7.93%	8.16%	8.33%	8.35%	8.16%	8.21%	8.01%	8.25%	0.006

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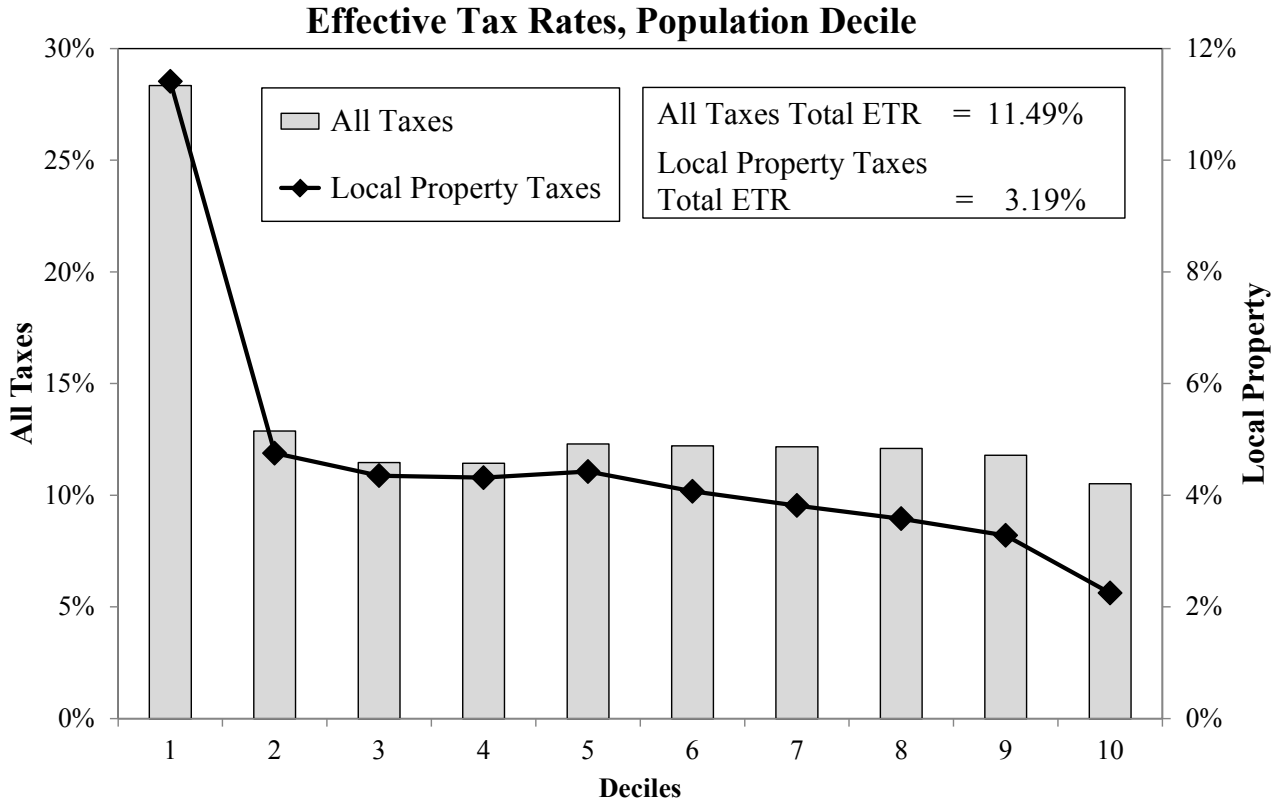
2012 Incidence Estimate for
Local Property Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$7,494	$3,877	$38	$3,579	$6,186	$1,307



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Local Property	11.41%	4.75%	4.35%	4.31%	4.42%	4.07%	3.81%	3.58%	3.28%	2.25%	2.99%	2.59%	1.48%	-0.190

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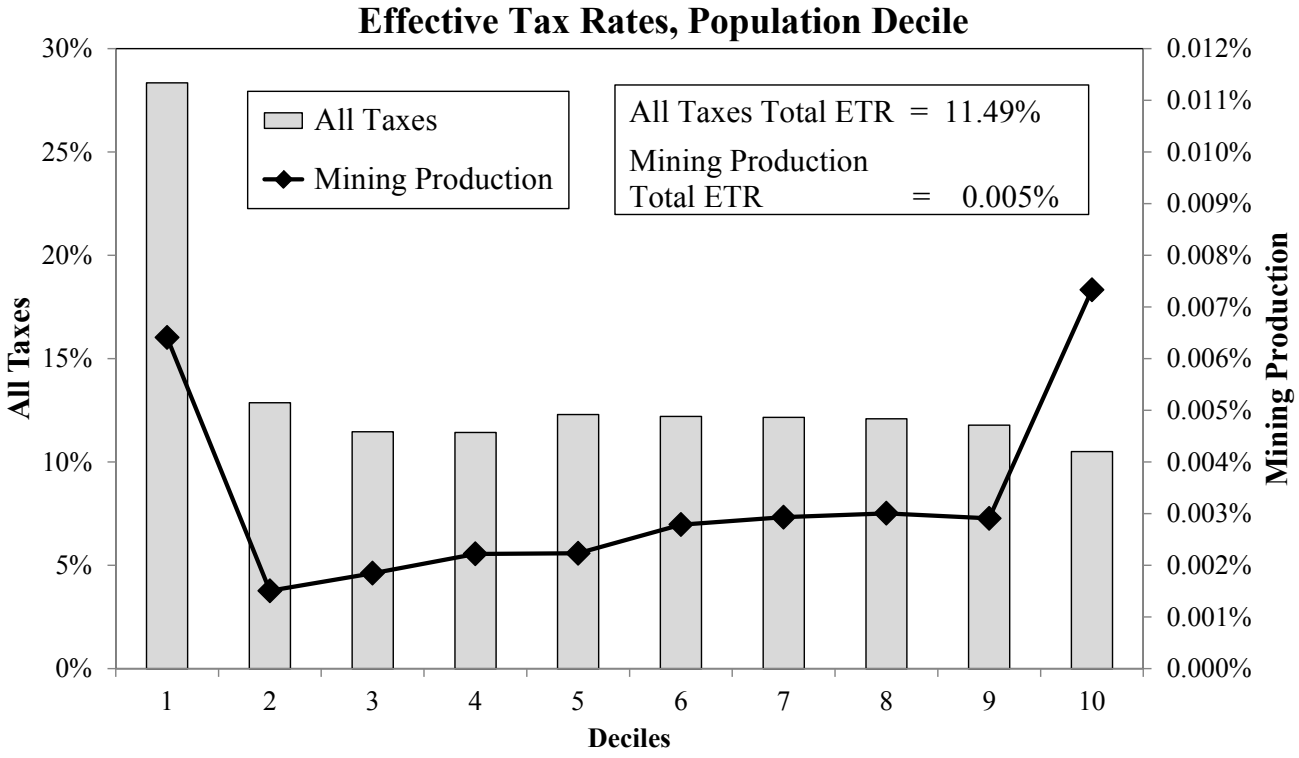
2012 Incidence Estimate for
Mining Production Taxes (Taconite)

