MINNESOTA Department of Revenue

Tax Research Division

Minnesota Tax Incidence Study

October 1991

Pursuant to 1990 Laws, chap 604
Article 10, Section 9
and coded as MS 270.0682

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Tax Research Division

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October 24, 1991

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

I am pleased to transmit to you the Minnesota Tax Incidence Study undertaken by the Department of Revenue in response to Minnesota Statutes, Section 270.0682 (Laws of 1990, Chapter 604, Article 10, Section 9).

This initial biennial report provides new information on the overall distribution of state and local taxes in Minnesota by income level. The information presented herein can be used to evaluate the equity and fairness of Minnesota's tax system. It should also be valuable in considering future changes in Minnesota's tax structure.

Sincerely,

Dorothy A. McClung

Dorothy McClung
Commissioner

EXECUTIVE SUMMARY

This report presents estimates of the distribution of Minnesota state and local taxes by taxpayer income levels. It answers the question, "Who Pays Minnesota's Taxes?" The study was prepared in response to the statutory requirement adopted by the 1990 legislature. This initial biennial report provides taxpayers and policymakers with important information critical to evaluating the equity or fairness of the overall distribution of Minnesota taxes.

Scope of the Study

Four categories of taxes are included in the incidence study as required by the legislative mandate. These are:

- Individual Income Taxes
- Sales, Use and Motor Vehicle Excise Taxes
- Property Taxes for Homeowners and Renters
- Excise Taxes on Tobacco, Alcohol and Gasoline

The taxes included in the study are those having a direct impact on families and individuals. The study does not include taxes with an initial impact on businesses, such as the corporate income tax or the portion of the sales tax paid by businesses on equipment purchases. The study includes $4.26 billion of state taxes, 69 percent of total state taxes in 1988. Adding local property taxes, the study includes $5.4 billion of taxes or 60 percent of state and local tax collections in 1988.

In this report, burdens are measured by effective tax rates -- the ratio of taxes paid to comprehensive money income. Effective tax rates are reported by population deciles that rank taxpayers by a comprehensive definition of money income. Each population decile includes 10 percent of the taxpayers. For example, the first decile includes the 10 percent of Minnesota taxpayers with the lowest incomes; the tenth decile includes the 10 percent of taxpayers with the highest incomes in the state.

The comprehensive money income measure used in this study includes income subject to the Minnesota personal income tax and nontaxable sources of income such as public assistance payments, tax-exempt interest and nontaxable social security and pension income. Importantly, the study covers the entire population of taxpayers in the state, including low income individuals or families that do not file tax returns.

The results of any incidence study are sensitive to the assumptions used to identify who ultimately pays each type of tax. The incidence of a tax identifies the reduction in a taxpayer's real income resulting from the tax. Taxes can reduce a taxpayer's real income directly by leaving taxpayers with less income to spend or indirectly by increasing prices for goods and services purchased by the taxpayer. Incidence can be different from the initial "impact" of a tax, which is usually prescribed by statute in terms of who is legally required to pay the tax. Incidence differs from impact when the tax is ultimately shifted to others, for example, if landlords shift all or part of the local property tax to renters. For the taxes included in this study, the incidence is assumed to rest on individual income taxpayers or on consumers who pay higher prices for taxed items.

This study discusses only tax incidence. It does not measure overall fiscal incidence which would include the distribution of both expenditure benefits and taxes for Minnesota residents. For example, while gasoline excise taxes are included in the study, the benefits of transportation spending financed by the tax are not. Government cash benefits paid directly to individuals (e.g., social security and public assistance payments), however, are included in the comprehensive definition of money income.

1988 Distribution of State and Local Taxes

The major findings in this study are highlighted in the following graphs and summarized in the accompanying tables. The results show that the combined distribution of state and local taxes in Minnesota is essentially proportional. With the exception of the first decile, effective tax rates do not vary with income. Based on taxes included in the study, effective tax rates only vary between 8.8 percent and 9.2 percent for taxpayers in the second through tenth deciles, who pay 99 percent of the taxes included in the study. Because the information for the first decile includes data anomalies and measurement limitations discussed in the study, effective tax rates for the first decile should be viewed with caution.

As can also be seen in Figure 1, the system of state taxes in Minnesota is slightly progressive overall. Effective tax rates rise with income from 5.8 percent in the second decile to 7.7 percent in the tenth decile. In contrast, the local property tax (net of regular property tax refunds), is regressive as effective tax rates fall from 3.3 to 1.4 percent between the second and tenth deciles.

Figure 1
Effective Tax Rates for 1988 Minnesota State and Local Taxes By Population Deciles

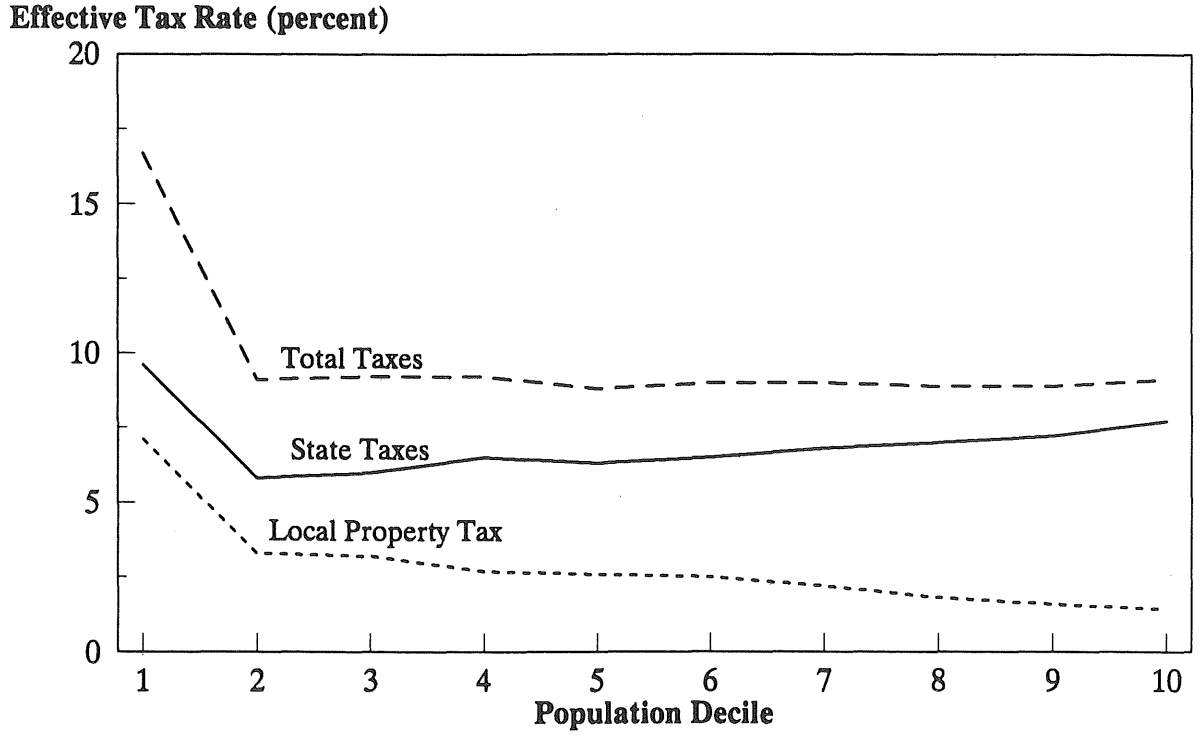
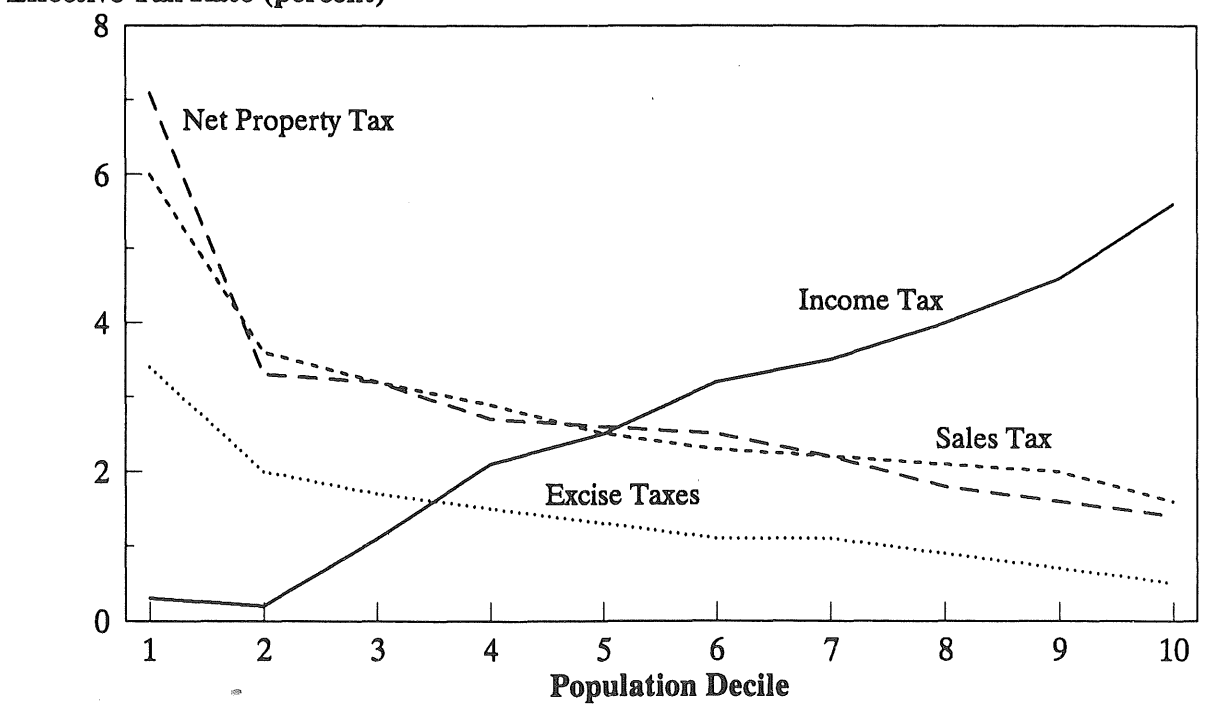


Figure 2
Effective Tax Rates By Tax Type By Population Deciles



As can be seen in Figure 2, the individual income tax is significantly progressive with effective tax rates steadily increasing from .2 percent in the second decile to 5.6 percent in the tenth decile. As is discussed in this report, the regressivity of sales, excise and property taxes are offset by Minnesota's relatively heavy reliance on the progressive income tax. Reflecting this reliance, Minnesota ranked 7th in the U.S. in the ratio of income taxes to personal income for fiscal year 1989.

Although limited interstate comparative information is available, it does suggest that most states have regressive state and local tax systems. While these comparisons do not indicate whether state and local taxes in Minnesota are too high or too low, the information does suggest that Minnesota's taxes are more equitably distributed than in most states.

It should be noted that the results presented here are before any consideration of the impact of deducting state and local taxes on federal income tax returns. Supplemental analysis shows that including the effect of the federal tax offset changes the distribution of tax burdens in Minnesota to a system that is slightly regressive.

In regard to total tax burdens, the taxes included in the study equal 9.1 percent of the money income attributed to taxpayers in the study (see Table 1). As shown in Table 2, taxpayers in the top decile pay 37 percent of the total tax burden and nearly 50 percent of the individual income tax burden; these taxpayers receive 36.7 percent of money income. Although taxpayers in the lowest deciles pay only a small percentage of total taxes, most of the burden for these taxpayers is comprised of sales and property taxes.

Table 1
Minnesota Effective Tax Rates by Population Deciles
All Taxpayers

DECILES	INCOME RANGE	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROPERTY TAX	NET PROPERTY TAX	TOTAL TAXES
1	$4,151 & UNDER	0.3%	6.0%	3.4%	9.6%	9.3%	7.1%	16.7%
2	$4,152 - 6,957	0.2%	3.6%	2.0%	5.8%	5.0%	3.3%	9.1%
3	$6,958 - 10,959	1.1%	3.2%	1.7%	6.0%	4.7%	3.2%	9.2%
4	$10,960 - 15,294	2.1%	2.9%	1.5%	6.5%	3.6%	2.7%	9.2%
5	$15,295 - 20,326	2.5%	2.5%	1.3%	6.3%	3.1%	2.6%	8.8%
6	$20,327 - 25,883	3.2%	2.3%	1.1%	6.5%	2.7%	2.5%	9.0%
7	$25,884 - 32,630	3.5%	2.2%	1.1%	6.8%	2.2%	2.2%	9.0%
8	$32,631 - 41,916	4.0%	2.1%	0.9%	7.0%	1.8%	1.8%	8.9%
9	$41,917 - 56,705	4.6%	2.0%	0.7%	7.2%	1.6%	1.6%	8.9%
10	$56,706 & OVER	5.6%	1.6%	0.5%	7.7%	1.4%	1.4%	9.1%
	Total	4.2%	2.1%	0.9%	7.2%	2.1%	1.9%	9.1%

Table 2
Distribution of Minnesota Income and Taxes
All Taxpayers

Deciles	Total Income Share	State Income Tax Share	Sales Tax Share	Excise Tax Share	Property Tax Share	Total Tax Share
1	0.7%	0.1%	2.1%	2.7%	2.6%	1.3%
2	1.9%	0.1%	3.3%	4.3%	3.3%	1.9%
3	3.0%	0.8%	4.7%	6.0%	5.0%	3.1%
4	4.5%	2.2%	6.4%	7.8%	6.2%	4.6%
5	6.1%	3.6%	7.3%	9.0%	8.2%	5.9%
6	7.8%	5.9%	8.6%	9.5%	10.1%	7.8%
7	10.0%	8.3%	10.7%	11.9%	11.3%	9.8%
8	12.7%	12.2%	12.8%	13.2%	12.1%	12.4%
9	16.6%	17.9%	15.8%	13.4%	14.2%	16.2%
10	36.7%	48.9%	28.3%	22.2%	27.0%	37.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Amount (millions)	$59,590.1	$2,512.4	$1,225.0	$526.6	$1,140.8	$5,404.8

Tax System Objectives

The results of this study focus attention on the issue of fairness in the distribution of Minnesota state and local tax burdens. Fairness refers to both vertical equity (how tax burdens vary with the level of income) and horizontal equity (how tax burdens vary for taxpayers with comparable ability to pay). In addition to fairness, there are other desirable tax-system objectives or characteristics which must be considered in evaluating the overall performance of Minnesota's tax structure. These objectives include understandability, efficiency, competitiveness and reliability.

Understandability is important in achieving voluntary compliance with the tax laws; simplification of the tax structure is one method of enhancing understandability. Efficiency includes the objectives of reducing economic distortions created by taxation, maximizing clarity and accountability in terms of tax and spending decisions, and minimizing both taxpayer compliance costs and administrative costs of collecting taxes. Efficiency is enhanced by a balanced use of income, sales and property taxes with broad bases and competitive tax rates. Interstate tax competition for businesses and jobs may constrain a state's ability to raise tax rates relative to neighboring states.

The objective of reliability has several important dimensions, including stability and sufficiency. A balanced use of income, sales and property taxes provides greater revenue stability over the economic cycle and sufficient growth in taxes over time to finance desired government expenditures.

Unfortunately, most tax policy options involve tradeoffs among these objectives. For example, increased reliance on the income tax could result in improved vertical and horizontal equity but reduced stability, competitiveness and efficiency. The results of this study provide important information on the extent to which the Minnesota state and local tax structure achieves the equity objective. However, any policy recommendations for altering the progressivity of the tax system should be evaluated on the basis of each of the multiple objectives.

Summary

This report provides significant new information on the level and distribution of overall tax burdens in Minnesota. A unique methodology, including matching of income data from a number of different data sources for specific individuals and the calculation of taxes by tax type for a representative sample of all Minnesota taxpayers, is used to estimate the tax distribution. An explanation of the various components of the analysis, including assumptions and methodology, is provided in the main sections of the report. Detailed analysis of the results is provided in Section 6.

The results presented in this report should prove valuable to policymakers considering future changes in Minnesota's state and local taxes. It can be used to evaluate changes in the equity of specific taxes, as well as the overall tax burden distribution. In addition to equity, the results of the study are useful for addressing other tax policy issues, including overall progressivity and the balance in the state and local tax system. These policy issues are discussed in the final section of the report, along with a brief description and analysis of the 1991 tax law changes.

A significant insight from the information and results presented in this report is the importance of considering state and local taxes as a system in evaluating the equity of Minnesota's tax distribution. The highly progressive state income tax, for example, provides an important balance to regressive sales, excise and property taxes.

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INTRODUCTION

This report presents information on the distribution, by income class, of major state and local taxes in Minnesota for 1988. This study is a result of a mandate, adopted by the 1990 Legislature and contained in Minn. Stat. §270.0682, requiring a biennial tax incidence report.[1)] The statutory mandate requires the Department of Revenue to conduct a study every two years "on the overall incidence of the income tax, sales and excise taxes, and property tax." The mandate specifies that the report include information on the distribution of the tax burden for the overall income distribution, by income classes and other appropriate taxpayer characteristics. In addition, the incidence analysis is to be based on the broadest measure of income possible.

The impact and distribution of taxes is important to both policymakers and citizens. Many questions are raised at the state level as to who bears the burden of taxes in Minnesota and, oftentimes, these issues arise in isolation for a particular tax or tax proposal. This report provides important information on the distribution of the aggregate state and local tax burden, as well as the distribution for specific taxes, which can be used to evaluate the equity of Minnesota's overall tax structure. This type of information is particularly important in light of increasing state and local responsibility for funding public services and recent major reforms in Minnesota's state and local tax structure.

A basic objective of any tax system is fairness, and this criteria is usually evaluated in terms of vertical and horizontal equity considerations. Vertical equity measures how taxpayers with different incomes are treated. In accordance with the ability to pay principle, there is general agreement that tax burdens should increase as income rises. There is less agreement on how rapidly taxes should rise with income. Horizontal equity is concerned with the treatment of taxpayers having similar incomes. More specifically, the principle of horizontal equity asserts that individuals in similar economic circumstances (equal income, consumption or wealth) should pay the same amount of taxes. The information and analysis presented in the study should assist policymakers in evaluating Minnesota's state-local tax structure in terms of these important equity principles.

[1)]The statutory language is provided in the Appendix.

"Who actually pays a tax?" seems a straightforward question on the surface. It is easy to identify the taxpayer who is legally responsible to remit the tax. The initial and direct effect of the tax payment is called the "impact" of the tax and is usually prescribed by statute. For certain taxes, however, the tax is ultimately shifted to others, as in the case of landlords shifting all or part of the property tax to renters. In these cases, the "incidence" of the tax is different from the impact. The incidence of a tax is defined as the actual reduction in real income that results from the tax after taxpayers have fully adjusted their behavior in response to the tax.

The imposition of taxes affects income in one of two ways. Taxes can directly reduce the income of individuals at its source, (e.g., personal income taxes). Taxes can also increase the prices of goods and services and, therefore, indirectly reduce individuals' incomes based on consumption expenditures. Both direct and indirect tax impacts must be examined in determining the incidence. These incidence assumptions play a key role in determining the distribution of tax burdens. The specific assumptions made regarding the incidence of taxes included in this study are discussed in Section 2.

The scope of this initial tax incidence study has been limited to the taxes specified in the legislative mandate which are taxes with a direct impact on individuals and families. For certain taxes, (e.g., sales), this means that only the portion of the tax based on purchases for household consumption is included. The four main categories of taxes included in this study are:

- Individual Income Tax
- Sales, Use and Motor Vehicle Excise Taxes
- Property Taxes for Homeowners and Renters
- Excise Taxes on Tobacco, Alcohol and Gasoline

Because the study is limited to taxes or portions thereof having direct impact on individuals, it does not include taxes with an initial impact on businesses, such as sales tax paid by businesses on capital goods purchases. For the same reason, the study does not include an allocation of the incidence of the corporate income tax as it affects consumers, employees or shareholders, or the incidence of the property tax paid by businesses. Future biennial tax incidence studies will be expanded to include the incidence effects of taxes initially paid by businesses.

The taxes included in the study, as well as the overall Minnesota tax structure in 1988, are discussed in Section 1. The tax burdens measured in this study reflect 1988 tax and income levels. The study does not attempt to measure the impact of state and local tax structure changes since 1988 on the distribution of tax burdens.

Tax burdens in this study were calculated from a microsimulation data base containing almost 24,000 individual taxpayer records. Each record included detailed information on sources of income, taxes paid, consumer expenditures and various taxpayer characteristics. The sample information was used to estimate total tax burdens for all Minnesota taxpayers. The methodology used to construct the data base is outlined in Section 4.

In this study, tax burdens at different income levels are measured by effective tax rates -- the ratio of taxes paid to a comprehensive definition of money income. A number of different data sources were used to construct the money income measure, including individual income tax returns, property tax refunds, social security records and public assistance files. The money income concept is explained in Section 3.

The detailed results of the tax incidence study are presented in Section 6 and in various Appendix tables. Effective tax rate distributions are reported by population deciles (ranked by income level) for each tax and for combined state and local taxes. A discussion of the impact of federal income tax deductions for state and local income and property taxes on effective tax rates is also included. Section 7 of the tax incidence study highlights results from the study which should be considered in evaluating tax policy options.

SECTION 1

MINNESOTA STATE AND LOCAL TAXES

This section provides background information for the major state and local taxes considered in the study. Because tax year 1988 data was used as a base for this study, the following highlights the tax structure in existence at that time. This information on the structure of Minnesota's major state and local taxes will be useful in understanding the contribution of each tax to the overall distribution of tax burdens.

Individual Income Tax

Minnesota enacted the state income tax in 1933 with initial rates ranging from 1 percent to 5 percent. During the 1980s, numerous changes that modified exemptions, credits and tax rates were made to income tax laws almost annually. Federal income tax changes were a significant driving force as Minnesota moved toward federal conformity. By 1988, state income tax rates ranged from 6 to 8.5 percent.

The most significant income tax changes in recent years were made in 1987, when Minnesota enacted most of the major provisions of the Federal Tax Reform Act of 1986. This included major simplification by conforming to federal tax laws through the use of federal taxable income as the starting point for the tax, which incorporated federal personal exemptions, the standard deduction and federal itemized deductions into the Minnesota tax structure. Other reforms adopted at this time included eliminating the 60 percent capital gains exclusion and the itemized deduction for sales tax paid, broadening the tax base by restricting various deductions and lowering state tax rates. The overall impact of the 1986 reforms was to lower marginal tax rates, while maintaining progressivity through an expansion in the income tax base, particularly at higher income levels.

The computation of the state income tax begins with federal taxable income, and a small number of addition or subtraction adjustments are allowed in computing Minnesota taxable income. The graduated tax rates presented in Table 1-1 were applied to taxable income to calculate 1988 gross income tax which was then reduced by dependent care, enterprise zone and other states' income tax credits, to yield a net income tax liability.

Table 1-1

Schedule of Individual Income Tax Rates For 1988

Married-Joint Returns and Surviving Spouses		Single Persons	
Taxable Income	Rate	Taxable Income	Rate
$1 - $19,000	6.0%	$1 - $13,000	6.0%
$19,001 - $75,500	8.0%	$13,001 - $42,700	8.0%
$75,501 - $165,000*	8.5%	$42,701 - $93,000*	8.5%
$165,001 and over	8.0%	$93,001 and over	8.0%

Married-Separate Returns, Estates, and Trusts		Heads of Households	
Taxable Income	Rate	Taxable Income	Rate
$1 - $9,500	6.0%	$1 - $16,000	6.0%
$9,501 - $37,750	8.0%	$16,001 - $64,300	8.0%
$37,751 - $82,500*	8.5%	$64,301 - $135,000*	8.5%
$82,501 and over	8.0%	$135,001 and over	8.0%

*The additional .5% surtax rate applied to these income brackets was adopted in 1987.

Sales and Use Tax

The sales and use tax was first enacted in 1967 at a rate of 3 percent. The rates in effect during 1988 were as follows:

6% - General rate
8.5% - Liquor and beer
4% - Capital equipment for new and expanding manufacturers and special tooling
2% - Farm machinery and logging equipment

The base for the tax is the sales price of tangible personal property and taxable services sold in the state. A complementary use tax is imposed on property purchased outside the state but used or consumed in Minnesota. A separate motor vehicle excise tax is applied at the same rate as the general sales tax. Major exemptions from the tax base in 1988 included food, clothing, prescription drugs, residential heating fuels and water services.

The most significant changes to the sales tax in recent years occurred in 1987 when the tax was extended to selected services and various exemptions were repealed. Services that became subject to tax included parking, laundry and dry cleaning, lawn and garden services, detective and security services, pet grooming, motor vehicle cleaning and building and residential cleaning and maintenance services. Exemptions repealed in 1987 included those for nonprescription drugs, purchases of state government, admissions to health clubs and tanning salons, interstate telephone service, railroad rolling stock and club dues.

Property Tax

The history of the local property tax goes back prior to statehood. Minnesota's property classification system was instituted in 1913 with only four classes of property. Over time the number of property classes has grown dramatically. Numerous law changes have been adopted almost yearly in recent decades to modify credits, exemptions, tax rates and brackets for specific classes, and levels of property tax relief. Today, the property tax system in Minnesota is probably the most complex in the nation.

Landmark changes were made to the property tax in 1967. In that year the state property tax was repealed, direct tax relief was provided in the form of homestead and other credits, and property tax exemptions for inventories and for business and agricultural machinery and equipment were implemented.

For property taxes payable in 1988, the tax base was the assessed value of real and personal property in the state. Assessed value was a portion of market value, based on the applicable classification ratio for each type of residential property (see Table 1-2). Gross tax was determined by multiplying assessed value by the local mill rate -- the total of county, city or town, school district and any special taxing district tax rates. Educational facilities, religious and charitable institutions, indian lands, cemeteries and household and business personal property were exempt from taxation.

Table 1-2

Classification Ratios For Residential Property Taxes Payable 1988

Class 1a	Nonagricultural homestead	
	First $68,000 market value	17%
	Over $68,000 market value	27%
Class 1b	Homestead of blind and disabled (Nonag.)	
	First $34,000 market value	5%
	Next $34,000 market value	17%
	Over $68,000 market value	27%
	Homestead of blind and disabled (Ag.)	
	First $33,000 market value	5%
	Next $33,000 market value	14%
	Over $66,000 market value	18%
Class 2a	Agricultural homestead	
	First $66,000 market value	14%
	Over $66,000 market value	18%
Class 2c	Agricultural non-homestead	18%
Class 4a	Nonhomestead residential, four or more units, including private hospitals	34%
Class 5a	Nonhomestead residential, three or fewer units, including fraternity or sorority housing	28%
Class 5b	Type I and II apartments	
	Building	25%
	Land	34%

For taxes payable in 1988, a number of credits could be used to reduce gross property taxes. For homeowners, the most significant of these were homestead credits and the state school agricultural credit. The regular homestead credit equaled 54 percent of gross tax to a maximum of $700. Additional taconite homestead credits were available in taconite areas. The subtraction of applicable credits from gross tax resulted in net tax payable.

Residential property tax burdens were further reduced by the regular property tax refund program, a direct tax relief mechanism for individuals owning or renting a homestead based on the relationship of property tax and income. This program has undergone numerous changes since its adoption in 1975. For 1988 the maximum refund allowed was $1,100 and the program was limited to households with incomes below $35,000. Under the refund schedule for 1988, claimant's were responsible for the first 1 percent to 4 percent of income

constituting property taxes, plus from 10 percent to 60 percent of the tax over the base percent of income. Claimants who paid property taxes in excess of these thresholds were eligible for partial refunds. The income threshold and the percent of the excess property taxes paid by the claimant both increased with the level of income. For homeowners, the refund was reduced by the homestead credit amount to determine the net refund payable.

In addition to the regular property tax refund, a special property tax refund ("targeting") was available for taxpayers with property tax increases exceeding 10 percent. Targeting refunds were not based on income. In 1988, the regular property tax refund program (targeting refunds are not included in the figures) reduced property taxes by $121 million for 420,000 homeowners and renters; renters received over two-thirds of the total. The average refund claim was $288.

Excise Taxes

The state gasoline tax, first adopted in 1925 at a rate of 2 cents per gallon, was increased from 17 cents to 20 cents a gallon on May 1, 1988. The cigarette tax was first enacted in 1947 at 3 cents per pack. The rate had risen to 38 cents per pack by 1988, following a 20 cent per pack increase between 1985 and 1987.

For 1988, excise tax rates on alcoholic beverages were $2.40 per barrel of 3.2 percent beer and $4.60 for strong beer, $5.03 per gallon of liquor and from 30 cents to $1.82 per gallon for wine.

State and Local Tax Revenue

As shown in Table 1-3 on page 10, Minnesota state-local taxes exceeded $9 billion in 1988, 12.5 percent of personal income received by Minnesota residents. The income and tax calculations in this study are based on calendar year 1988 data. However, the state fiscal year runs from July 1 to June 30 which spans two calendar years. For this reason, Table 1-3 includes tax information for both 1988 and 1989 fiscal years which bracket calendar year 1988. The property tax data is for taxes paid in calendar year 1988.

The taxes included in the tax incidence study can be compared to 1988 collection figures to identify the comprehensiveness of the analysis. As seen in Appendix Table A-1, the study includes $2,512.4 million in state income taxes or 95.7 percent of fiscal year 1988 collections. The difference is due to the exclusion of non-residents from the study and to temporarily high withholding rates in the first half of 1988, which resulted in withholding collections exceeding actual tax liabilities for this period.

Sales and use taxes (including motor vehicle excise taxes) total $1,225.0 million in the incidence study (see Table A-1) compared to $1,914.4 million in actual collections. The primary reason why sales taxes in the study are 64 percent of collections is the exclusion from the study of sales taxes initially paid by businesses rather than individuals. Also excluded is the portion of sales taxes paid directly by nonresidents.

Excise taxes for tobacco, alcohol and gasoline in the incidence study total $526.6 million, 87.3 percent of collections for the three excise tax categories in fiscal year 1988. The incidence study figure includes only the portion of excise taxes on household consumption.

Local governments in Minnesota collected $2,789.4 million in general property taxes (after credits) in calendar year 1988. As shown in Table A-1, gross property taxes (before property tax refunds) of $1,256.6 million were included in the study. The primary reason for this difference is the fact that property taxes on business and other nonresidential property are excluded from the study.

Table 1-3

Minnesota State and Local Tax Collections (millions)

MINNESOTA STATE TAX COLLECTIONS (NET AFTER REFUNDS)		
	F.Y. 1988	F.Y. 1989
Individual Income Tax	$2,625.3	$2,495.6
Reciprocity	18.4	22.0
Corporate Franchise Tax	411.0	485.7
Estate, Inheritance & Gift Taxes	13.2	26.9
General Sales & Use Tax	$1,678.5	$1,774.7
Motor Vehicle Excise Tax	235.9	249.6
Motor Fuels Excise Taxes	391.7	456.3
Alcoholic Beverage Taxes	55.7	55.6
Cigarette Tax	150.2	153.6
Tobacco Products Tax	5.7	6.0
Controlled Substances Tax	0.3	0.4
Charitable Gambling and Pull-tab Taxes	$15.3	$21.3
Pari-Mutuel Taxes	6.1	1.8
Telephone & Telegraph Gross Earning Taxes	$99.9	$97.1
Taconite Railroad & Other Gross Earnings Taxes	1.5	1.4
Insurance Premiums Taxes	126.8	119.2
Mining Occupation Taxes	$2.9	-$0.1
Mineral Royalty Taxes	2.4	3.1
Motor Vehicle Reg. Tax	$251.2	$270.7
Airflight Property Tax	7.5	7.9
Aircraft Registration Tax	1.5	1.9
Other Taxes	$4.4	$3.6
Total State Tax Collections	$6,105.7	$6,254.2

MINNESOTA LOCAL TAX COLLECTIONS*	
	1988
General Property Tax (net after credits)	$2,789.4
Tree Growth Tax	$0.4
Auxiliary Forest Tax	0.1
Taconite Production Tax	$51.2
Severed Mineral Interests Tax	0.5
Unmined Taconite Tax	0.4
Sales Taxes	
Bloomington	$4.7
Duluth	7.0
Minneapolis	23.8
Rochester	7.7
St. Cloud	0.5
St. Paul	1.3
Cook County	0.1
Scott County	0.5
Utility Companies Gross Earnings Taxes	
Minneapolis	$9.6
St. Paul	15.0
Total Local Tax Collections	$2,912.2

*Sales tax and utility gross earnings amounts are calendar year figures. All others are for year payable.

SECTION 2

INCIDENCE ASSUMPTIONS

Economists commonly distinguish between the initial "impact" of a tax and that of its "incidence." The initial impact of a tax is on the taxpayer legally liable to pay the tax, while the incidence of the tax is the final resting point of the tax. For example, the initial impact of a retail sales tax may be on a retail business firm which is legally liable for paying the tax. However, through a process referred to as "shifting", the actual incidence is likely to fall on consumers of the taxed product in the form of higher retail prices. This study measures the distribution of tax burdens after any shifting which may occur.

The actual distribution of tax burdens in a tax incidence study is significantly affected by the study's incidence assumptions. The following assumptions are used in this study to determine tax incidence:

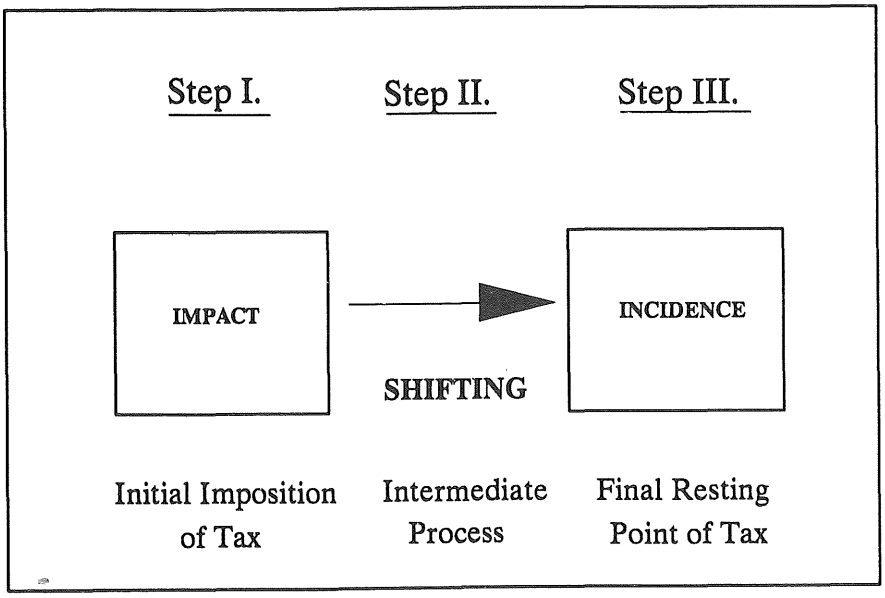
- The personal income tax is paid by individual taxpayers. As such, the incidence is the same as the initial impact of the tax.
- Sales and excise taxes are borne by consumers of taxed items.
- The property tax on residential housing falls on homeowners and renters.

In large part, this study adopts the incidence assumptions used in previous incidence studies including Pechman and Okner (1974), Pechman (1985) and Phares (1980). The rationale for these assumptions is discussed in this section.

Tax Shifting

As outlined in Figure 2-1, determining the incidence of a tax can be viewed as

Figure 2-1
Tax Shifting Process



a three-step process. The first step identifies the taxpayer who is legally liable for the tax. The second or intermediate step describes the mechanism for "shifting" the tax that takes place when the initial taxpayer transfers the burden onto another party through changes in either the demand or supply of taxed goods and services. Businesses, for example, may partly shift the tax forward to consumers, or backward to labor, materials or land. Hence, the impact of the tax differs from its ultimate incidence due to the intermediate process of shifting. It follows, then, that if there is no shifting, the final incidence of the tax equals its initial impact.

Some types of taxes are more amenable to shifting than others. Taxes imposed directly on individuals, such as the personal income tax and the homeowner property tax, typically remain with the legal taxpayer. Incidence, therefore, equals impact and there is no uncertainty as to who bears the burden of the tax.

This is not the case with business taxes. Such taxes pose the greatest challenge for tax incidence analysis and tax policy, for they are the least predictable in terms of their incidence. Business taxes possess the greatest latitude for shifting -- they can be shifted forward to consumers or backward to factors of production -- and the ultimate incidence of the tax is difficult to determine. As a result, there is far less agreement on the likely distribution of taxes with an initial impact on business. Because the scope of the present analysis is restricted to taxes on households, the most problematic taxes in incidence theory, notably the corporate income tax, the business portion of the general sales tax, and the commercial and industrial property tax, are not addressed.

The Individual Income Tax

The most common assumption used in incidence studies is that the burden of the individual income tax is not amenable to shifting. This conclusion rests on a number of assumptions that are explored at length in Pechman (1985). The two important assumptions are that workers do not work fewer hours and that investors do not change their level of savings in response to the tax. Drawing from a number of economic studies, Pechman and Okner conclude that workers and investors do not change their behavior, and that the total hours worked and total savings rate for the economy are both relatively fixed. Hence, a "tax on incomes is borne by those on whom the tax is imposed" (Pechman and Okner 1985, p. 28). Based on this assumption, income taxes in this study are distributed according to taxable incomes of taxpayers.

The General Sales Tax

Both consumers and businesses buy taxed items under the general sales and use tax. According to a recent study by Ring (1989), U.S. consumers pay about 60 percent of all state and local sales taxes; producers, 40 percent. The burden of the former lies with consumers. The burden of the latter, however, follows a separate incidence path. Like other forms of business taxes, the producers' share of the general sales tax can be shifted forward to consumers, backward to a factor of production (labor, land or materials), or it may rest with the investors in the business itself. In any case, the incidence pattern of the producers' share differs from that of the consumers' share.

This study, being restricted to sales tax levied on household consumption, is concerned exclusively with the consumers' share of the general sales tax, the initial impact of which is assumed to fall on retailers. The tax ultimately settles, however, on consumers through a reduction in their real income or purchasing power due to a higher price level for consumer goods. Under a broad-based sales tax, there is limited opportunity to shift the tax backwards to the factors of production by shifting consumption from taxed to untaxed goods and services.

Excise Taxes

The incidence study includes tax calculations for three excise taxes: gasoline, tobacco and alcohol. As seen in Table 1-3, these three taxes raised a total of over $600 million in 1988, one-third the size of general sales tax collections. As with the sales tax, the analysis includes only the portion of these excise taxes based on household consumption; any business related purchases are excluded. Because only the consumers' share of these excise taxes are included, the entire tax burden falls on consumers in proportion to their consumption of the taxed product.

This study includes excise taxes in the four major taxes to be evaluated in terms of ability to pay as measured by comprehensive money income. It should be pointed out, however, that excise taxes may be viewed as benefit charges (e.g., gasoline taxes) or taxes designed to offset negative externalities imposed on others by a taxpayer's consumption (e.g., cigarette excises). If so, one could argue that these taxes should not be evaluated relative to ability to pay.

The Property Tax

The question "Who bears the property tax?" is not an easy one to answer. There are two opposing views of the incidence of the property tax, the "old view" and the "new view". The old view is the approach used in this study to determine the incidence of the property tax.

The Old View

Under the old view, one thinks of the property tax as an excise tax on a particular good. The old view considers the property tax as being divided into two distinct components: the tax on land and the tax on improvements (buildings and structures). It further assumes that the supply of land is fixed (perfectly inelastic); it cannot be moved, increased or decreased. With a perfectly inelastic supply curve, the price paid for land does not rise at all in response to a property tax increase which falls on land. Hence, the full burden of the tax is on landowners.