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$94	$0	$0	$94	$9	$85

* Shifting allocations: Direct = 0%, Consumers = 0%, Labor = 7%, Capital = 93%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Mining Production	0.006%	0.002%	0.002%	0.002%	0.002%	0.003%	0.003%	0.003%	0.003%	0.007%	0.004%	0.006%	0.01%	0.308

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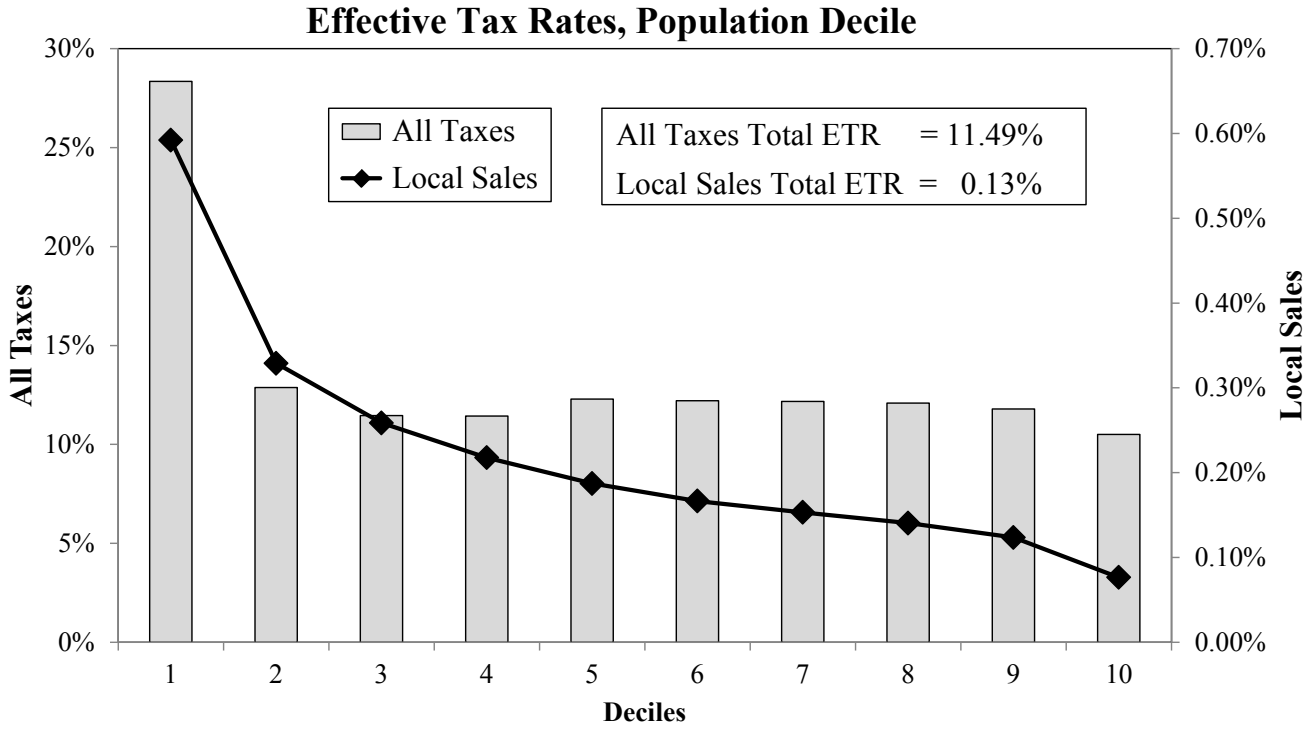
2012 Incidence Estimate for
Local Sales Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$317	$165	$19	$133	$250	$67

* Shifting allocations: Direct = 66%, Consumers = 31%, Labor = 0%, Capital = 3%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Local Sales	0.59%	0.33%	0.26%	0.22%	0.19%	0.17%	0.15%	0.14%	0.12%	0.08%	0.11%	0.09%	0.05%	-0.272

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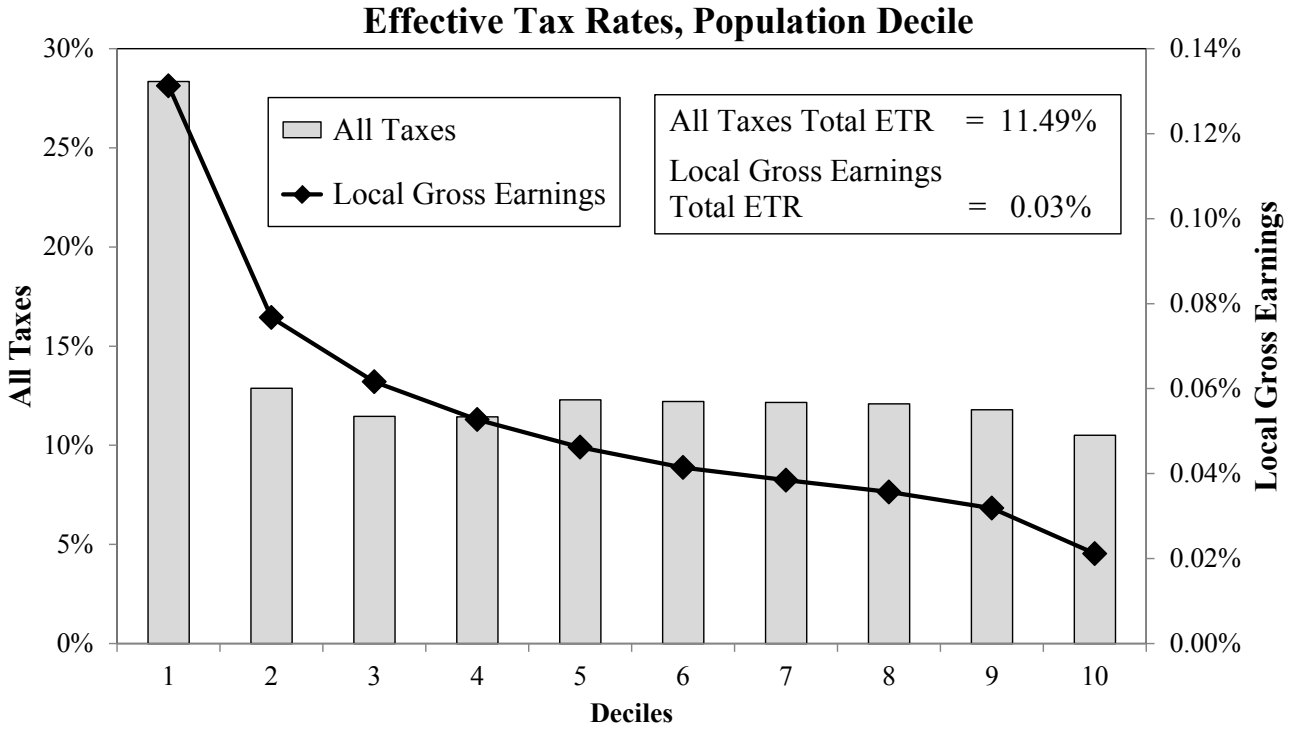
2012 Incidence Estimate for
Local Gross Earning Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$114	$0	$0	$114	$64	$50

* Shifting allocations: Direct = 0%, Consumers = 88%, Labor = 8%, Capital = 4%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Local Gross Earnings	0.13%	0.08%	0.06%	0.05%	0.05%	0.04%	0.04%	0.04%	0.03%	0.02%	0.03%	0.02%	0.01%	-0.240

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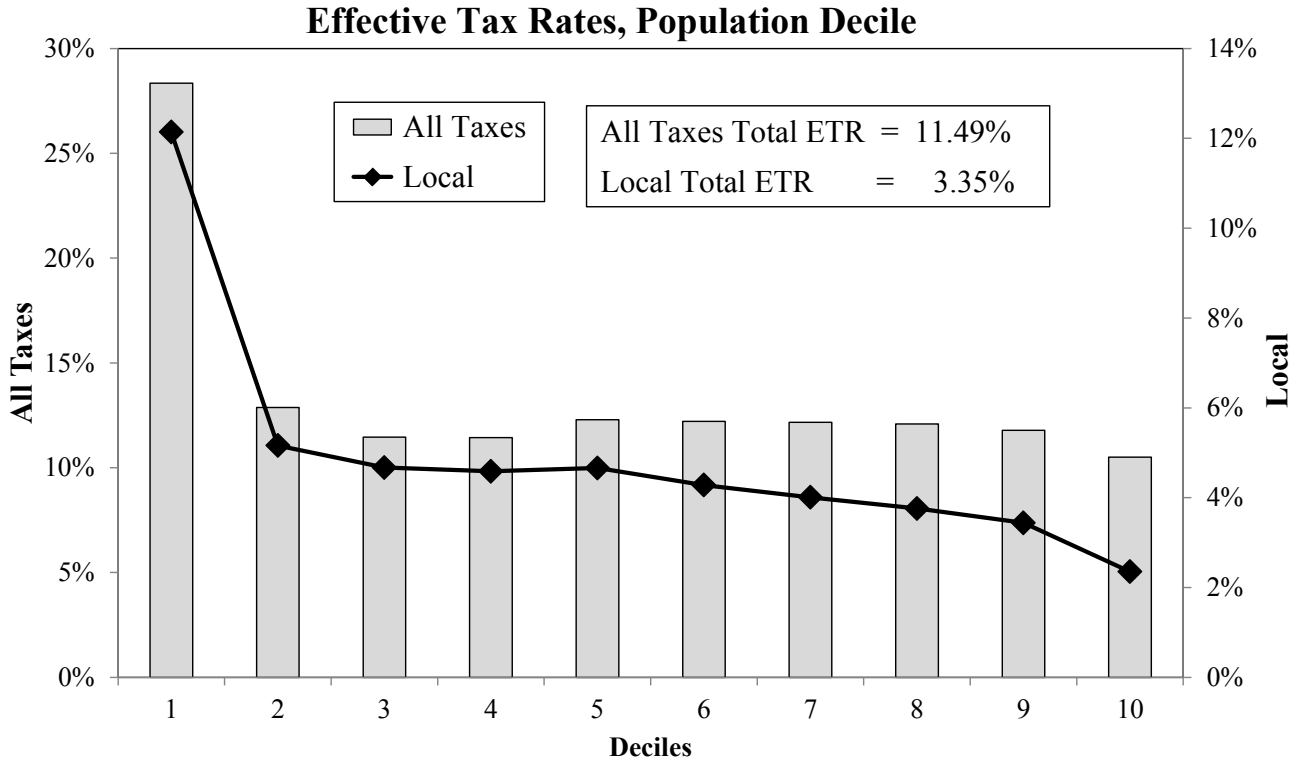
2012 Incidence Estimate for
Total Local Taxes

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$8,019	$4,041	$57	$3,920	$6,510	$1,509



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Local	12.14%	5.16%	4.67%	4.59%	4.66%	4.28%	4.01%	3.76%	3.44%	2.35%	3.13%	2.71%	1.56%	-0.193