The supply of improvements, in contrast, is regarded as elastic. How elastic it is depends on how easy it is to increase or decrease supply. It is generally agreed that adjustments become easier over time. Hence, in the long-term, one should expect the supply curve to be increasingly more elastic. The old view assumes the supply of improvements is perfectly elastic in the long run. Thus, prices rise by the full amount of tax, shifting the burden fully to consumers of goods and services produced by capital. This means that the property tax on improvements is borne by: 1) homeowners in the case of owner-occupied housing, and 2) tenants in the case of rental units.[1)]

The New View

In order to determine the incidence of the property tax on residential housing under the new view, one needs to divide the tax into two components: a profits tax effect due to the national average local property tax rate and an excise tax effect reflecting the difference between the local and average tax rates. Under the new view, the profits tax is assumed to reduce the net rate of return on all forms of capital investment. The excise tax component can be either shifted forward to consumers as part of the price of housing services or backward to immobile factors of production. If the excise tax is shifted backward to immobile factors of production, namely land (since labor and materials are generally mobile), then landowners will bear a portion of the tax.[2)]

[1)]These conclusions are discussed more fully in Aaron, (1974, p. 212) and Ladd, (1973, p. 46).

[2)]Ihlanfeldt (1982) points out that the cost of land as a percentage of the total cost of constructing a home is only about six percent. This means that, in order for landowners to bear a large portion of the tax, the price of land would have to drop drastically, an event which Ihlanfeldt considers to be highly unlikely given the demand elasticity of housing and the substitution elasticity between land and other inputs. "For these reasons," Ihlanfeldt states, "it is reasonable to assume that (the excise effect is) largely, if not fully, shifted forward to current homeowners in their role as consumers of housing services" (1982, p. 91).

For residential property, homeowners, in their role as capitalists, bear this profits portion of the tax because there is no shifting mechanism.[3)] Even if backward shifting of the excise tax is the case, for homeowners one could argue that its overall significance is too negligible to warrant attention. Hence, homeowners bear both portions of the property tax: the profits tax as capitalists, and the excise tax as consumers. For rental housing the new view postulates that landlords bear the first component of the tax, the profits tax, while renters bear the second component, the excise tax.

Given this study's focus on the property tax as a local rather than a national tax and the unsettled debate over the relevance of the new view in applied tax incidence analysis, the old view is adopted as the guide for distributing property taxes to homeowners and renters.[4)] Therefore, the property tax is viewed as an excise tax on the consumption of housing services.

[3)]For a detailed discussion of these points, see Fisher, (1987, p. 145) and Mieszkowski, (1969).

[4)]Charles McClure supports this approach. He states: "As often interpreted, the new view of the incidence of the property tax is largely irrelevant for many questions of public policy. That is, most changes in property taxes are local changes, not nationwide changes. Local changes involve primarily excise effects, analogous to those of the old view, rather than the incidence on capital suggested by incautious users of the new view .... If a *national* change in the property tax is under consideration, the so-called new view gives the correct answer that the tax is borne by capital. If, however, an isolated *local* change is contemplated, primarily excise effects (analogous to those in the old view) are involved (1977, p. 69-70).

SECTION 3

MEASUREMENT OF INCOME

An appropriate concept of income is critical for any study of tax incidence. By definition, tax burden is a comparison of taxes paid to economic well-being or ability to pay, and the latter is usually measured by income. In this study, tax burdens or effective tax rates are expressed as ratios of taxes paid to a broad measure of taxpayer money income. The comprehensive measure of money income includes income taxable on income tax returns and nontaxable income, such as public assistance payments, tax-exempt interest and nontaxable social security and pension income. This section describes comprehensive money income in more detail.

Income Concepts

The definition of income should be as comprehensive as possible. If the chosen concept of income excludes major sources of income, the results of the incidence study will overstate the level of tax burdens and give a distorted picture of the regressivity or progressivity of the tax system. To avoid these distortions, incidence studies should use the broadest measure of income as practicable. However, data limitations pose significant constraints on reaching this objective, particularly at the state-local level of incidence analysis. Selection of the "best" income measure requires balancing the trade off between the goal of a conceptually broad measure of income and the availability of reliable empirical data.

There are two distinct issues which need to be addressed in the choice of an income measure. The first concerns the sources of income to be included. Should the measure be restricted to money income or should it be extended to non-monetary elements as well, such as employer-provided fringe benefits, imputed rental income of owner-occupied housing and in-kind government benefits (e.g., food stamps)? Ultimately, the answer to this question depends on the quality of available information.

The second issue concerns the choice of an appropriate accounting period. Should it be based on a family's annual income, or should it be based on permanent income, a measure of a taxpayer's average income over a longer time period? It is argued that income fluctuates more over the life cycle than does consumption. As a result, annual income may not be an accurate measure of a consumer's longer-run ability-to-pay or consume. In general, it is assumed that the shorter the time period, the more regressive the results of the tax incidence study will be.

Even with the above, there are two arguments in favor of using annual rather than permanent income. First, economists have yet to develop an adequate operational measure of permanent income. Consequently, most tax studies have used an annual measure of income as the basis for their analysis -- see Pechman, (1985), Phares, (1980), and State of Wisconsin (1979). The use of an annual measure is justified on a second ground: taxes are paid out of an individual's current income, not out of what might be earned in the future. If the purpose of the incidence study is to make policy decisions regarding current ability to pay taxes, then it is reasonable to argue that the appropriate and relevant measure should be based on annual rather than permanent income.

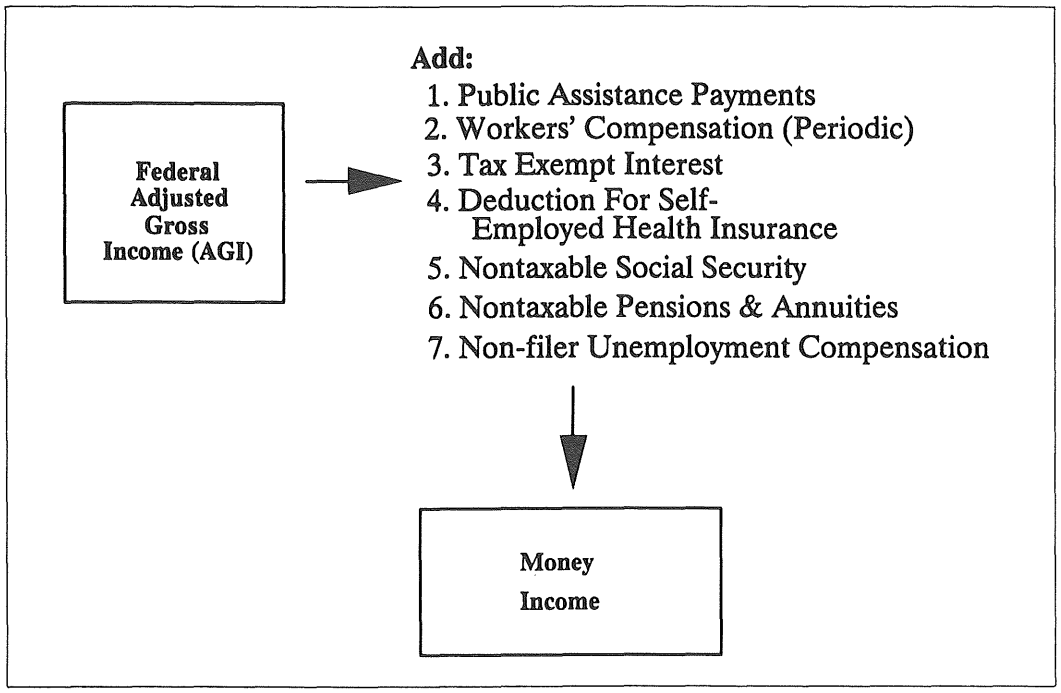
Sources of Income

Conceptually, the broadest measure of a taxpayer's income is referred to by economists as the Haig-Simons (H-S) definition of income. The H-S approach defines income in terms of how income is used, rather than in terms of the sources of income. Under the H-S definition, income equals the sum of a taxpayer's consumption and change in net worth (savings) over a period of time. This definition includes regular and irregular, expected and unexpected, and realized and unrealized sources of income. It also measures income in real terms, after adjusting for inflation.

In practice, no readily available measure of income is as comprehensive as the H-S income concept. Two broad measures of income used in economic and tax policy analysis are personal income and economic income. State personal income is estimated by the U.S. Commerce Department, Bureau of Economic Analysis, while economic income is a measure utilized by the U.S. Treasury Department, and others, in tax policy analysis. The distinguishing characteristic of these two comprehensive measures of income is the inclusion of non-monetary sources of income, including the imputed value of net rental income for homeowners and accrued, but unrealized, capital gains. Because of the formidable challenges in measuring non-monetary sources of income, these broader approaches to income measurement are not followed in this incidence study.

The income measure used to analyze the distribution of state-local taxes in Minnesota is a modified cash income definition which is limited to monetary sources of income. As shown in Figure 3-1, the derivation of money income begins with federal adjusted gross income (AGI), the broadest income tax concept of income. Various measures of non-taxable income are added to AGI in deriving money income. The components of money income are discussed in more detail in the following sections.

Figure 3-1
Computation of Money Income



Adjusted Gross Income (AGI)

This measure of income is used by the federal government and many states as the starting point for determining individual income tax liabilities. Because AGI is limited to those forms of income that are taxable, it is rarely used as the measure of income in tax incidence studies. However, because of its ready availability and reliability, it is often used as a base for the construction of a broader income measure.

Federal AGI is defined as total income from all taxable sources less certain expenses incurred in earning the income. The major taxable sources of income include (but are not limited to) the following:

Compensation for services (e.g., wages and salaries),
Income from business,
Gains from sale of capital assets,
Interest, rent and dividends,
Alimony,
Annuities and pensions,
Prizes and awards,
A portion of social security payments and
Unemployment compensation.

Many sources of income are statutorily excluded from the federal individual income tax. Exclusions include such income as child support payments, welfare benefits, scholarship and fellowship grants, workers' compensation benefits and interest on most state and local bonds. AGI is almost exclusively a cash income concept which excludes non-monetary income such as the value of food stamps, or the imputed rental income of homeowners. It also excludes indirect payments to individuals such as employer contributions to pensions and insurance.

Another important limitation in using federal AGI as an income measure in an incidence study is that it excludes income of "nonfilers" -- those taxpayers whose income falls below the reporting threshold. These taxpayers are not required to file income tax returns because they have too little income or because they derive most of their income from nontaxable sources. The nonfiler category includes most taxpayers with income below the poverty level and a significant percent of the elderly.[1)]

According to extrapolations from the incidence study database, 87.8 percent of the state's population is accounted for on state individual income tax returns; the remaining 12.2 percent are income tax nonfilers. Using additional information from property tax refund returns, the population coverage from all tax return filings increased to an estimated 93.4 percent. Only 6.6 percent of the population did not have any kind of return filing on record with the Department of Revenue. As explained later, other sources of information were used to fill in an income distribution for this portion of the population.

Additions to AGI

As shown in Figure 3-1, a number of important income sources are added to AGI in deriving a comprehensive measure of Minnesota income. These include public assistance payments, workers' compensation, tax-exempt interest, nontaxable social security benefits, pensions and annuities and unemployment compensation for nonfilers. As discussed above, money income, unlike AGI, also includes income received by nonfilers who fall below the reporting threshold for individual income taxes.

[1)]Minnesota Department of Revenue analysis entitled, *Pensions, Retirement and the Elderly: The Minnesota Pension Exclusion*, notes: "Analysis of the 1982 Minnesota income tax sample indicates that only 50 percent of Minnesota's population over the age of 65 actually file an income tax form" (1986, p. 6).

Table 3-1 summarizes the components of 1988 Minnesota total income as measured in this study. Federal AGI makes up over 89 percent of $59.6 billion total money income. Nontaxable social security benefits was the largest source of additional money income, representing 5.3 percent of the total.

Table 3-1
Derivation of Total Money Income
(millions)

DATA SOURCE	INCOME SOURCE	AMOUNT
INDIVIDUAL INCOME TAX FILERS	Federal adjusted gross income	$52,827.2
	Nontaxable interest income	$477.9
	Nontaxable IRA income	$124.7
	Nontaxable pension and annuity income	$600.6
	Nontaxable social security benefits	$1,840.6
	Self-employed insurance deduction	$28.3
	Total income of dependents	$1,252.1
	Workers' compensation	$158.5
	Public assistance	$89.6
PROPERTY TAX REFUND FILERS*	Federal adjusted gross income	$415.9
	Nontaxable social security benefits	$685.7
	Public assistance	$130.1
	Other income	$70.7
NON-FILERS	Public assistance	$178.7
	Workers' compensation	$19.4
	Social security benefits	$651.5
	Unemployment compensation	$38.6
	TOTAL	$59,590.1

*Filers that did not file income tax returns.

Income Sources Not Included in Minnesota Money Income

Minnesota money income excludes several important categories of income which, theoretically, should be included in a comprehensive, H-S definition of income. Examples, described below, include accrued income (e.g., employer contributions to retirement income and unrealized capital gains on stock), imputed income (e.g., imputed rent for homeowners), employer payments for insurance and in-kind government benefits (e.g., health care benefits and food stamps). Although included in the U.S. Bureau of Economic Analysis (BEA) estimates of aggregate state personal income, detailed information necessary to attribute these income

sources to specific households in the incidence data file is not currently available.

Homeowners receive a stream of services from their dwelling. The value of these services, called "imputed rent," is equal to the rental payments the owner would have received if he or she had hypothetically rented the dwelling out. The net income stream enjoyed by homeowners is similar to investment income earned from stocks and bonds and, therefore, is included in aggregate personal income.[2)]

A significant and growing number of workers receive part of their compensation in the form of employer provided insurance policies. The BEA includes the cost of insurance premiums in the estimate of personal income because such compensation, even though not paid directly to the recipient in cash, represents an increase in the individual's potential to consume certain goods and services, for example, medical and hospital care.

The types of insurance policies included in BEA's estimates of state personal income are:

- Group health insurance
- Group life insurance
- Supplemental unemployment insurance
- Private workers' compensation insurance

Under current tax law, employer contributions to employee retirement funds are not subject to tax; neither is the interest that accrues on the pension contributions, both employer and employee over time. Only when the pension is paid out at retirement is the employer paid principal and total interest subject to tax. AGI and the money income definition in this study therefore measure pension income on a realized basis, i.e., pensions are credited when benefits are received.

In contrast, the BEA's definition of personal income is designed to measure income on an accrual basis. Under this approach, pension income accrues to individuals at the time employer contributions are made to employee pension funds.

[2)]As explained by BEA, "(A) couple who own the house in which they live are considered to be in the business of renting their own house to themselves. As tenants, they pay rent to the landlords (themselves); as landlords, they collect rent from their tenants (themselves), incur expenses, and are left with a profit or loss from the rental business." BEA, *State Personal Income: Estimates and a Statement of Sources and Methods, 1982-1987*, p. M22.

As noted earlier, Minnesota money income includes most forms of cash benefits. Personal income goes one step further by including noncash, or "in-kind", government transfers. The two most important sources of in-kind transfers are health care benefits (through the Medicare and Medicaid Programs) and food benefits (through the Food Stamp and National School Lunch Programs). This study does not include in-kind benefits as part of government transfer payments.

Due to data limitations there are several components of money income which could not be included. For example, wage and salary income for taxpayers with incomes below the filing thresholds could not be added to the identifiable income sources such as public assistance and social security benefits. However, this excluded income component is probably quite small for low-income taxpayers. A second item excluded from Minnesota money income is veterans benefits not included in household income on property tax refund returns. While this amount is more significant, an estimated $270 million in 1988, actual payments could not be matched by social security numbers.[3)]

[3)]Although less comprehensive than economic income, there is evidence that the use of money income to measure tax burdens will result in an accurate description of the progressivity of state-local taxes. The *Wisconsin Tax Burden Study* (1979, p. 72) reached the following conclusion after comparing tax burdens using both money and economic income. "Although the income definition did affect the level of the tax rates, there was generally little difference in the shapes of the incidence curves. This held true not only for the aggregate tax burden taxes but also for the individual taxes."

SECTION 4

BUILDING THE INCIDENCE STUDY DATABASE

Constructing the overall distribution of income and taxes for the incidence study database involved a complex process. Data from tax returns filed with the Department of Revenue -- mainly individual income tax and property tax refund returns -- were used as a primary source of information. Data for nontaxable sources of income (public assistance payments and social security benefits, for example) were obtained from alternative sources to develop information at the low end of the income distribution for individuals that did not meet tax filing requirements.

Additional sources of information were merged with tax return data to provide a more comprehensive measure of income and to add tax and demographic characteristics needed for the study. The use of social security numbers to create a "hard match" of income data for specific individuals is a unique aspect of this incidence study. Most previous incidence studies have not been able to link separate income data bases for identifiable taxpaying units. A more detailed description and explanation of these steps and data sources follows.

Tax Data

Individual Income Tax Return Data

Individuals are required to file a state income tax return if they file a federal income tax form. In 1988 single persons were required to file a return if their gross income was $4,950 or more; for married couples, the filing requirement was income over $8,900. A large majority of the working age population in Minnesota file income tax returns that provide a wealth of information on income characteristics for the state's residents.

In addition to taxable sources of income, individual income tax returns contain information on income that is reported but is not taxed. These items include reporting of tax-exempt interest income, total individual retirement account (IRA) distributions, total pensions and annuities received and total social security benefits. Because the incidence study is based on total money income received, which includes both taxable and non-taxable sources of income, these non-taxable items reported on income tax returns include significant additional information important for purposes of computing total money income.

For tax year 1988, approximately 2 million individual income tax returns were filed in Minnesota. The total income tax paid for that year was $2.5 billion. Including dependents claimed on returns, the population reported on these returns represented coverage of nearly 88 percent of the state's population.

Income Tax Sample

In order to generate detailed information from returns that can be used to forecast revenue, analyze tax policies and provide statistical information, a stratified, random sample of individual income tax returns is taken every two years. As part of processing individual income tax returns filed each year, selected information reported on the M-1 form is electronically coded for purposes of verifying taxpayer liabilities. Due to the large volume of returns filed, only a limited amount of data essential to return processing is able to be gathered at this stage. The sample provides descriptive statistics and detailed information on incomes, deductions, tax payments, credits and additional demographic data. This sample is used in conjunction with a microsimulation model to forecast collections and estimate revenue impacts for legislative proposals and interacting provisions.

The sample contains a wealth of detailed information on income and other characteristics for individual income tax filers and serves a central role in constructing the tax incidence study database. The 1988 income tax sample used in this study consists of approximately 20,000 returns (about 1 percent of the filer population) and was randomly selected based on income levels.

Property Tax Refund Returns

Since 1975, Minnesota has had a property tax refund (PTR) program, which reduces property taxes for both homeowners and renters. Homeowners and renters are eligible for regular property tax refunds based on the relationship of property tax paid on a homestead (or the applicable tax for a rental unit) to total household income. Refunds vary depending on the actual level of tax and income; refund amounts decline as income increases.

For 1988, homeowners and renters were eligible for refunds if household income was less than $35,000. In that year, 420,000 regular property tax refund returns (excluding special targeting refunds) were filed, 152,000 for homeowners and 268,000 for renters. The total amount of refunds paid was $121 million, of which $87 million or 72 percent was for renters.

The regular property tax refund program is based on total household income for claimants. In addition to federal AGI, household income includes other non-taxable sources of income such as untaxed social security benefits, workers' compensation amounts, veteran's benefits and public assistance payments. For purposes of the PTR program, the use of household income provides a broad measure of income for more equitably distributing refund benefits.

Since household income is used as a basis to calculate property tax refunds, these returns include valuable information to supplement income tax return data for tax incidence analysis purposes. Furthermore, many property tax refund returns are filed by low income individuals that do not meet income tax filing requirements. For this reason, they also provide valuable information to assist in filling in the bottom of the income distribution for the state's residents.

Nonfiler Information

The previous section discussed information that is available from income tax and property tax refund returns which cover over 93 percent of the state's residents. However, a significant number of individuals or families do not have sufficient income to meet income tax filing requirements or do not qualify to file for a property tax refund. Some examples include elderly persons living mainly on social security income and families supported by public assistance payments.