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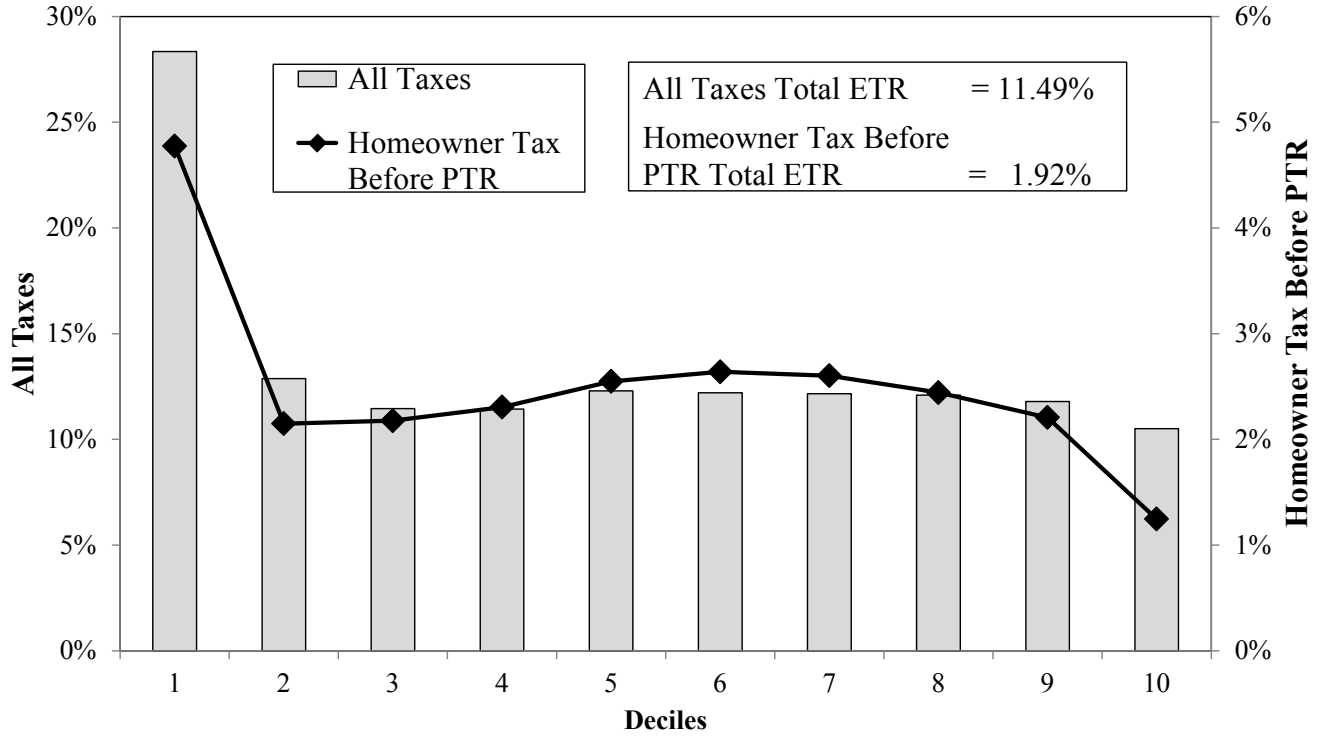
2012 Incidence Estimate for
Homeowner Property Tax Before PTR

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$3,723	$3,723	$0	$0	$3,723	$0

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%

Effective Tax Rates, Population Decile



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Homeowner Tax Before PTR	4.77%	2.15%	2.18%	2.31%	2.55%	2.64%	2.60%	2.44%	2.21%	1.25%	1.93%	1.54%	0.56%	-0.202

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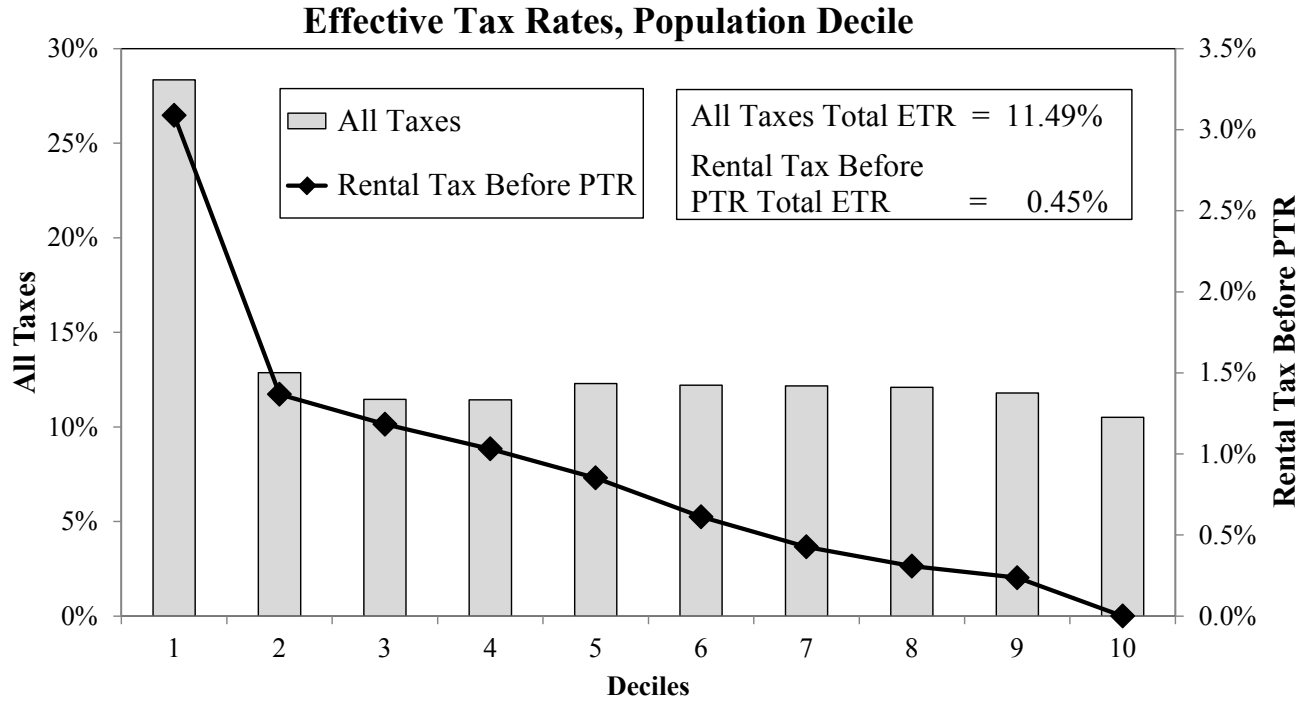
2012 Incidence Estimate for
Rental Property Tax Before PTR

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$947	$0	$0	$947	$866	$81

* Shifting allocations: Direct = 0%, Consumers = 41%, Labor = 0%, Capital = 59%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Renter Tax Before PTR	3.09%	1.37%	1.18%	1.03%	0.85%	0.61%	0.43%	0.31%	0.24%	0.00%	0.24%	0.25%	0.37%	-0.282

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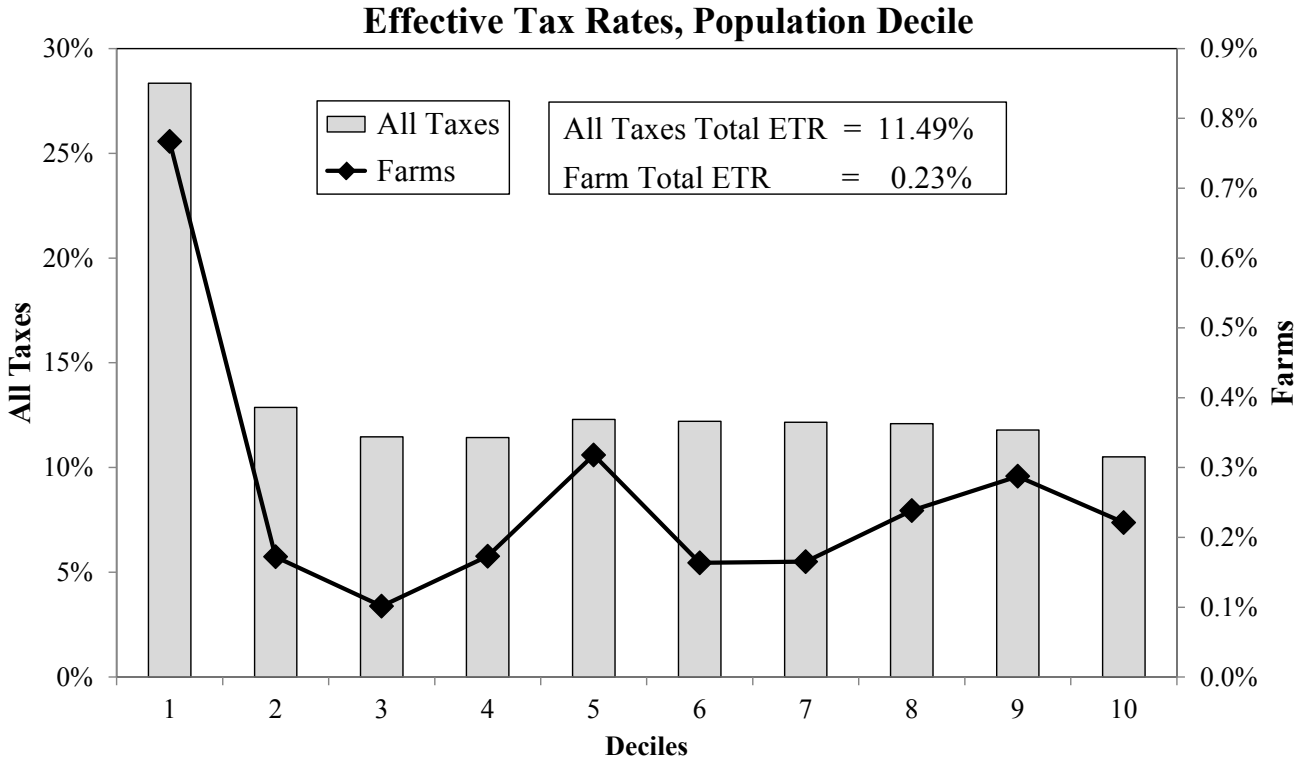
2012 Incidence Estimate for
Farm Property Tax (other than residence)

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$445	$0	$0	$445	$443	$2

* Shifting allocations: Direct = 0%, Consumers = 0%, Labor = 0%, Capital = 100%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Farms	0.77%	0.17%	0.10%	0.17%	0.32%	0.16%	0.17%	0.24%	0.29%	0.22%	0.30%	0.33%	0.08%	-0.058

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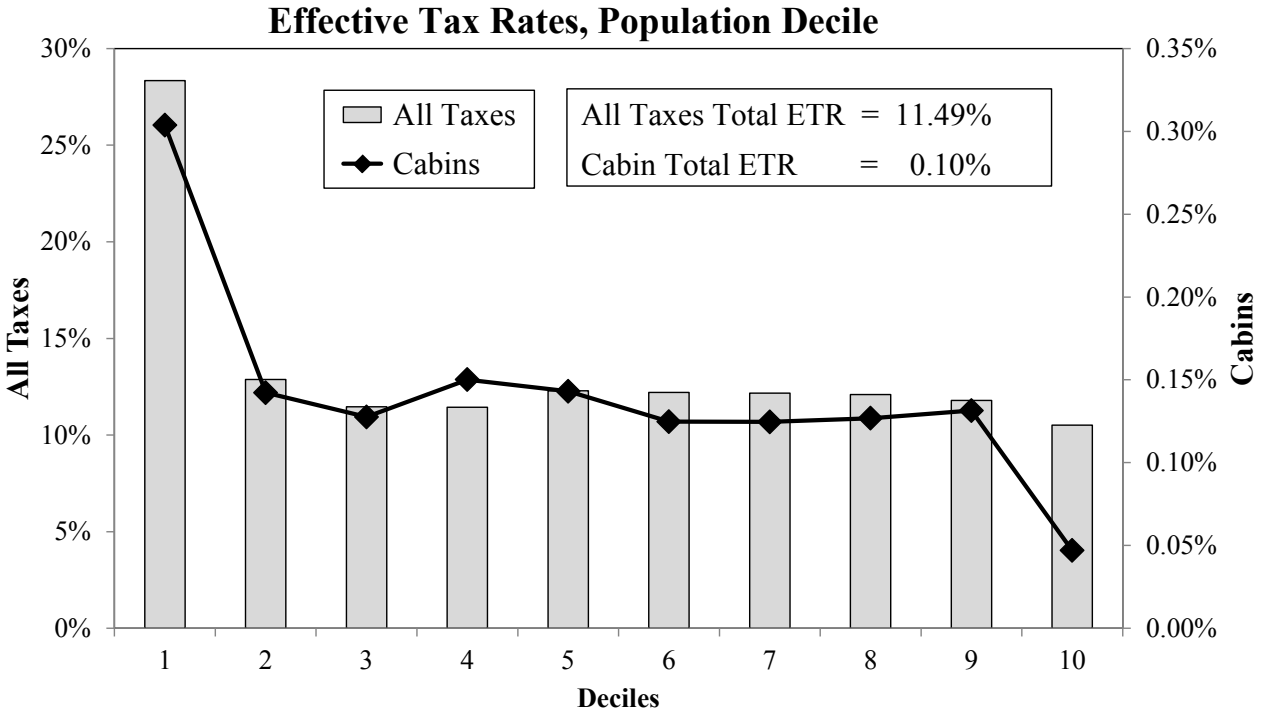
2012 Incidence Estimate for
Residential Recreational Property Tax (State & Local)

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$232	$186	$46	$0	$186	$46

* Shifting allocations: Direct = 100%, Consumers = 0%, Labor = 0%, Capital = 0%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Cabins	0.30%	0.14%	0.13%	0.15%	0.14%	0.12%	0.12%	0.13%	0.13%	0.05%	0.09%	0.05%	0.02%	-0.275