In order to fill in the low end of the income distribution for individuals and families not filing tax returns, detail data from a number of sources was obtained. Information used for this purpose included social security data, public assistance payments for Aid to Families With Dependent Children (AFDC), General Assistance (GA), Minnesota Supplemental Aid (MSA) and workers' compensation and unemployment insurance data.[1)] As discussed below, the information from these sources was merged to create the income distribution for this segment of the population.

[1)]Data on public assistance payments were obtained from the Minnesota Department of Human Services. Information on workers' compensation and unemployment compensation were obtained from the Department of Labor and Industry and the Department of Jobs and Training, respectively.

Methodology Used to Construct The Database

The basic methodology used in constructing the incidence study database is summarized in three steps as follows:

1) The 1988 individual income tax sample was used as the initial source of data for most taxpayers. The sample includes approximately 20,000 returns representing a population of approximately 2 million filers. The number of sample records in the incidence study database was less because nonresidents were excluded and the income of filers claimed as dependents on another tax return was combined with that return.

2) A separate sample was taken for property tax refund returns in cases where income tax returns were not filed, i.e., did not meet income tax filing requirements. This sample included 2,608 returns representing a population of 145,400 PTR returns in this category.

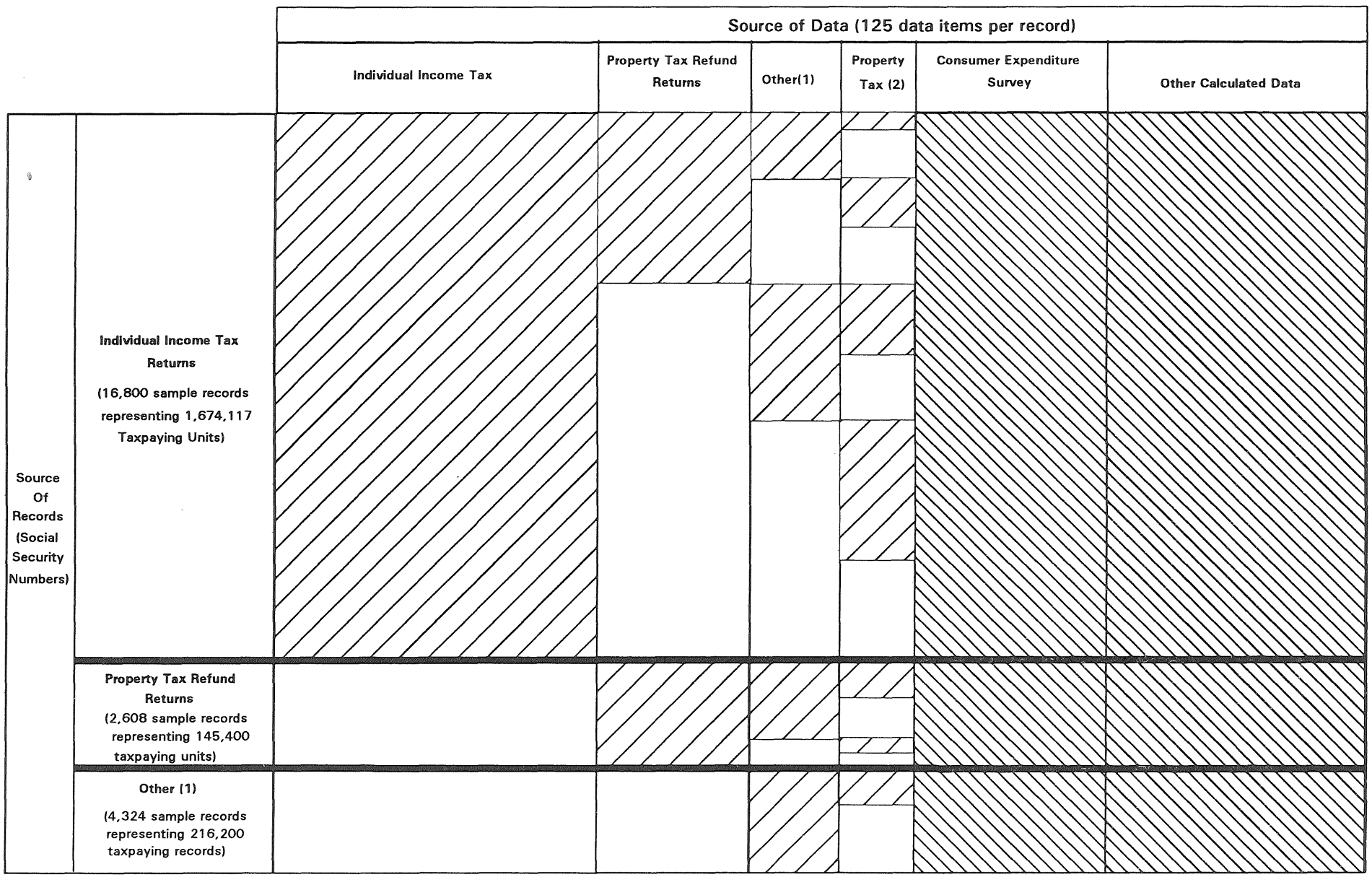
3) A separate sample was taken from information developed for residents that did not file either income tax or property tax refund returns. A sample of 4,324 (2%) was drawn from 216,200 individuals and families in this category for the entire population.

The diagram in Figure 4-1 highlights the data sources for the three sample steps and shows how the various components of data were supplemented to create the overall database. Figure 4-2 provides a listing of all the data elements used in the study, by data source.

Along with step 1, the income tax sample was supplemented by adding other sources of income not reported on tax returns, such as workers' compensation amounts or public assistance payments for low income filers. The nontaxable income items reported on income tax returns, such as tax-exempt interest income, non-taxable IRA, pension and social security amounts, were included in the calculation of total money income.

Because the property tax refund returns used in step 2 include information on total household income, they contain data for the low-income segment of the taxpaying population that is very useful for tax incidence analysis. In addition, the more comprehensive measure of household income on PTR returns was substituted for tax return measures where available.

Figure 4-1
Analysis of Data Records and Sources



Notes: (1) Data consists of Social Security, Public Assistance, Workers' Compensation, and Unemployment data.

(2) Data consists of homestead market values and property taxes.

The width of a shaded or unshaded region indicates relative size within each data record, while the height of a shaded or unshaded region indicates relative size within the population.

Figure 4-2
Summary of Data Items

General Information	Taxpayer Social Security Number Spouse Social Security Number Sample Conversion Rate
Individual Income Tax	Filing Status Over 65 indicator (taxpayer or spouse) Minnesota State Income Tax Liability Dependent Care Credit Municipal Bond Interest* Personal Exemptions Nontaxable interest income* Nontaxable IRA income* Nontaxable pensions and annuities* Farm income Nontaxable social security benefits* Self-employed insurance deduction* Federal adjusted gross income* Federal taxable income Federal net tax liability Alternative minimum tax Earned income credit
Property Tax Refund	Homeowner/Renter status Over 65 indicator (taxpayer or spouse) Number of dependents Federal adjusted gross income* Nontaxable social security benefits* IRA, Keogh, SEP, or other retirement plan payments Public Assistance payments* Other income (for PTR purposes)* Renter's share of property tax Real estate taxes Homestead Credit Regular property tax refund Special property tax refund (targeting)
Public Assistance	AFDC (Aid to Families with Dependent Children)* GA (General Assistance)* MSA (Minnesota Supplemental Aid)* Number of adults in the assistance group Number of children in the assistance group
	Workers' Compensation*
	Unemployment benefits*
	Social Security benefits*
Property Tax	Homestead Estimated Market Value Net Property Tax
Consumer Expenditure Survey (calculated)	Entertainment expenditures Housekeeping expenditures Vehicle purchases Alcoholic beverage expenditures Tobacco expenditures Food expenditures (away from home) Utility expenditures Shelter expenditures (taxable) Miscellaneous expenditures (taxable) Apparel expenditures Gasoline and motor oil expenditures Automobile maintenance and repair expenditures Personal service expenditures Shelter expenditures (nontaxable) Food expenditures (home) Health care expenditures Miscellaneous expenditures (nontaxable)

*Component of Minnesota Money Income

As mentioned above, step 3 involved merging information from other available data sources to fill in the low end of the income distribution. Social security, public assistance, workers' compensation and unemployment insurance information was obtained through agreements with state and federal agencies. The individuals receiving payments under these programs were identified by social security number. This information was used to create subfiles of records that did not match tax returns. After the subcategories for each dataset were created consisting of data not matching tax returns, the separate datasets were merged to summarize income received by each individual or family.

Another important step in the construction of the database was the use of available state agency files that contained name and address information to match data representing family units in cases where information was initially reported individually for each recipient (e.g., spouses having separate social security payment records). This adjustment provided a more accurate picture of a taxpaying unit's total income.

Other Database Procedures and Enhancements

Tax Returns Filed by Dependents

Nearly 10 percent of all individual income tax returns are filed by persons claimed as dependents on someone else's tax return. The most common situation is a student working part-time and claimed as a dependent on the parent's tax return.

These situations were given special consideration in the study. Essentially, the income for these dependents was added to their parent's income, to derive total money income received by families. Without giving special consideration to these situations, these filers would have been treated as separate, low-income individuals in the study.

In order to accomplish the income linkage necessary for this step, data from tax returns on the income tax sample were matched by name and address to generate overall income distribution characteristics of filers claiming these dependents. This distribution was then applied to the incidence study sample to assign dependent returns to actual families in the sample on the basis of these characteristics.

Income and Property Tax Calculations

Individual income tax amounts were available from the 1988 income tax sample that was a central part of the overall incidence database. As such, actual income tax liabilities, both federal and state, from sample records were used to estimate income tax liabilities for the entire population of Minnesota residents.

Property tax calculations were made for both homeowners and renters. The method used to calculate property taxes will be discussed separately for homeowners and renters.

Homestead Property Tax

The property tax for homeowners was calculated from a unique dataset based on information submitted each year to the Department of Revenue on the market value of every residential homestead in the state. Counties provide this data to the state annually, along with the social security numbers for owners of homestead property, as required by law.[2)] From this information, property tax amounts were computed for each homestead in the sample based on the local tax rate where the property is located.

This data was merged into the incidence study database using the social security number as a key to add homestead property tax amounts to the sample records on the file identified as homeowners. In addition, the incidence study database included property tax refund information based on data from actual PTR returns filed. As such, net property tax amounts can be determined after the regular property tax refund amount is subtracted.

This method was used for all homestead property owners in the state with the exception of farms. Consistent, statewide information on market values for farm homesteads was not available. As a result, property taxes for farms were calculated based on estimates of market value for the house, garage and one acre, excluding the market value of other farm buildings and land. This treatment of farms is more consistent with the concept of residential property taxes for

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[2)]This unique market value-social security number file has been used extensively to analyze the relationship between market values, property taxes and income for Minnesota homeowners. For additional details, see Fermanich (1988) and The Research Department of the Minnesota House of Representatives.

homeowners. Consequently, the property tax for homeowners who were farmers represents only a portion of the total property taxes on the farm. Statewide, farm property taxes in 1988 for only the house, garage and one acre represented about 23 percent of total farm homestead property taxes.

For farm homesteads, however, the actual property tax refund is computed based on the tax for the first 320 acres of the farm. Since the property tax for farm homeowners in the study was based on the value for the house, garage and one acre, the property tax refund could not be considered and was not subtracted to determine net tax. Because of the relatively small amounts of property taxes on the house, garage and one acre portions of farms, the effective tax rates on farms should not be appreciably affected by the absence of PTR refund offsets.

Property Tax for Renters

Property tax amounts for renters were determined based on one of two methods. First, if a property tax refund return was filed, the renter's share of the property tax listed on the return was used. The property tax refund program is available to renters based on the relationship of income and tax. Many low and moderate-income renters file for this refund each year and their actual share of property tax for the dwelling is reported as part of the computation of the refund, thus providing actual data for this element of the study.

For taxpayers who did not file a property tax refund return and were not homeowners, a rental property tax amount was imputed. In these cases, available data from the U.S. Bureau of the Census reports was used to impute rent amounts based on percentages of income attributable to rent by size of income.[3)] To calculate tax amounts, property tax was assumed to average 20 percent of rent paid based on previous studies conducted by the Department of Revenue.[4)]

In addition to imputing property tax for renters, estimations were made for situations where little or no rent is paid or renter property tax is not applicable. This would include certain cases such as senior citizens living with relatives, adult children living at home and, in some circumstances, people living in subsidized housing. Available Census data was used to estimate the number of individuals

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[3)]U.S. Bureau of the Census, *Current Housing Reports, Minneapolis-St. Paul Metro Area*, 1985.

[4)]See Minnesota Department of Revenue, *Property Tax Refund Study*, March 1990, p. 16.

in these circumstances (and their distribution by income level where information was available) where rental property tax would not be applicable. Based on available characteristics for these situations, the information was incorporated into the study database to represent cases where there is no liability for property tax.

Sales and Excise Tax Calculations

The initial step in estimating general sales and excise tax payments by income level is to estimate the distribution of taxable consumer expenditures. The appropriate tax rate is then applied to this base to estimate tax payments. Expenditures subject to sales and excise taxes were estimated using consumer expenditure data from the Bureau of Labor Statistics, 1987-1988 Consumer Expenditure Survey.[5)] The survey results report average spending by income level for the various components of consumer spending. Categories of expenditures that were included in the database for this study are identified in Figure 4-2.

The consumption data used in the study was Midwest regional data broken down by income before taxes and national data broken down by income and consumer unit size. The national data was used along with the regional information because it included expenditure data by consumer unit size. It should be noted that expenditure amounts reported in the survey are averages for the population rather than average expenditures for only those consumer units actually purchasing goods and services.

In most cases the variation between the regional and national data was small. For categories where average consumption expenditures varied by more than 5 percent (e.g., shelter and tobacco) and national breakdowns were used, adjustments to the data were made to approximate regional amounts.

In cases where expenditure categories were partially taxable and non-taxable, estimates were made to account for the portion that is taxed under the sales tax base. The entire sales tax base for household consumption is included. In addition to the 1988 sales tax base, the database includes some expenditures which are possible options for future base expansion items.

[5)]U.S. Bureau of Labor Statistics, *Consumer Expenditure Survey, 1987* and unpublished 1987-1988 U.S. and Midwest Region Data.

The Consumer Expenditure Survey information was merged into the incidence study database based on income level and family size reported on individual sample records. Using the state sales tax rate, sales tax amounts were then computed from the proportion of expenditures identified as being taxable. In like manner, average consumer expenditures by income level and family size for gasoline, tobacco and alcohol were used to estimate excise taxes.

Summary

The detailed tax calculations and income information for each taxpaying record in the tax incidence sample provide the basic information for analyzing the distribution of state-local tax burdens in Minnesota. This data is used to measure the distribution by money income levels of each of the major state-local taxes, as well as the aggregate state-local tax burden. Before discussing the empirical results of the study, the next section provides an overview of the index used to evaluate the degree of regressivity or progressivity in the distribution of tax burdens.

SECTION 5

CHOOSING A PROGRESSIVITY INDEX

The choice of a progressivity measure depends on the nature of the questions being asked in an incidence study. One may wish to know, for example, how taxes affect the distribution of income between classes: Does it shift after-tax income in favor of the poor, or in the opposite direction, toward the wealthy? In the former case, the tax system would be called "progressive;" in the latter, it would be deemed "regressive."

One may wish to know less about how taxes affect after-tax income than how taxes are distributed and shared. The relevant question is: How do tax burdens compare across income classes? That is, if the population is ranked by income classes, how would the tax burdens in each of the income classes compare to one another?

A third question is whether the tax burdens are fair according to some criterion of equity, such as the principle of ability to pay. "Ability to pay" simply refers to a household's capacity to pay taxes, generally measured as income or wealth. Using income as the preferred ability-to-pay measure, as income rises, so too does ability to pay. According to this criterion, in order to equalize sacrifices between taxpayers of different income levels, tax burdens should rise with income. Whether tax liabilities should rise faster, slower or in proportion to income is a subjective value judgement which can only be determined through the political process.

There are a number of indexes used to measure tax progressivity: some measure how taxes affect income; some measure how taxes are distributed and shared; and some measure a combination of both. There is, however, no single index which addresses all questions and there is considerable controversy concerning some of the indexes that have been commonly employed in the past.[1)] Each index should

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[1)] The recent critical appraisal of progressivity indexes began with an article by Keifer (1984) who argued that many of the measures led to inconsistent rankings of taxes by alternative progressivity measures. Unfortunately, none of the alternatives recently proposed are completely satisfactory, because "no single index can provide complete information on the progressivity of a tax" (Baum, 1987, p. 181). Keifer (1984, p. 505) has noted: "Statements that 'tax A is more progressive (regressive) than tax B' or 'the progressivity (regressivity) of tax A has increased' clearly may mean different things in terms of the parameters of the tax system and income distribution depending on which progressivity index is being used. This implies that in applied tax distribution analysis it is not sufficient for the researcher arbitrarily to choose a tax progressivity index and apply it (as seems to be the standard practice), nor is it satisfactory to use two or more indexes hoping they will reinforce each other. Since the distributional progressivity indexes are associated with fundamentally different ways of measuring progressivity (or the degree of progressivity) a far better procedure is for the researcher to make a choice among the progressivity indexes based on an understanding of their characteristics and implications."

be judged according to its own individual strengths and weaknesses and be carefully selected keeping in mind the nature of the question the index is designed to address.

The most widely used progressivity index is the Suits index.[2)] While it does have its limitations, it still provides a useful and highly informative measure when properly employed.[3)] The Suits index is used in this study to provide an overall summary measure of the distribution of Minnesota state and local taxes. The following provides a brief description of the index and the types of questions it is best suited to answer.

Suits Index

The Suits index is derived from a graphic concept, the "tax concentration curve," which compares the cumulative percentage of total taxes paid to the accumulated percentage of total income for taxpayers ranked by income level. The former is plotted on the vertical axis of the graph and the latter on the horizontal axis (see Figure 5-1). The Suits index is the ratio of area x to area x+y in Figure 5-1. Area x is the area between the 45-degree line and the concentration curve; area x+y equals the total area underneath the 45-degree line.

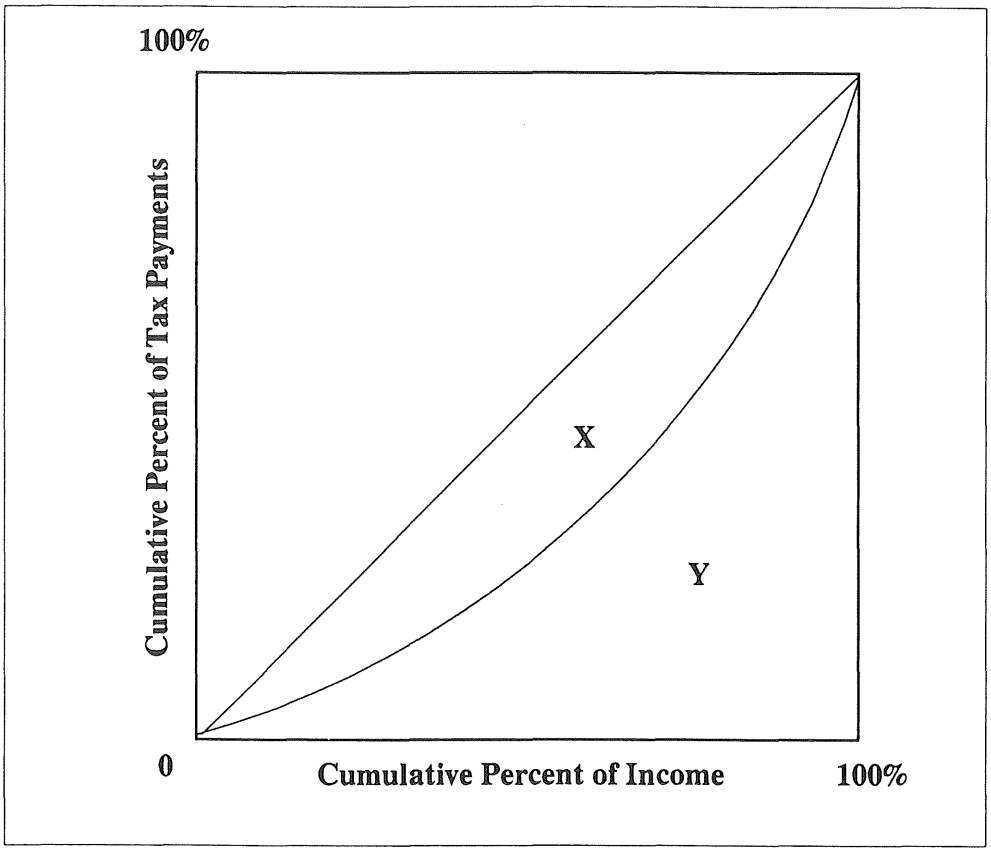
A proportional tax is represented in the diagram by the diagonal or 45-degree line and has a Suits index of 0. A progressive tax is represented by a curve below the diagonal and has a positive index value. The more progressive the tax, the higher the Suits index. In the extreme case, when the total tax burden is paid by those in the highest income bracket, the index has a value of +1. For a regressive tax, the tax concentration curve lies above the diagonal and has a negative index value between 0 and -1.