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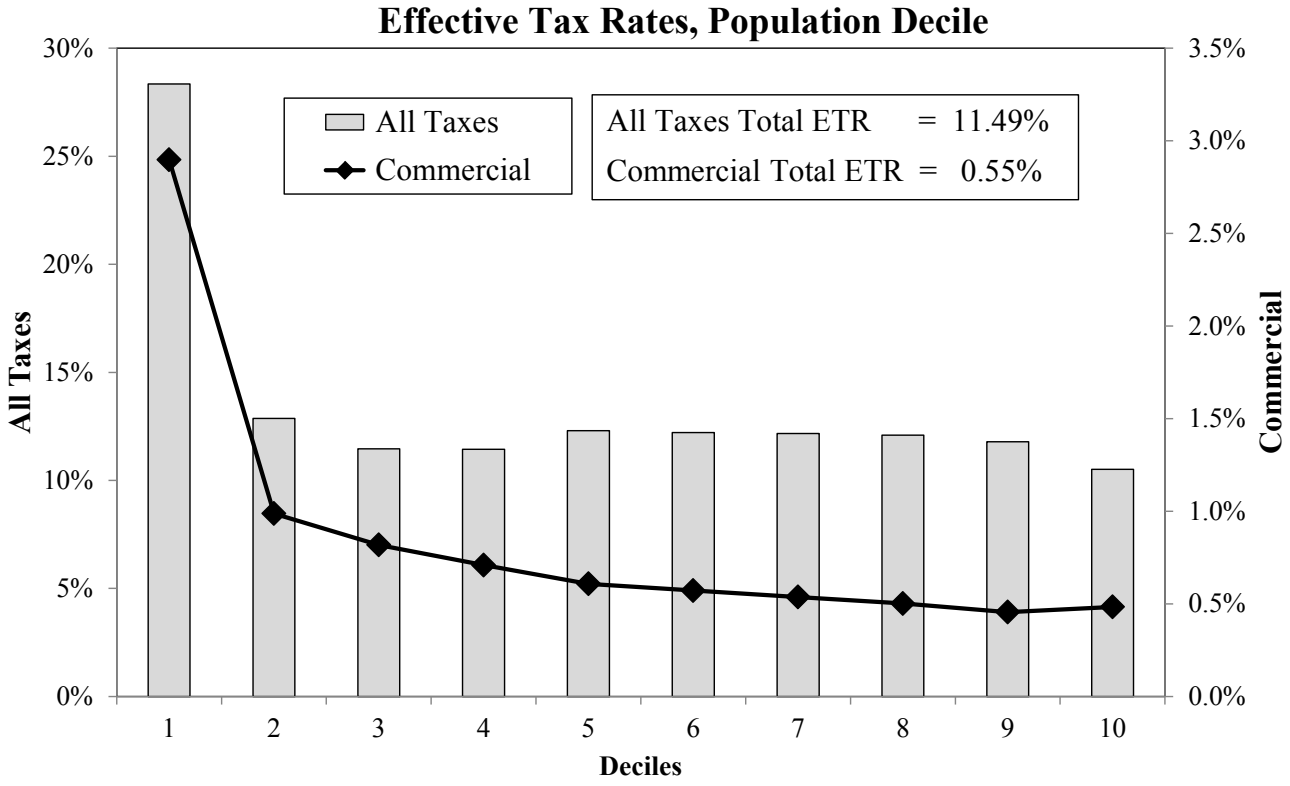
2012 Incidence Estimate for
Commercial Property Tax (State & Local)

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$2,046	$0	$0	$2,046	$1,062	$984

* Shifting allocations: Direct = 0%, Consumers = 63%, Labor = 5%, Capital = 32%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Commercial	2.90%	0.99%	0.82%	0.71%	0.61%	0.57%	0.54%	0.50%	0.46%	0.48%	0.46%	0.46%	0.52%	-0.102

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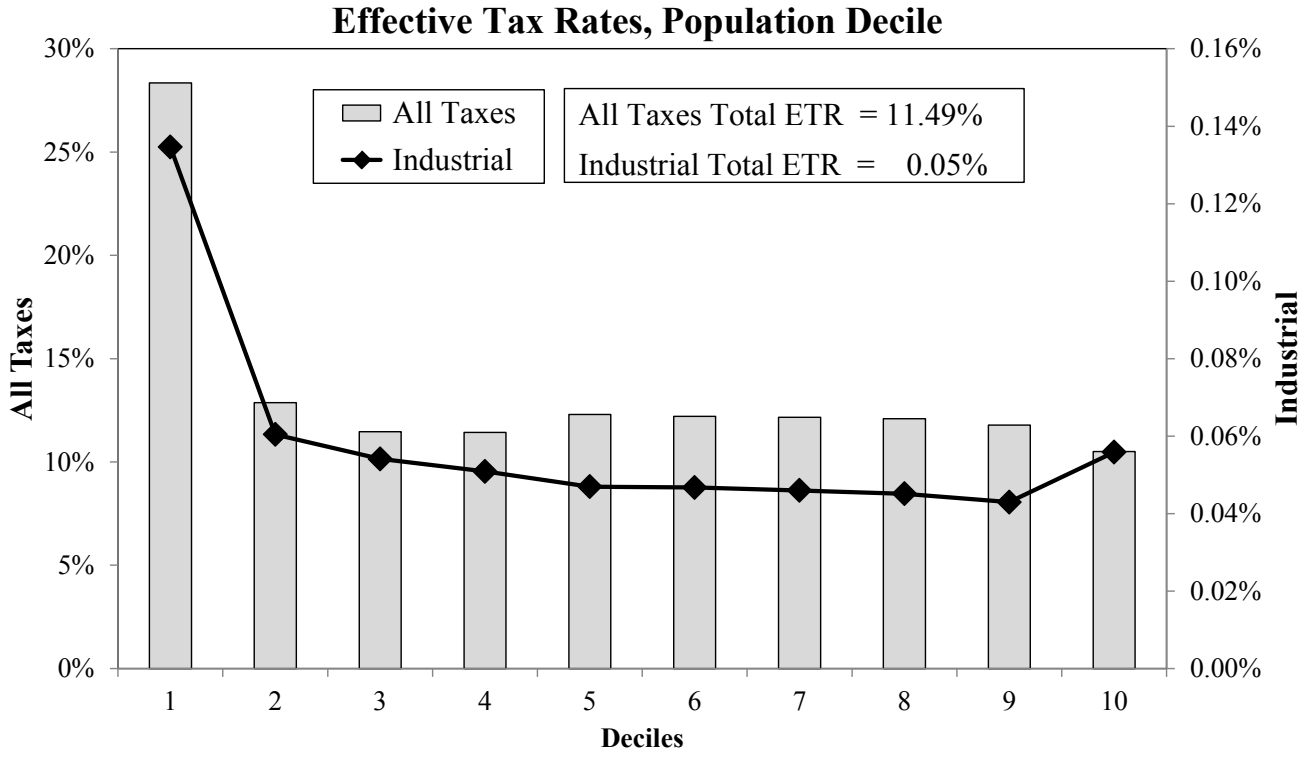
2012 Incidence Estimate for
Industrial Property Tax (State & Local)