[2)]See Daniel B. Suits, "Measurement of Tax Progressivity." *The American Economic Review,* September 1977, p. 747-752.

[3)]For an introduction to the debate, see: J.P. Formby, W.J. Smith and D. Sykes, "Intersecting Tax Concentration Curves and the Measurement of Tax Progressivity," *National Tax Journal.* March 1986; S.R. Baum, "On the Measurement of Tax Progressivity: Relative Share Adjustment," *Public Finance Quarterly,* April 1987: pp. 166-187; D.W. Keifer, "Distributional Tax Progressivity Indexes." *National Tax Journal,* December 1984: pp. 497-513; D.W. Keifer, "A Comparative Analysis of Tax Progressivity in the United States: A Reexamination." *Public Finance Quarterly,* January 1991: pp. 94-108 and K.V. Greene and E.M. Balkan, "Response to Keifer," *Public Finance Quarterly,* January 1991: pp. 109-113.

Figure 5-1

Tax Concentration Curve



The Suits index can be discussed in terms of both a summary index and a tax concentration curve. The summary index provides an overall measure of progressivity for the tax or tax system as a whole. It cannot, however, provide any meaningful information regarding differences in progressivity at different levels of income. The Suits measure in its graphical form, however, can be used for this purpose. A comparison of the slope of the concentration curve with the 45-degree line illustrates relative income and tax shares at different income levels. This information can be used to answer the question: How is the total tax burden distributed along the income scale?

The greatest limitation of the Suits index is that it is affected by changes in the distribution of income. Hence, if the income distribution changes, the Suits index will change even if taxes remain the same. This problem does not arise, however, in an incidence study which examines a single state's tax structure for a given year. The Suits index, as well as graphs of tax concentration curves, is used to evaluate the distribution of Minnesota state and local taxes in the next section.

SECTION 6

SUMMARY OF RESULTS

This section examines the state-local tax burden imposed on Minnesota taxpayers in 1988. The data include taxes paid by Minnesota residents; taxes paid by nonresidents are excluded from the analysis. The taxes included are those that are imposed directly on consumer households. Hence, this study is limited to the individual income tax, the consumers' share of the general sales tax and motor vehicle excise tax, the residential portion of the property tax, and the consumers' share of state excise taxes on gasoline, alcohol and tobacco. All business taxes -- such as the corporate income tax, the commercial and industrial property tax, and the producers' share of the sales and excise taxes -- are excluded.

The Total Tax Burden

Based on taxes and income included in the study, Minnesotans paid a total of $5.4 billion in taxes while earning over $59.5 billion in total money income. Minnesotans thus paid slightly over nine percent of their total income in state and local taxes. The individual income tax accounts for nearly half of the total burden. The property tax and the sales tax (including motor vehicle excise tax) account for 21 percent and 23 percent of the burden, respectively; the combined burdens of the three excise taxes (on alcohol, tobacco and gasoline) account for the remaining ten percent.

Figure 6-1

Distribution of Total Tax Burden by Tax Type

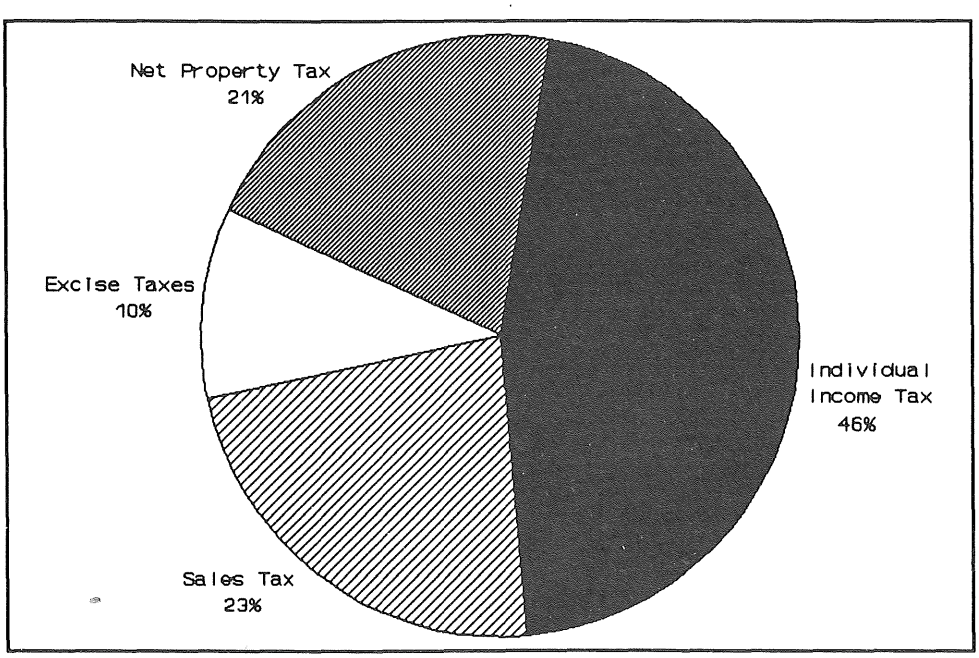


Table 6-1
Distribution of Taxes by Population Deciles
(thousands)

Decile	Income Range	Personal Income Tax	Share of Tax	Sales Tax	Share of Tax	Excise Taxes	Share of Tax	Property Taxes	Share of Tax	Total Taxes	Share of Taxes
First	$4,151, & Under	$1,132	0.0%	$25,405	2.1%	$14,349	2.7%	$29,954	2.6%	$70,840	1.3%
Second	$4,152 - 6,957	$2,775	0.1%	$40,449	3.3%	$22,485	4.3%	$37,103	3.3%	$102,811	1.9%
Third	$6,958 - 10,959	$20,363	0.8%	$57,297	4.7%	$31,610	6.0%	$57,534	5.0%	$166,805	3.1%
Fourth	$10,960 - 15,294	$55,731	2.2%	$78,534	6.4%	$40,807	7.8%	$71,014	6.2%	$246,086	4.6%
Fifth	$15,295 - 20,326	$89,928	3.6%	$88,930	7.3%	$47,590	9.0%	$93,208	8.2%	$319,656	5.9%
Sixth	$20,327 - 25,883	$148,748	5.9%	$105,842	8.6%	$50,147	9.5%	$115,431	10.1%	$420,169	7.8%
Seventh	$25,884 - 32,630	$207,918	8.3%	$131,176	10.7%	$62,712	11.9%	$128,793	11.3%	$530,599	9.8%
Eighth	$32,631 - 41,916	$305,675	12.2%	$156,864	12.8%	$69,653	13.2%	$137,673	12.1%	$669,865	12.4%
Ninth	$41,917 - 56,705	$450,865	17.9%	$193,268	15.8%	$70,537	13.4%	$161,723	14.2%	$876,392	16.2%
Tenth	$56,706 & Over	$1,229,273	48.9%	$347,182	28.3%	$116,654	22.2%	$308,380	27.0%	$2,001,485	37.0%
Total		$2,512,410	100.0%	$1,224,947	100.0%	$526,544	100.0%	$1,140,813	100.0%	$5,404,708	100.0%
Top 5%	$72,942 & Over	$907,023	36.1%	$229,140	18.7%	$72,922	13.8%	$200,340	17.5%	$1,409,422	26.0%
Top 1%	$147,214 & Over	$483,693	19.2%	$107,142	8.7%	$27,735	5.2%	$66,454	5.8%	$685,022	12.6%

Examining the total tax burden by population decile (ranked by income level), one finds that the top decile (incomes above $56,705) bears about 37 percent of the total tax burden (see Table 6-1). By tax type, taxpayers in the top decile pay nearly half of the individual income tax, 28 percent of the general sales tax, 22 percent of the excise tax and 27 percent of the property tax.

In contrast, the bottom decile (incomes below $4,152) bears only 1.3 percent of the total tax burden. With regard to each of the tax types, the bottom decile taxpayers pay less than a tenth of a percent of the individual income tax, 2.1 percent of the general sales tax, 2.7 percent of the excise tax and 2.6 percent of the property tax.

Table 6-2 summarizes the distribution of burden by tax type for each decile. Of the total taxes paid by decile, sales tax and property tax account for the largest percentage of taxes paid in the lowest deciles. Income tax accounts for only a small percent of tax paid in the first and second deciles. In the top deciles, income tax contributes the largest share of taxes paid with 61 percent of the total tax in the tenth decile coming from the income tax.

Table 6-2
Percent Distribution of Burden
By Tax Type Within Deciles

Decile	Income Tax	Sales Tax	Excise Tax	Property Tax	Total
First	2%	36%	20%	42%	100%
Second	3	39	22	36	100
Third	12	34	19	35	100
Fourth	22	32	17	29	100
Fifth	28	28	15	29	100
Sixth	36	25	12	27	100
Seventh	39	25	12	24	100
Eighth	46	23	10	21	100
Ninth	51	22	8	19	100
Tenth	61	17	6	16	100

To evaluate fairness or equity in the distribution of tax burdens by income level, tax burdens must be compared to the underlying distribution of income. The following section examines this relationship.

Overall Effective Tax Rates

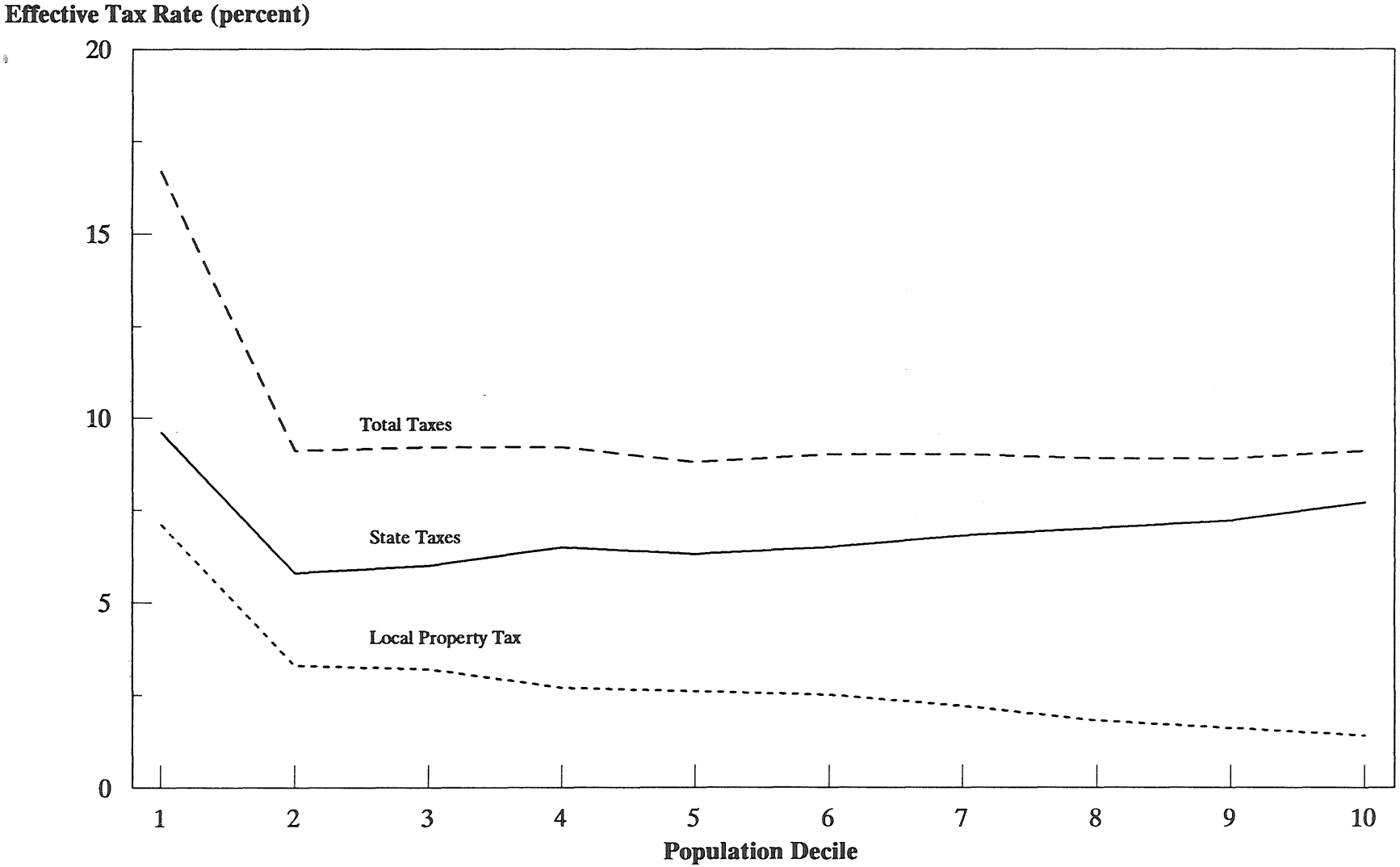
One measure of tax equity is the effective tax rate, which is defined as the ratio of taxes paid to income. The effective tax rate provides a way of analyzing the equity of the tax burden for different classes of income. The distribution of tax burdens is characterized as progressive if the effective tax rate rises with income, proportional if it is constant for all income levels or regressive if it falls as income rises.

Figure 6-2 shows overall effective tax rates for Minnesota's state and local tax system and summarizes the basic findings in this study. The effective tax rate is shown on the vertical axis; population deciles are shown on the horizontal axis. In addition, the data in Table 6-3 shows effective tax rates by decile for each of the taxes contained in the study. (Detail data on actual tax burden amounts

Table 6-3
Effective Tax Rates by Population Deciles
All Taxpayers

DECILES	INCOME RANGE	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
1	$4,151 & UNDER	0.3%	6.0%	3.4%	9.6%	9.3%	7.1%	16.7%
2	$4,152 - 6,957	0.2%	3.6%	2.0%	5.8%	5.0%	3.3%	9.1%
3	$6,958 - 10,959	1.1%	3.2%	1.7%	6.0%	4.7%	3.2%	9.2%
4	$10,960 - 15,294	2.1%	2.9%	1.5%	6.5%	3.6%	2.7%	9.2%
5	$15,295 - 20,326	2.5%	2.5%	1.3%	6.3%	3.1%	2.6%	8.8%
6	$20,327 - 25,883	3.2%	2.3%	1.1%	6.5%	2.7%	2.5%	9.0%
7	$25,884 - 32,630	3.5%	2.2%	1.1%	6.8%	2.2%	2.2%	9.0%
8	$32,631 - 41,916	4.0%	2.1%	0.9%	7.0%	1.8%	1.8%	8.9%
9	$41,917 - 56,705	4.6%	2.0%	0.7%	7.2%	1.6%	1.6%	8.9%
10	$56,706 & OVER	5.6%	1.6%	0.5%	7.7%	1.4%	1.4%	9.1%
	Total	4.2%	2.1%	0.9%	7.2%	2.1%	1.9%	9.1%
Top 5%	$72,942 & OVER	5.9%	1.5%	0.5%	7.8%	1.3%	1.3%	9.1%
Top 1%	$147,214 & OVER	6.3%	1.4%	0.4%	8.0%	0.9%	0.9%	8.9%

Figure 6-2
Effective Tax Rates for 1988 Minnesota State and Local Taxes
By Population Deciles



computed for each tax by decile, along with respective effective tax rate calculations, is presented in the appendix. (See Appendix, Tables A-1 to A-8.)

As can be seen, the entire state and local tax system, except for the first decile is nearly proportional (effective rates vary only from 8.8 to 9.2 percent for the second through tenth deciles) based on taxes included in the study.[1)] For state taxes, the system is mildly progressive, as effective tax rates increase from 5.8 to 7.7 percent from the second to tenth deciles as income increases. The local tax system (net property tax) is regressive; that is, effective tax rates decline continuously as one moves up the income scale. Net property taxes are taxes after regular property tax refunds. Tax burdens in the first decile will be discussed in more detail below.

Effective Tax Rates by Type of Tax

Effective tax rates by population deciles (ranked by money income) for the four major categories of taxes in this study are presented in Table 6-3 and are illustrated in Figure 6-3.

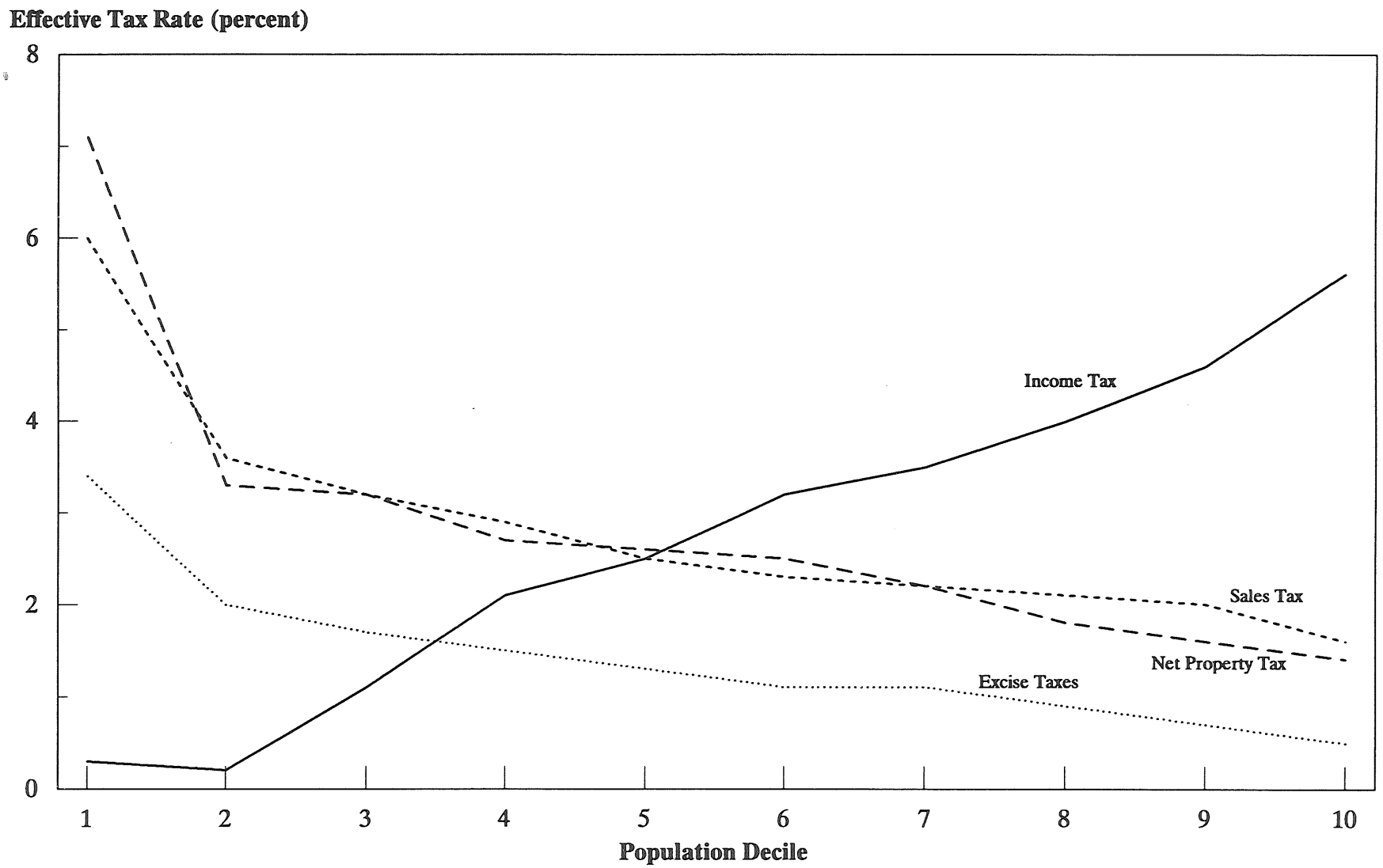
The results show that the individual income tax is strongly progressive. The three remaining taxes -- the general sales tax, the property tax and the excise taxes -- are all regressive. Because the individual income tax accounts for nearly half of the total tax burden, it tends to balance out the regressivity of the three other taxes. Hence, as a whole, the state and local system of taxation in Minnesota is nearly proportional.

The Individual Income Tax

Because of its graduated rate structure and the allowance of personal exemptions and deductions, the individual income tax is designed to be progressive. As shown in Table 6-3, effective tax rates do increase significantly as incomes increase. At the low end, the effective tax rate for the income tax equals 0.3 percent and 0.2 percent for the first and second decile, respectively, and rises steadily to 5.6 percent for the tenth decile.

[1)] Although state and local taxes on business are not included in this study, the overall distributional pattern may not be significantly affected by this exclusion. The Wisconsin study (Wisconsin, 1979, Chapter V) concluded that under their "plausible" tax incidence assumptions the property tax on businesses was generally proportional to income. The plausible case distribution of the corporate income and franchise tax was regressive, but an estimated 85 percent of the population faced the same effective corporate income tax rate. While these results are not directly applicable to the Minnesota situation in 1988, they do suggest that including taxes with an initial impact on businesses in the Minnesota tax incidence study would not have a significant impact on the overall progressivity of state and local taxes.

Figure 6-3
Effective Tax Rates By Tax Type
By Population Deciles



As shown in Table 6-1, nearly 80 percent of the entire individual income tax burden is borne by the top three deciles (incomes above $32,630), and these taxpayers account for 66 percent of money income. The middle four deciles account for most of the remaining income tax, about 20 percent, while accounting for 28 percent of total income.

The individual income tax is the largest of the taxes included in the analysis, representing nearly half of the total taxes. It is also the only progressive tax of the four major types included in this analysis. As such, the individual income tax plays a crucial role in achieving overall equity in Minnesota's state and local tax system.[2)]

The General Sales Tax

In agreement with most studies, this analysis finds the sales tax to be regressive, especially at the low end of the scale. This is due to the fact that the share of income represented by taxable consumption tends to be smaller for high income households than for low income ones. Hence, tax burdens as a proportion of income tend to decline as one moves up the income scale.

The effective sales tax rate for the bottom decile is 6.0 percent, compared to the rate for the top decile (incomes over $56,705) of 1.6 percent (see Table 6-3). Low income households pay an effective tax rate that is over three times larger than the effective tax rate on high income households. However, the effective tax rates for the third through ninth deciles, which represent 70 percent of all taxpayers, range from 3.2 to 2.0 percent.

Excise Taxes

Three excise taxes are included in this study: gasoline, tobacco and alcohol taxes. Because each is relatively small individually, the three were combined to arrive at one aggregate measure for this analysis.

Like the general sales tax, the excise taxes are found to be regressive. This is predictable since lower income households spend a greater proportion of their income on consumer goods subject to the excise taxes than higher income households. As a result, effective excise tax rates are higher for low income households than for high income ones. As shown in Table 6-3, the effective tax rate for the bottom decile is 3.4 percent. It ranges from 2 percent to .9 percent from the second to the eighth deciles; it declines to 0.5 percent for the tenth decile.

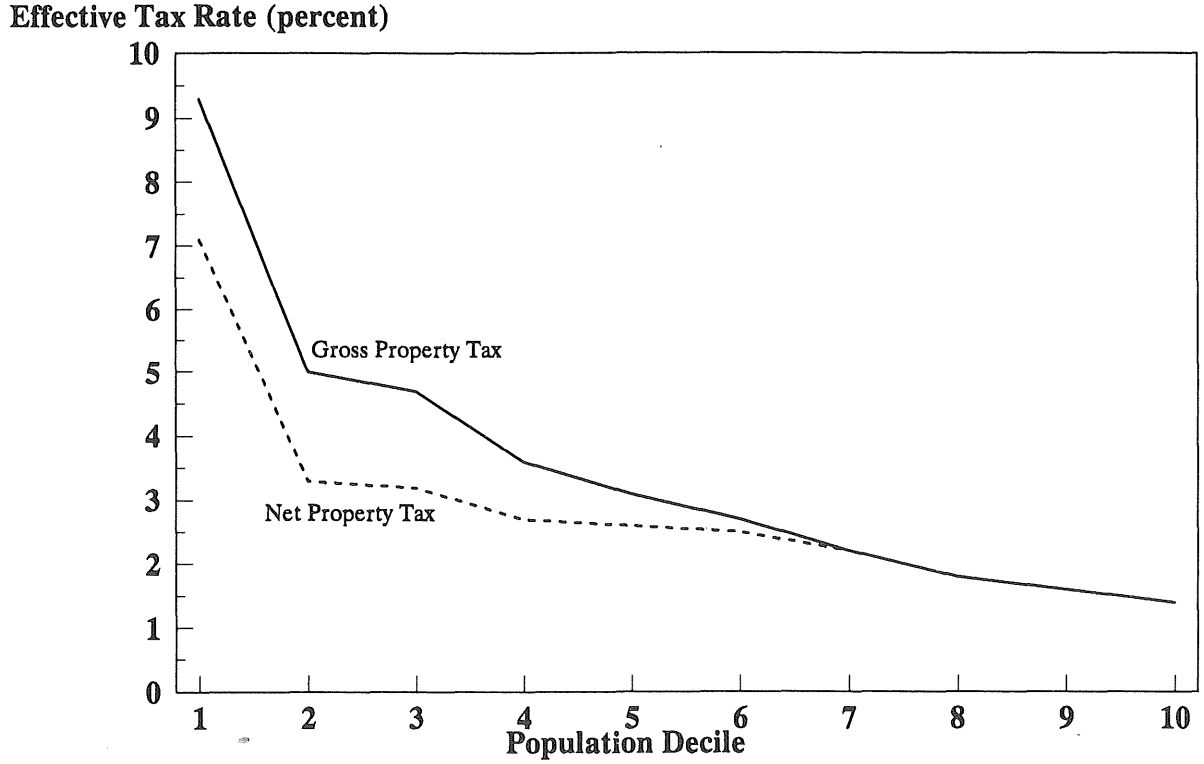
[2)]Mathematically, the overall effective tax rate in any decile is the sum of the effective tax rates for each individual tax. As income increases, the increase in the effective income tax rate roughly offsets the fall in the sum of the effective tax rates for the other three tax categories, leaving the overall effective tax rate unchanged.

The Property Tax

The property tax (net of regular property tax refunds) on residential households is a regressive tax. Generally, burdens decline as one moves up the income scale. For the bottom decile, the effective property tax rate is 7.1 percent (see Table 6-3). It drops to 3.3 percent for the second decile, 3.2 percent for the third, 2.7 percent for the fourth, and then declines gradually to 1.4 percent for the last decile. As seen in Figure 6-3, the distribution of effective sales tax rates closely follows the distribution of effective tax rates for net property taxes.

Figure 6-4 shows the impact of the regular property tax refund (PTR) program on effective property tax rates, by comparing gross property tax rates (before refunds) to net effective rates after refunds. The regular property tax refund program provides tax relief to low and moderate income individuals based on the relationship of property taxes and income. The effect of the program is clearly apparent in Figure 6-4, as effective tax rates are reduced over the six lowest deciles. Overall effective property tax rates are reduced for homeowners and renters from 9.3 percent to 7.1 percent in the first decile and from 2.7 percent to

Figure 6-4
Comparison of Gross and Net Effective Property Tax Rates
By Population Deciles



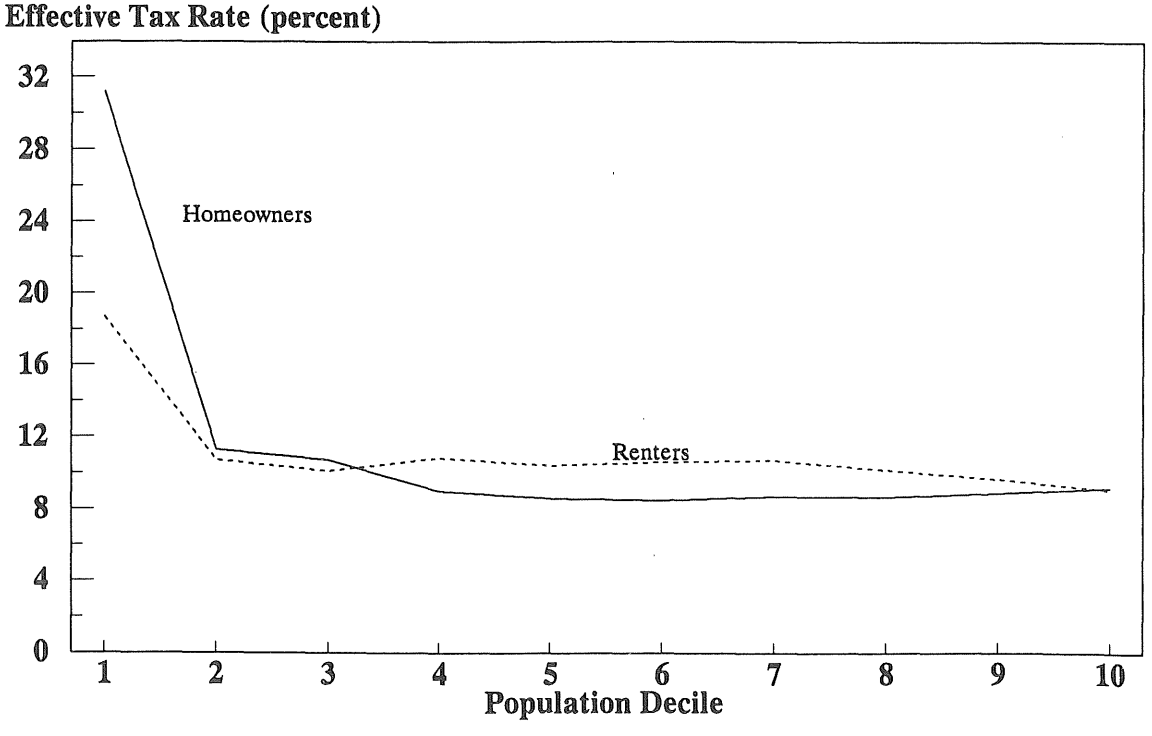
2.5 percent in the sixth decile. The $35,000 income limitation for PTR eligibility cuts off the reduction in property tax effective tax rates in the eighth decile which begins at $32,631.

Effective Tax Rates: Renters and Homeowners

The tax incidence database allows a comparison of tax burdens for two important categories of taxpayers, renters and homeowners. The two groups are often compared in discussions of property tax policy.

For the majority of the deciles, a breakdown between homeowners and renters shows that effective tax rates are higher in the renter category (see Figure 6-5). Although overall effective rates for the taxes included in the study are lower for renters in the first three deciles, the effective rates for renters are around 2 percentage points higher than homeowners in the fourth through seventh deciles. The effective rate for renters is 1.5 percentage points higher in the eighth decile and .8 percentage points higher in the ninth decile.

Figure 6-5
Comparison of Effective State and Local Tax Rates For Homeowners and Renters By Population Deciles



A breakdown by tax type identifies the reasons for these effective tax rate differences. As can be seen in Figure 6-6, income tax effective rates are higher for renters for most of the deciles. The differences are most pronounced in the middle deciles; for example, income tax effective rates are 1.3 percentage points higher for renters than for homeowners in the fourth through sixth deciles. The discrepancy can be partly explained by the fact that homeowners as a group are more likely to itemize deductions and to have higher average deductions than renters, primarily due to home mortgage interest and real estate taxes. Therefore, itemized deductions reduce effective income tax rates more for homeowners than renters.

Figure 6-6
Effective Tax Rates By Tax Type
For Homeowners and Renters

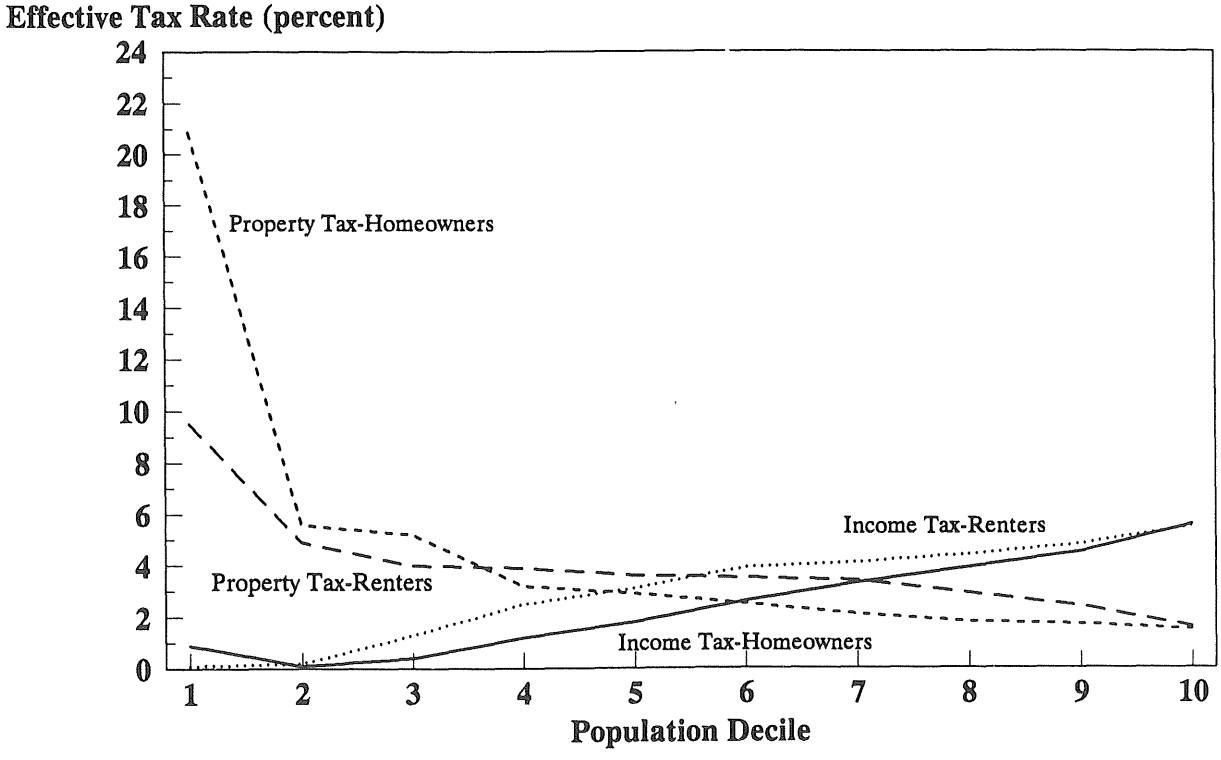


Figure 6-6 also shows that renters pay higher effective property tax rates in most income categories, except for the bottom three deciles. In the first decile homeowners have an effective property tax rate that is twice as high as renters; 20.9 percent versus 9.5 percent. This discrepancy and rather high effective tax rate is partially explained by some homeowners reporting losses or no income for 1988. Further, homeowners pay higher effective property tax rates than renters in the second and third deciles, primarily due to the more predominant effect of the property tax refund program for renters at lower incomes.

The pattern is reversed beginning in the fourth decile where renters pay somewhat higher effective property tax rates in the remaining deciles. These higher effective rates for renters in the upper deciles are primarily a result of the property tax system in Minnesota. As shown in Table 1-2, nonhomestead, residential property had a 1988 classification ratio of 34 percent compared to ratios between 17 and 27 percent for homesteads.

Effective Tax Rates in the First Decile

As shown in the various tables and graphs summarizing the distribution of 1988 effective tax rates for Minnesota residents, taxpayers in the first decile have significantly higher sales, excise and net property tax burdens than taxpayers with higher incomes. These relatively higher effective tax rates require further discussion and explanation.

Of the taxpaying units included in the first decile (income below $4,152), 25 percent have social security and nearly 20 percent have public assistance payments as their only source of income. (Since in-kind income is not included in the income definition for this study, non-cash benefits such as Medicare and Medicaid payments and food stamps are not part of the income measure.) About one-third of the taxpayers in this category file income tax returns.

However, some taxpayers that are included in the first decile have temporarily low incomes or have better overall economic well-being than is indicated by money income for 1988. A portion of the retirees, for example, may be living primarily on savings or other assets but show small amounts of annual money income received. Due to unemployment or business fluctuations, some individuals who normally have higher levels of income are also included in this category. For instance, some individual taxpayers with significant amounts of overall business activity report losses for income tax purposes as business proprietors or partners. If taxpaying units reporting losses were excluded, the effective tax rates calculated for the first decile would be lower.

The problems with interpreting tax burdens in the first decile have been recognized by researchers doing tax incidence studies. In the most comprehensive study of federal, state and local tax burdens, Pechman (1985) totally excludes taxpayers in the first 5 percent of the cumulative population distribution from effective tax rate calculations for the first decile. According to Pechman (1985, p. 51), this adjustment was designed to "compensate for the overstatement of tax burdens at the lower end of the income distribution in annual data...". Pechman's rationale for this exclusion is that at the lowest end of the income distribution annual income is not an accurate measure of the longer-run ability-to-pay of these taxpayers, for the reasons outlined above.[3)]

In a more recent study of the distribution of gasoline taxes, Poterba (1990) argues that total annual expenditures for households is a better measure of economic well-being or ability-to-pay than annual household income drawn from the Consumer Expenditure Survey (CES).[4)] Poterba finds that using expenditures rather than income to determine gasoline expenditure shares results in a spending pattern which is much closer to proportional. In fact the percent of total expenditures spent on gasoline is the same for both the first and last deciles.

Another reason why effective tax rates for sales and excise taxes may be overstated for the first decile in this study is that there may be underreporting of income in the CES data used to estimate the level of taxable expenditures. To the extent that income is subject to relatively greater underreporting than consumption, the spending ratios may be overstated for low-income households. As a consequence, sales and excise tax burdens would be overstated.

In this study there has been no attempt to adjust for possible underreported income or for the difference between transitory and longer-run measures of income. Consequently, money income at the low end of the income distribution does not provide an accurate measure of overall economic well-being in the first decile. To partly adjust for the unreliability of the CES data, the ratio of consumption to income was adjusted downward for the lowest decile. However, consumption and corresponding tax payments still appear high relative to income in the first decile and the effective tax rates computed for these taxpayers should be viewed with caution.

[3)]Poterba (1990, p. 151) actually refers to the bottom of the CES income distribution as "noise" in describing the accuracy of the data. Poterba also points out that the high ratios of spending to income found for low-income taxpayers in the CES data may result from the systematic underreporting of income (see Poterba, 1991, p. 157).

[4)]The Wisconsin incidence study (Wisconsin, 1979, p. 58) also excludes the bottom of the distribution in reporting results, leaving out income below $3,000 partly because "sole proprietors and farm families report very low or negative incomes."