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$572	$0	$0	$572	$100	$473

* Shifting allocations: Direct = 0%, Consumers = 31%, Labor = 25%, Capital = 44%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Industrial	0.13%	0.06%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.04%	0.06%	0.05%	0.05%	0.06%	0.035

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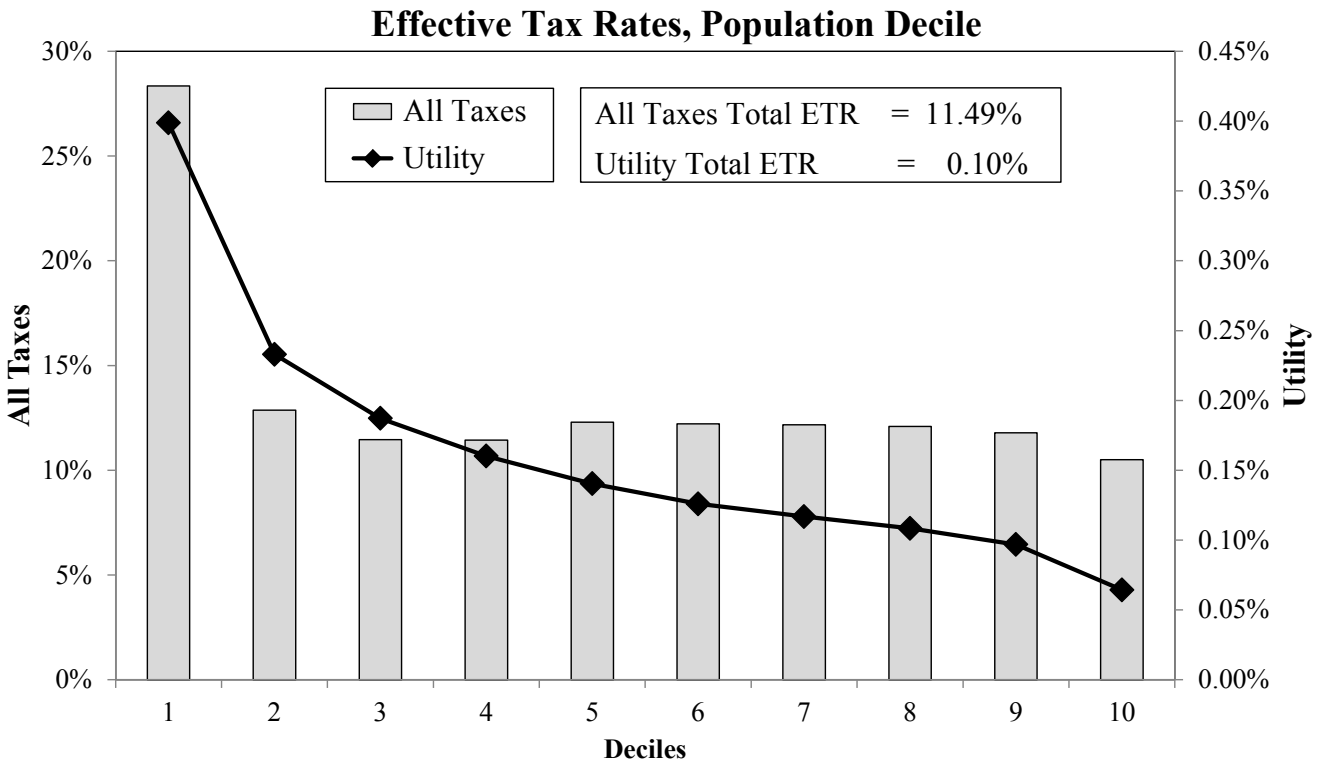
2012 Incidence Estimate for
Utility Property Tax (State & Local)

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota*	Exported
$346	$0	$0	$346	$194	$152

* Shifting allocations: Direct = 0%, Consumers = 88%, Labor = 8%, Capital = 4%



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
Utility	0.40%	0.23%	0.19%	0.16%	0.14%	0.13%	0.12%	0.11%	0.10%	0.06%	0.09%	0.07%	0.04%	-0.240

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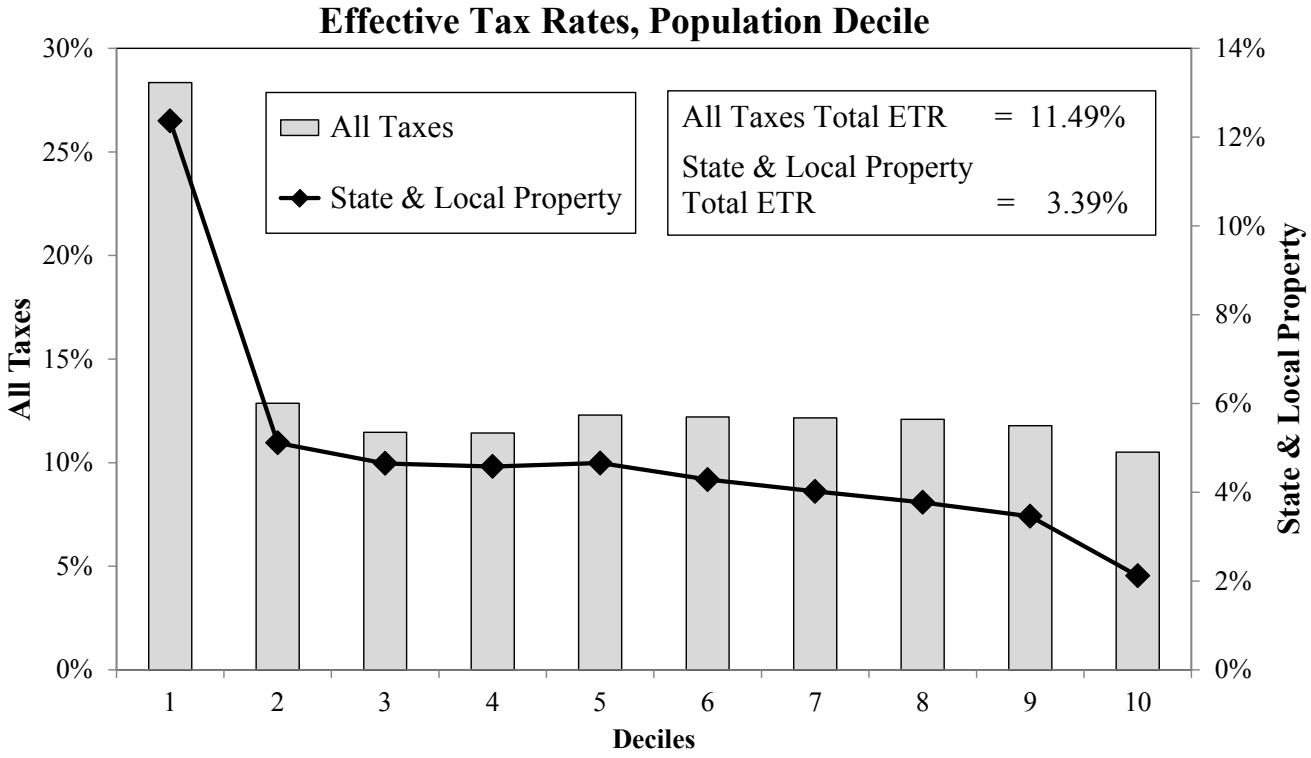
2012 Incidence Estimate for
Total State and Local Property