The Suits Index

The previous sections looked at effective tax rates for each of the four major tax types examined in this study. The effective tax rate -- that is, the ratio of taxes paid to income -- can be used to compare tax burdens across income categories. However, it is difficult to summarize the overall distribution of a tax (progressive, proportional or regressive) from the individual effective tax rates. This section uses the Suits index, discussed earlier, as a summary measure of the overall tax distribution for a specific tax.

The Suits index is based on the tax concentration curve which graphs the cumulative percentage of the total tax burden of a tax against the accumulated percentage of total income. A proportional tax is represented graphically by a diagonal (45-degree line) and has a Suits index equal to zero. A progressive tax is represented by a concentration curve below the diagonal and has a positive index value. In the extreme case, when the total tax burden is paid by those in the highest income bracket, the index has a value of +1.0. For a regressive tax, the tax concentration curve lies above the diagonal and has a negative index value of between 0 and -1. The more regressive a tax, the further above the diagonal is the concentration curve.

Figure 6-7 presents the tax concentration curves for the four major taxes examined in this study.[5)] The Suits indexes corresponding to the concentration curves are:

Tax Category	Suits Index
Excise Tax	-0.23
Net Property Tax[6)]	-0.16
Sales Tax	-0.13
Personal Income Tax	0.18
State Taxes	0.04
Total Taxes	0.00

The only progressive tax is the personal income tax with a positive Suits index of 0.18. The excise tax is the most regressive, followed by the property tax. The third most regressive is the sales tax. The Suits index comparisons also show that the distributions of tax burdens for the sales tax and net property taxes are very similar.

[5)]The data used to construct the concentration curves is provided in Appendix Table A-9.

[6)]The calculated Suits Index for gross property tax (before property tax refunds) is -0.22.

Taken as a whole, the system of Minnesota taxes is nearly proportional (a Suits index of 0.0). If one excludes the locally-imposed property tax, however, the system becomes progressive.[7] Figure 6-8 presents the tax concentration curves for the state level versus the local level. The Suits index for state taxes is 0.04 (slightly progressive), whereas the Suits index for the net local tax is -0.16 (regressive).

Federal Income Tax Offset

Along with analyzing overall tax burdens, it is important to consider the impact that state and local tax deductions have on federal tax liabilities. The "federal offset" affects those individuals who itemize deductions for federal income tax purposes. Both state income taxes and local property taxes can be claimed as itemized deductions and reduce federal taxable income and federal income tax liability. As a result, for individuals that itemize deductions, a portion of state and local taxes is passed on to all federal taxpayers.

The impact of the federal offset for a taxpayer who itemizes depends on the amount of deductions for state income and property tax and the federal marginal rate. For example, if $1,000 of itemized deductions are claimed for state and local taxes by a taxpayer in the 28 percent bracket, the federal tax is reduced by $280. Thus, this portion of the state and local tax is, in a sense, exported to the federal government and distributed as part of the federal revenue structure. In addition, the relative size of the federal offset is greater for states, like Minnesota, that have a higher than average state income tax and for states with an above average percentage of itemizers.

Including the federal offset in tax incidence calculations has two important effects: it reduces state and local tax burdens, as effective tax rates become lower, and it increases the regressivity of state and local taxes, since the importance of the federal offset increases with income. This is due to rising federal and state marginal tax rates and increasing percentages of taxpayers who itemize as income rises.

Thus far, this section has examined the distribution of tax burdens before any consideration of the impact of the federal income tax offset. Figure 6-9, however, shows the impact of including the federal offset in the calculation of tax burdens by population deciles and its regressive influence on overall effective tax rates.

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[7] The Suits index for the state and local tax system as a whole is a weighted average of the separate indexes with the weights equal to the share of each tax in total taxes.

Figure 6-7
Minnesota State and Local Taxes
Tax Concentration Curves

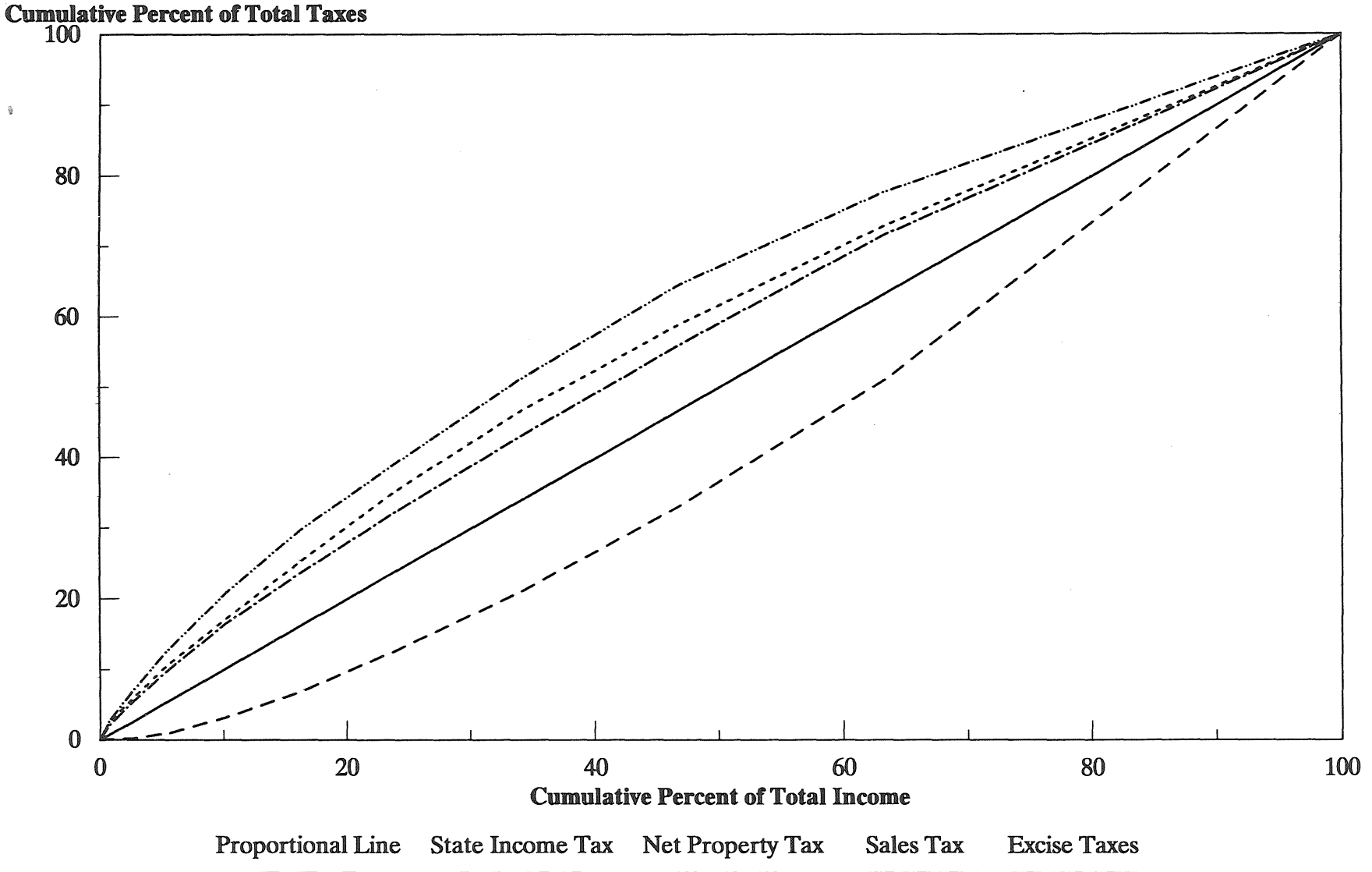


Figure 6-8
Minnesota State and Local Tax System
Tax Concentration Curves

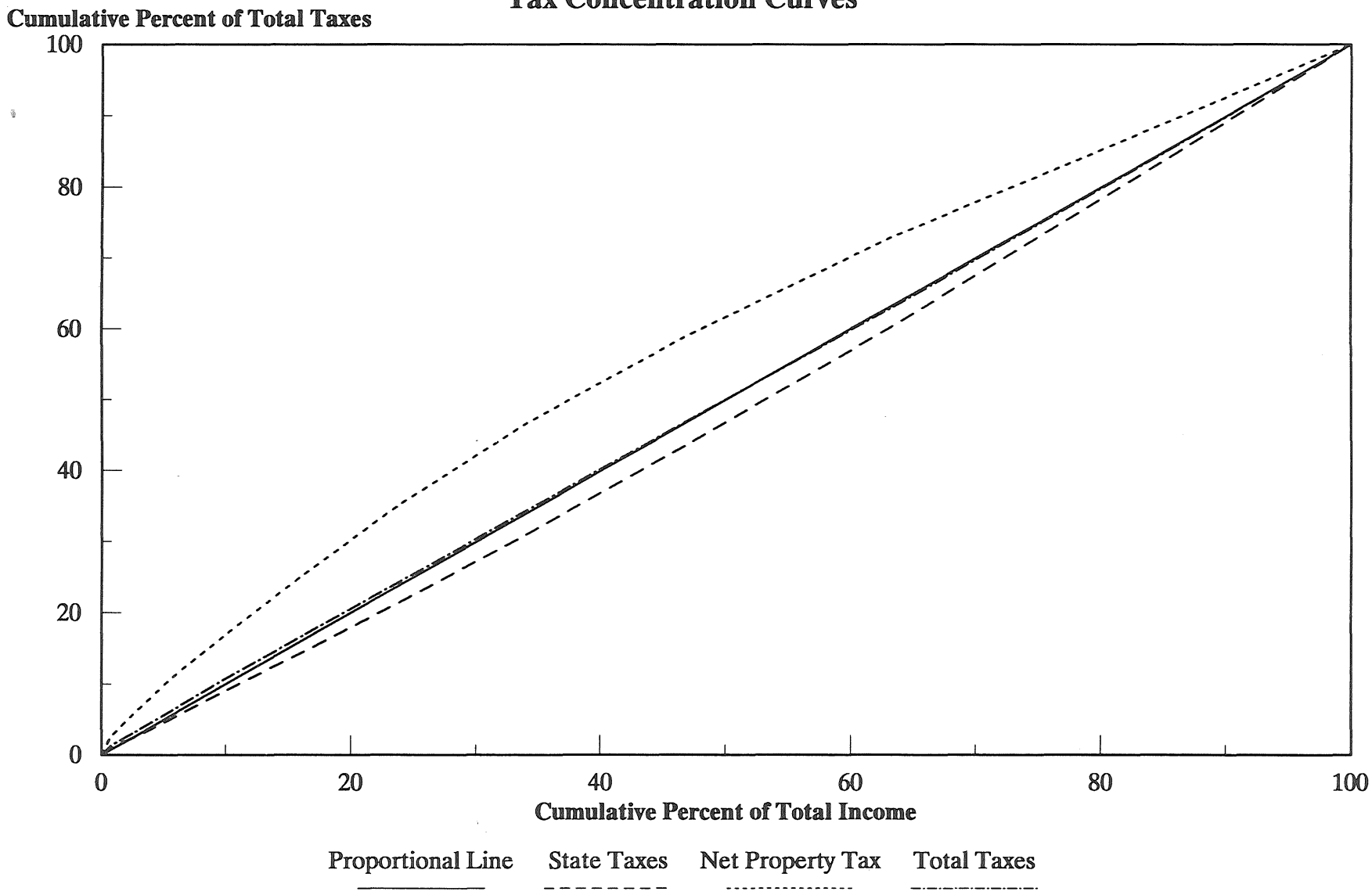
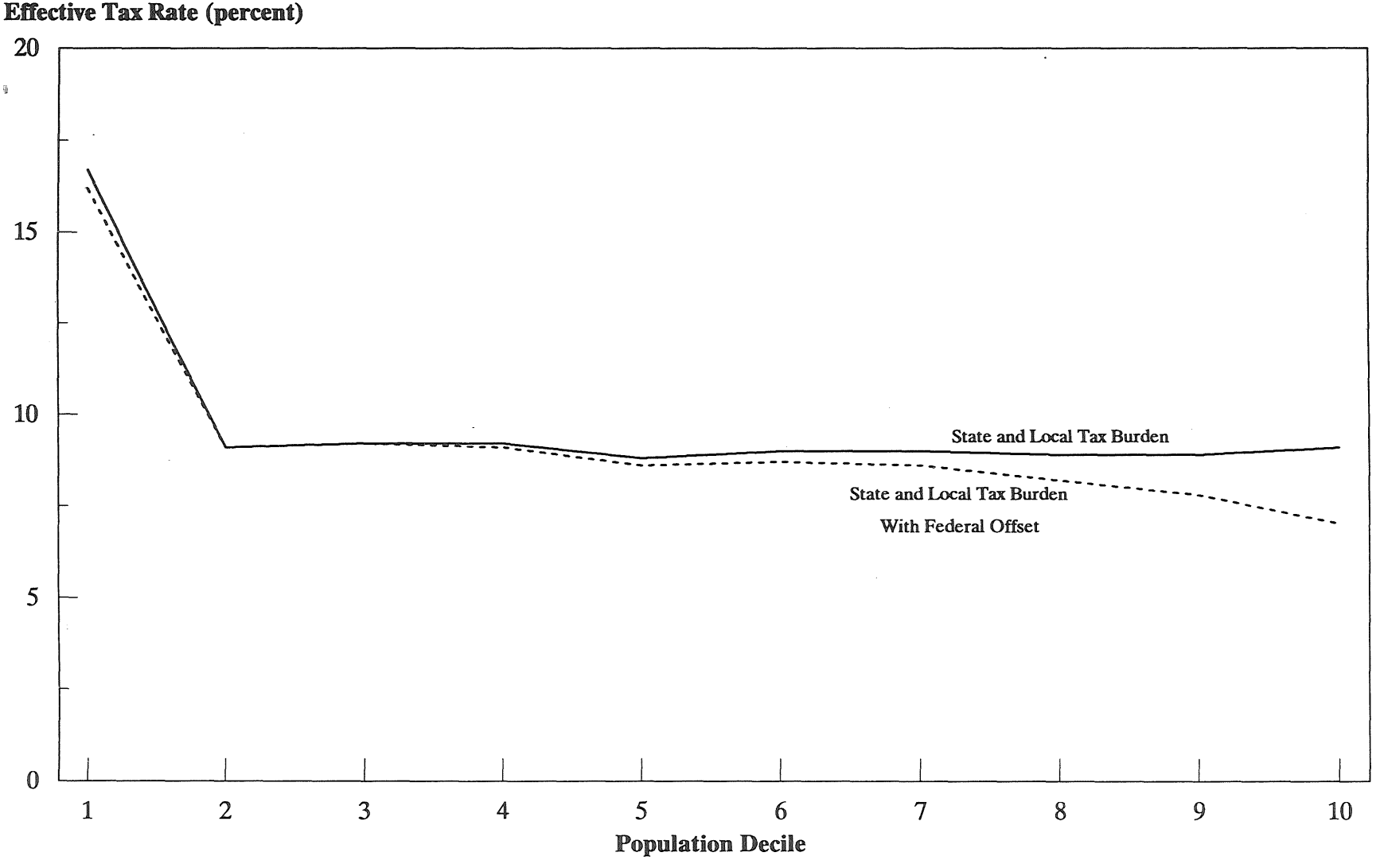


Figure 6-9
Impact of the Federal Income Tax Offset on Effective Tax Rates by Population Deciles



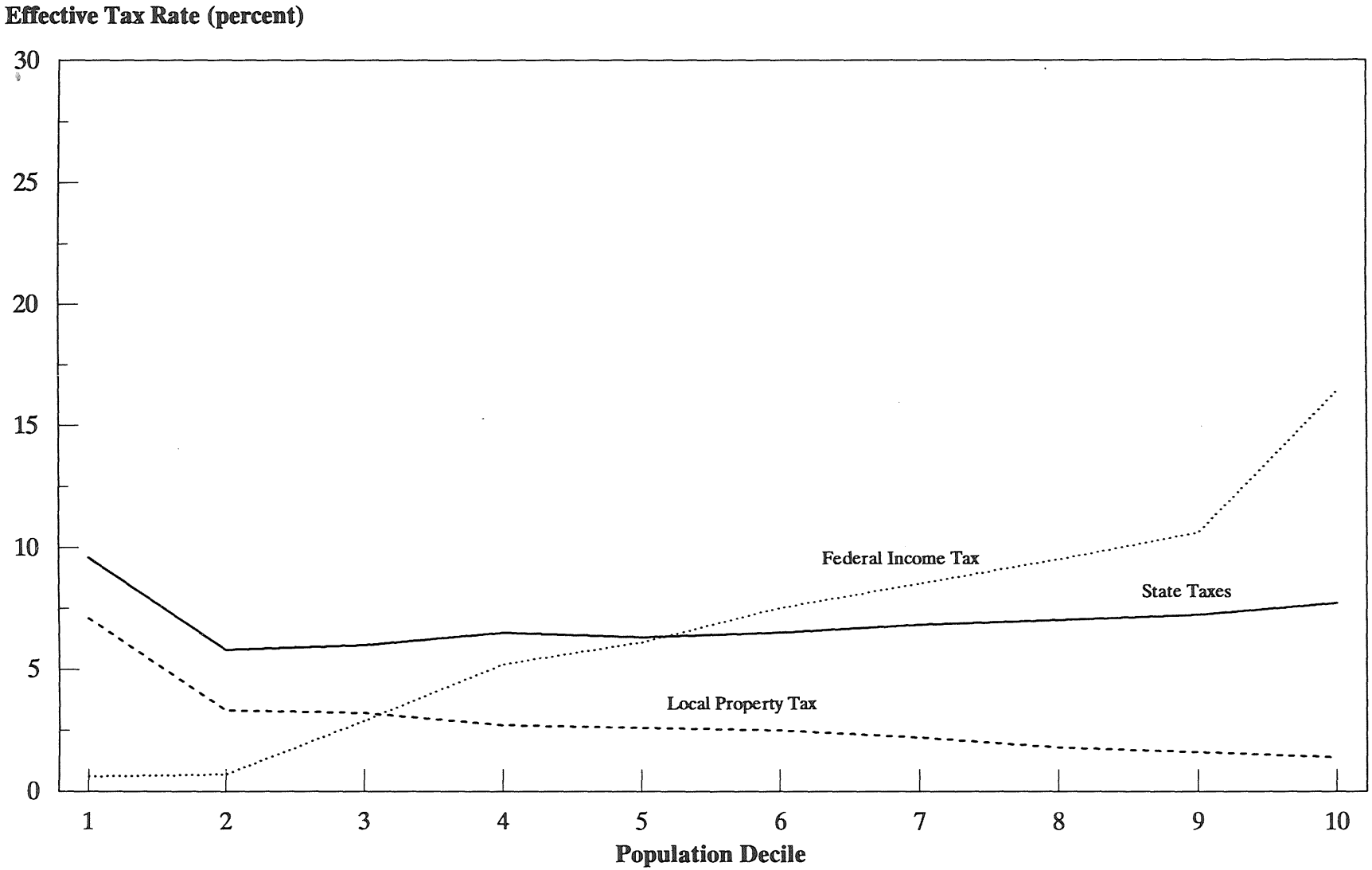
Since the Federal Tax Reform Act of 1986, the impact of the federal offset on state and local tax systems has been reduced. The 1986 federal changes eliminated the itemized deduction for state and local sales taxes and lowered federal marginal tax rates, reducing the benefits from remaining deductions.

The main impact resulting from the federal offset occurs in the top few deciles. Overall state and local tax burdens are reduced .2 percentage points in the 5th decile; by the 8th decile, the change is .7 percentage points. The largest effect can be seen in the 9th and 10th deciles, where the tax burden reductions are 1.1 and 2.1 percentage points, respectively. As can be seen in Figure 6-9, including the federal offset changes the characterization of the state and local tax structure from one that is proportional in nature to one that is slightly regressive.

However, this conclusion is based on the implicit assumption that the federal offset, from a policy perspective, is properly viewed as a reduction in state and local taxes rather than a reduction in federal income taxes. Alternatively, if the federal offset is viewed as a feature of the federal income tax structure, then the distribution of total federal income tax liabilities for Minnesota residents should be included in the incidence analysis, not just the federal offset. In effect, this treatment includes the interactions between federal income taxes and state and local taxes in the same way that the interactions between the state income tax and local property taxes are handled in the incidence analysis.