Tax Collection Amounts 2012
($ Millions)

Total	As Imposed			After shifting	
	MN HH's	NR	Business	Minnesota	Exported
$8,311	$3,909	$46	$4,356	$6,573	$1,737



Deciles	1	2	3	4	5	6	7	8	9	10	91%-95%	96%-99%	Top 1%	Suits Index
All Taxes	28.35%	12.87%	11.46%	11.44%	12.30%	12.21%	12.17%	12.09%	11.79%	10.51%	11.34%	10.71%	9.81%	-0.052
State & Local Property	12.36%	5.11%	4.65%	4.58%	4.66%	4.29%	4.02%	3.77%	3.46%	2.12%	3.16%	2.75%	1.65%	-0.186

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Glossary of Tax Incidence Study Terms

Consumer Expenditure Survey – a database produced annually by the Bureau of Labor Statistics that contains information from a large nationwide sample of households on the amounts spent for a great variety of goods and services. Used to estimate consumption patterns for Minnesota households.

Decile – one tenth of an ordered list. In this study decile usually means a particular tenth of the total number of households in the state after those households have been ordered or ranked by income; sometimes referred to as a population decile. For example, the first decile means the tenth of the population ranking lowest in income; the tenth decile is the tenth of the population having the highest incomes. An alternative use of the term in this study means a tenth of the total income of the households so ranked; this is referred to as an income decile. For example, the tenth income decile refers to those households receiving the highest tenth of total income.

Effective tax rate – tax paid as a percentage of gross income. Effective tax rates can be calculated for single taxes or groups of taxes. In this study they are also calculated for business taxes by industry sector. Effective tax rates by decile are one of the main methods by which study results are presented. It should be noted that effective tax rates for the first decile are unreliable for several reasons. That decile includes households with temporarily low incomes or who consume based on wealth rather than current income (retirees, for example).

Federal offset – the reduction in federal taxes due to the reduction in federal taxable income that occurs when state taxes are included in itemized deductions. Because of this offset, the burden of state taxes would be lower than it otherwise appears, as long as federal rates are not increased to make up for the lower revenue.

Household – for tax filers, in this study a household is defined as the one or two people entitled to file one income tax return or property tax refund return, plus any dependents. For the nonfilers in this study, a household means those people living at the same address who presumably would be entitled to file one income tax return if they were filers, plus any dependents. This definition differs from that used by the U.S. Census Bureau, which defines a household as any group of people who share living arrangements.

Impact of tax – refers to the initial burden of the tax, experienced by the person or firm legally obligated to pay the tax. The impact is distinguished from the incidence of the tax.

Incidence of tax – refers to the ultimate burden of the tax after the person or business firm legally obligated to pay the tax alters its behavior in response (if it does alter its behavior). In some cases, namely taxes imposed directly on households, both the impact and the incidence are the same. In other cases, such as taxes on businesses, the incidence is shifted from the business to others.

Progressive tax – a tax for which the effective tax rate rises as income rises.

Proportional tax – a tax for which the effective rate does not change with income.

Regressive tax – a tax for which the effective tax rate falls as income rises.

Suits index – a numerical score ranging between –1 and +1 that indicates the extent to which a tax is progressive or regressive. Negative values indicate a regressive tax, positive values a progressive tax, and zero shows a proportional tax. The closer the Suits index is to +1 or –1, the higher the degree of progressivity or regressivity. Suits indexes can be calculated based on totals for 10 deciles (a "10-point" Suits index) or based on the full sample. Except where noted, all Suits indexes reported in this report are "full-sample" Suits indexes.

Tax shifting – the process by which the incidence of a tax is translated from the economic entity legally obligated to pay the tax to those bearing the ultimate burden of the tax.

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Legislative Mandate

270C.13 Tax Incidence Reports

Subdivision 1. **Biennial report.** The commissioner of revenue shall report to the legislature by March 1 of each odd-numbered year on the overall incidence of the income tax, sales and excise taxes, and property tax. The report shall present information on the distribution of the tax burden as follows: (1) for the overall income distribution, using a systemwide incidence measure such as the Suits index or other appropriate measures of equality and inequality; (2) by income classes, including at a minimum deciles of the income distribution; and (3) by other appropriate taxpayer characteristics.

Subd. 2. **Bill analyses.** At the request of the chair of the house Tax Committee or the senate Committee on Taxes and Tax Laws, the commissioner shall prepare an incidence impact analysis of a bill or a proposal to change the tax system which increases, decreases, or redistributes taxes by more than $20,000,000. To the extent data is available on the changes in the distribution of the tax burden that are affected by the bill or proposal, the analysis shall report on the incidence effects that would result if the bill were enacted. The report may present information using system wide measures, such as Suits or other similar indexes, by income classes, taxpayer characteristics, or other relevant categories. The report may include analyses of the effect of the bill or proposal on representative taxpayers. The analysis must include a statement of the incidence assumptions that were used in computing the burdens.

Subd. 3. **Income measure.** The incidence analyses shall use the broadest measure of economic income for which reliable data is available.

History: 1990 c 604 art 10 s 9, 2005 c 151 art 1 s 15.