Figure 6-10 shows the combined distribution of state, local and federal income taxes. The federal income tax is progressive in nature, which is clearly shown in Figure 6-10. The progressivity of the federal income tax exceeded that of the state income tax in 1988. The Suits index for the federal income tax was .22 compared to .18 for the Minnesota income tax. However, because other federal taxes such as excise and social security taxes are not included, this is only a partial view of what the combined distribution of federal, state and local taxes would look like. The inclusion of these other federal taxes would somewhat offset the marked progressivity of the federal income tax on the overall distribution of federal, state and local taxes.

Figure 6-10
Effective Tax Rates for Federal Income Tax, State and Local Taxes by Population Deciles



SECTION 7

CONCLUSIONS

The purpose of the tax incidence study is to identify who pays Minnesota's taxes. This information is needed by policymakers as they consider future changes in Minnesota's tax system. This section highlights results from the study which should be considered in evaluating tax policy options. It also includes a brief discussion of the probable impact of the 1991 tax law changes on the distribution of Minnesota tax burdens.

Overall Progressivity

The most important conclusion from the tax incidence report is that Minnesota's state and local tax structure is close to proportional for the 90 percent of state taxpayers falling in the second to tenth population deciles who pay almost 99 percent of all taxes measured in this study. Effective tax rates (before considering federal deductibility) for the highest decile are equal to rates in the second decile and are .1 to .3 percentage points higher than the effective tax rates in the two middle deciles. Only in the first decile are measured effective tax rates significantly higher than the overall average of 9.1 percent due to high sales and net property tax effective tax rates. Given the results of this study, the critical policy issue is what changes, if any, should be made in this distribution.

In addressing this policy issue it should be recognized that a proportional state-local tax system is unusual; what little multistate information there is suggests that most states have regressive distributions of state-local tax burdens. This is certainly the case after reducing effective state-local tax rates for the federal income tax offset. Pechman (1985) found that state and local taxes in the aggregate were clearly regressive under the assumption that consumers pay the property tax through higher prices for housing and other consumer products and services. This is the incidence assumption used in this study. The recently released study by the Citizens for Tax Justice (1991) comparing effective tax rates for major state-local taxes concludes that only two states, Vermont and Delaware, have even slightly progressive overall tax systems (before the federal offset).[1)]

[1)]The measure of progressivity used in the CTJ report is the ratio of effective tax rates for the average taxpayer in the top one percent of the income distribution compared to the rate for the average taxpayer in the bottom twenty percent of the income distribution. For Minnesota, the ratio of effective tax rates for these two representative individuals was just over 1.0 (proportional).

It should be noted that the results from the CTJ report are not directly comparable to the incidence results reported in this study. The CTJ figures are for "representative" families of four in each state, not the actual liabilities of all taxpayers. In addition, the CTJ income concept is modified adjusted gross income which understates money income from lower-income taxpayers receiving transfers, such as public assistance payments and social security. A final important difference is the CTJ focus on taxpayers in the top one percent of the income distribution as representative of the "rich". As pointed out in the incidence study, comparisons of effective tax rates by deciles provides a less distorted measure of relative tax burdens.

While state personal income taxes are widely recognized as being progressive, the results of the Minnesota tax incidence study, as well as studies by other researchers, show that state and local tax systems are generally regressive or proportional at best. It is clear from the Minnesota picture that heavy reliance on a significantly progressive personal income tax is necessary to offset the regressivity of sales, excise and property taxes to achieve even a proportional tax distribution.

Balanced State and Local Revenue System

There are, however, limits to how much weight can be given to the income tax to achieve greater progressivity. Two significant limiting factors are Minnesota's income tax progressivity relative to other states and the balance in Minnesota's revenue system. The national public finance literature emphasizes that state and local revenue systems should be "balanced". Specifically, strong arguments are made that each major tax (individual income, sales and property) should account for 20 to 30 percent of total state and local taxes. A balanced system is needed because it is not possible to design a single tax that achieves all desired tax-system objectives, including *fairness* (horizontal and vertical equity); *efficiency and accountability*, *competitiveness and reliability* (revenue stability and long-run responsiveness). Progressivity, although an important objective, is only one of several often conflicting objectives.

Currently, Minnesota's personal income tax is at the high end of the relative dependency range, accounting for over 30 percent of total state-local taxes. Increased reliance on the income tax would make it more difficult to achieve other important revenue-system objectives. Of particular concern would be revenue stability. High dependency on an income tax which is also very progressive makes the whole revenue system more sensitive to economic conditions. This would increase the volatility of state revenues over the economic cycle.

Minnesota's ability to increase top income tax rates relative to other states is ultimately constrained by interstate tax competition for business and individuals. A recent study of 1988 individual income tax burdens (Minnesota Department of Revenue, 1989) indicates that Minnesota's income tax progressivity is high relative to other states. Minnesota's interstate ranking in terms of income taxes on wages and salaries jumps from 37th for taxpayers with wages of $7,500 to 6th for taxpayers with wages of $50,000 and above.

Interstate Comparison

In evaluating policy options which would affect the distribution of Minnesota state and local tax burdens, consideration should be given to Minnesota's interstate rankings for the taxes included in the incidence study. Comparisons of the aggregate tax burdens for each tax across states provide a useful benchmark for evaluating Minnesota's tax structure. This is particularly important in addressing the objective of competitiveness.

Measured by the ratio of taxes collected to state personal income, Minnesota's interstate tax rankings in fiscal year 1989, the latest year available, were:

Tax	Ranking
Property Tax (all property)	20
Individual income tax	7
State sales tax	21
Excise taxes (gasoline, tobacco and alcohol)	16
Total state and local taxes	7

Minnesota's rank of 7th in the U.S. in the aggregate individual income tax burden reflects the State's relatively heavy reliance on the income tax. In contrast, Minnesota's property tax burden for all types of property was 20th highest in 1989 and the state sales tax burden was 21st in the nation.[2)] Including all state and local taxes, Minnesota ranked 7th in fiscal year 1989.

1991 Tax Changes

A number of tax changes passed by the 1991 legislature will affect the distribution of tax burdens for the taxes studied in this report. Because the tax incidence database reflects income and tax information for 1988, the results of the tax incidence study could not be directly updated to analyze tax law changes since 1988, including significant changes in the property tax classification system and the property tax refund program. This section describes the 1991 changes and summarizes the probable impact on the distribution from other data sources or simulation models.

[2)]The state sales tax rankings do not include the motor vehicle excise tax. If these taxes in lieu of the sales tax are included for the states, Minnesota's sales tax ranking climbs from 21st to 16th in 1989.

For the individual income tax, the 1991 tax bill adopted federal changes which phase out personal exemptions and itemized deductions for high-income taxpayers. The top marginal tax rate was increased from 8 percent to 8.5 percent and a refundable working family credit, based on 10 percent of the federal earned income credit, was enacted.

Although taxpayers at most income levels were not impacted, the 1991 changes added to the progressivity of the income tax. The increase in income taxes mainly affected high income taxpayers. In aggregate, income taxes were increased by an estimated four percent for taxpayers with incomes corresponding to the top decile ($56,706 and above) in this study. Tax relief was provided for low income individuals eligible for the new working family credit which slightly lowered effective tax rates in the lower-income deciles. Overall, the progressivity of the income tax was increased relative to the 1988 law.

The most significant change made in 1991 was the adoption of a one-half cent local option sales tax. (The revenue from the rate increase is deposited in the Local Government Trust Fund to help fund property tax relief.) In effect, the total general sales tax rate was raised from 6 percent to 6.5 percent. The change in the sales tax rate is essentially a proportional sales tax increase for all consumers. However, because the sales tax is a greater percentage of the total tax burden for lower-income taxpayers, this change alone increases the regressivity of the state and local tax system.

Property tax changes adopted in 1991 reduced the overall level of property taxes. For residential property, class rates on rental housing and middle to high-valued homes were reduced. Specifically, the class rate on the top tier of homestead market value was reduced from 3 percent to 2.5 percent for taxes payable in 1992, and the 1 percent class rate was extended from $68,000 to $72,000. Changes in local government aid payments and restrictions on levy limits also affected the amount of total property tax reductions.

For homeowners, the provisions mean that taxes on lower-value homes will increase by a small amount and taxes on higher-value homes will decrease. Information on changes in the relative distribution of homestead property tax burdens by market value classes is not sufficient to identify directly the change in property tax burdens by income deciles because property tax relief was tied to market value, not income. The net impact of the property tax changes on renters and homeowners is little change in the measured regressivity of the tax. However, the 1991 changes are likely to add to the regressivity of the property tax for homeowners. For renters, property taxes were lowered as a result of the class rate reductions which should reduce effective property tax rates in the lower deciles.

Summary

An important policy implication highlighted by the results in this report is that questions of vertical equity or fairness in the distribution of state-local tax burdens in Minnesota must be addressed within the context of the entire system of state and local taxes. It is the combined impact of personal income taxes, sales and excise taxes, and property taxes that should be the focus of the equity debate.

Each tax plays a different role in achieving the multiple tax system policy objectives of understandability, fairness, competitiveness, reliability and efficiency. For example, a progressive state income tax is needed to offset regressive state and local taxes, and regressive excise taxes may be justified on the basis of being benefit charges or taxes which compensate for external costs generated by private consumption decisions. A recognition of these roles is necessary to determine the most effective way to achieve the desired degree of equity in the Minnesota state and local tax system.

APPENDIX

Detailed information on the distribution of income, taxes and tax burdens by population deciles and by money income range are included in this appendix (Appendix Tables A-1 to A-9). The text discussion focuses on the distribution of effective tax rates by deciles which provides a more balanced picture of the relative importance of different groups of taxpayers than the distribution by income range. Appendix tables also provide detailed breakdowns by types of taxpayers, including homeowners, renters and other taxpayers. The final section of the appendix contains a copy of the legislative mandate for the tax incidence study.

Table A-9 presents the cumulative distributions of income and taxes which are used to derive the tax concentration curves and the Suits index numbers in the text. The total of the figures shown for each decile in part C of Table A-9 are estimates of the area below the tax concentration curve for a particular tax type (area Y in Figure 5-1 on p. 36). The area under the 45-degree line (X + Y in Figure 5-1) is 5000 as shown in the total income column of part C. The Suits index for each tax is calculated as 1.0 minus the ratio of the estimate of area Y to 5000.

TABLE A–1

Minnesota Tax Burden Amounts by Population Decile
All Taxpayers
(Dollar Amounts in Thousands)

POPULATION DECILE	INCOME RANGE	NUMBER	TOTAL INCOME	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
First	$4,151 & UNDER	203,492	$424,827	$1,132	$25,406	$14,350	$40,888	$39,521	$29,954	$70,841
Second	$4,152 – 6,957	203,532	1,129,328	2,775	40,449	22,485	65,709	56,215	37,103	102,812
Third	$6,958 – 10,959	203,618	1,808,837	20,363	57,297	31,611	109,272	84,939	57,534	166,806
Fourth	$10,960 – 15,294	203,636	2,675,467	55,731	78,534	40,809	175,074	96,986	71,014	246,088
Fifth	$15,295 – 20,326	203,551	3,612,182	89,928	88,931	47,592	226,451	111,870	93,209	319,659
Sixth	$20,327 – 25,883	203,625	4,680,633	148,749	105,843	50,149	304,741	124,905	115,431	420,173
Seventh	$25,884 – 32,630	203,349	5,926,852	207,918	131,177	62,714	401,808	133,007	128,794	530,602
Eighth	$32,631 – 41,916	203,789	7,558,151	305,675	156,865	69,656	532,196	138,372	137,673	669,869
Ninth	$41,917 – 56,705	203,639	9,883,082	450,865	193,269	70,540	714,674	162,066	161,724	876,398
Tenth	$56,706 & OVER	203,486	21,890,772	1,229,273	347,186	116,663	1,693,122	308,761	308,383	2,001,505
	TOTAL	2,035,717	$59,590,130	$2,512,410	$1,224,956	$526,568	$4,263,935	$1,256,641	$1,140,820	$5,404,755
Top 5%	$72,942 & OVER	101,799	$15,436,146	$907,023	$229,142	$72,929	$1,209,095	$200,603	$200,343	$1,409,437
Top 1%	$147,214 & OVER	20,354	$7,725,957	$483,693	$107,144	$27,739	$618,576	$66,469	$66,455	$685,031

Effective Tax Rates by Population Decile

POPULATION DECILE	INCOME RANGE		STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
First	$4,151 & UNDER		0.3%	6.0%	3.4%	9.6%	9.3%	7.1%	16.7%
Second	$4,152 – 6,957		0.2%	3.6%	2.0%	5.8%	5.0%	3.3%	9.1%
Third	$6,958 – 10,959		1.1%	3.2%	1.7%	6.0%	4.7%	3.2%	9.2%
Fourth	$10,960 – 15,294		2.1%	2.9%	1.5%	6.5%	3.6%	2.7%	9.2%
Fifth	$15,295 – 20,326		2.5%	2.5%	1.3%	6.3%	3.1%	2.6%	8.8%
Sixth	$20,327 – 25,883		3.2%	2.3%	1.1%	6.5%	2.7%	2.5%	9.0%
Seventh	$25,884 – 32,630		3.5%	2.2%	1.1%	6.8%	2.2%	2.2%	9.0%
Eighth	$32,631 – 41,916		4.0%	2.1%	0.9%	7.0%	1.8%	1.8%	8.9%
Ninth	$41,917 – 56,705		4.6%	2.0%	0.7%	7.2%	1.6%	1.6%	8.9%
Tenth	$56,706 & OVER		5.6%	1.6%	0.5%	7.7%	1.4%	1.4%	9.1%
	TOTAL		4.2%	2.1%	0.9%	7.2%	2.1%	1.9%	9.1%
Top 5%	$72,942 & OVER		5.9%	1.5%	0.5%	7.8%	1.3%	1.3%	9.1%
Top 1%	$147,214 & OVER		6.3%	1.4%	0.4%	8.0%	0.9%	0.9%	8.9%

TABLE A–2

Minnesota Tax Burden Amounts by Population Decile
Homeowners (except farmers)
(Dollar Amounts in Thousands)

POPULATION DECILE	INCOME RANGE	NUMBER	TOTAL INCOME	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
First	$4,151 & UNDER	37,156	$81,665	$698	$4,892	$2,796	$8,387	$19,760	$17,063	$25,450
Second	$4,152 – 6,957	43,720	245,690	304	8,719	4,847	13,870	17,893	13,821	27,690
Third	$6,958 – 10,959	55,277	496,920	2,028	16,026	8,992	27,046	33,503	25,981	53,027
Fourth	$10,960 – 15,294	64,618	851,631	10,154	25,466	13,439	49,059	34,698	27,533	76,591
Fifth	$15,295 – 20,326	88,244	1,574,177	28,151	39,734	21,500	89,385	50,341	45,929	135,314
Sixth	$20,327 – 25,883	102,727	2,374,278	61,748	54,625	26,237	142,610	61,676	59,067	201,677
Seventh	$25,884 – 32,630	128,647	3,766,788	123,021	83,746	40,580	247,347	80,829	78,922	326,268
Eighth	$32,631 – 41,916	141,311	5,248,995	206,775	109,568	48,876	365,219	93,284	92,945	458,163
Ninth	$41,917 – 56,705	164,148	7,983,057	361,602	156,362	57,276	575,240	134,129	133,913	709,153
Tenth	$56,706 & OVER	170,904	18,450,391	1,035,490	293,354	98,888	1,427,732	271,683	271,416	1,699,148
	TOTAL	996,752	$41,073,592	$1,829,970	$792,492	$323,432	$2,945,893	$797,795	$766,588	$3,712,482
Top 5%	$72,942 & OVER	85,145	$13,010,234	$764,702	$193,540	$61,689	$1,019,931	$177,505	$177,355	$1,197,286
Top 1%	$147,214 & OVER	17,520	$6,630,439	$416,231	$92,084	$23,934	$532,249	$61,056	$61,042	$593,291

Effective Tax Rates by Population Decile

POPULATION DECILE	INCOME RANGE		STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
First	$4,151 & UNDER		0.9%	6.0%	3.4%	10.3%	24.2%	20.9%	31.2%
Second	$4,152 – 6,957		0.1%	3.5%	2.0%	5.6%	7.3%	5.6%	11.3%
Third	$6,958 – 10,959		0.4%	3.2%	1.8%	5.4%	6.7%	5.2%	10.7%
Fourth	$10,960 – 15,294		1.2%	3.0%	1.6%	5.8%	4.1%	3.2%	9.0%
Fifth	$15,295 – 20,326		1.8%	2.5%	1.4%	5.7%	3.2%	2.9%	8.6%
Sixth	$20,327 – 25,883		2.6%	2.3%	1.1%	6.0%	2.6%	2.5%	8.5%
Seventh	$25,884 – 32,630		3.3%	2.2%	1.1%	6.6%	2.1%	2.1%	8.7%
Eighth	$32,631 – 41,916		3.9%	2.1%	0.9%	7.0%	1.8%	1.8%	8.7%
Ninth	$41,917 – 56,705		4.5%	2.0%	0.7%	7.2%	1.7%	1.7%	8.9%
Tenth	$56,706 & OVER		5.6%	1.6%	0.5%	7.7%	1.5%	1.5%	9.2%
	TOTAL		4.5%	1.9%	0.8%	7.2%	1.9%	1.9%	9.0%
Top 5%	$72,942 & OVER		5.9%	1.5%	0.5%	7.8%	1.4%	1.4%	9.2%
Top 1%	$147,214 & OVER		6.3%	1.4%	0.4%	8.0%	0.9%	0.9%	8.9%

TABLE A–3

Minnesota Tax Burden Amounts by Population Decile
Renters
(Dollar Amounts in Thousands)

POPULATION DECILE	INCOME RANGE	NUMBER	TOTAL INCOME	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
First	$4,151 & UNDER	49,966	$109,134	$59	$6,360	$3,592	$10,011	$17,045	$10,350	$20,362
Second	$4,152 - 6,957	80,299	445,157	980	15,925	8,889	25,794	36,822	22,001	47,795
Third	$6,958 - 10,959	84,750	754,358	9,597	23,795	13,101	46,493	49,240	29,817	76,311
Fourth	$10,960 - 15,294	79,773	1,052,925	26,482	30,616	15,799	72,898	59,490	40,951	113,849
Fifth	$15,295 - 20,326	70,400	1,246,791	38,783	29,937	15,805	84,525	58,629	44,618	129,143
Sixth	$20,327 - 25,883	64,560	1,477,990	57,078	32,626	15,104	104,807	59,246	52,433	157,241
Seventh	$25,884 - 32,630	46,937	1,351,415	54,798	29,505	13,721	98,025	48,812	46,532	144,557
Eighth	$32,631 - 41,916	37,784	1,396,881	60,957	28,335	12,263	101,555	40,879	40,545	142,100
Ninth	$41,917 - 56,705	20,857	1,006,453	47,948	19,320	6,807	74,075	24,109	23,984	98,059
Tenth	$56,706 & OVER	18,017	2,115,769	117,116	32,149	10,121	159,385	33,233	33,170	192,556
	TOTAL	553,343	$10,956,873	$413,798	$248,569	$115,202	$777,569	$427,505	$344,403	$1,121,972
Top 5%	$72,942 & OVER	9,522	$1,575,226	$90,129	$22,542	$6,762	$119,433	$21,050	$20,987	$140,421
Top 1%	$147,214 & OVER	1,887	$804,339	$48,137	$11,011	$2,641	$61,788	$4,981	$4,981	$66,769

Effective Tax Rates by Population Decile

POPULATION DECILE	INCOME RANGE		STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
First	$4,151 & UNDER		0.1%	5.8%	3.3%	9.2%	15.6%	9.5%	18.7%
Second	$4,152 - 6,957		0.2%	3.6%	2.0%	5.8%	8.3%	4.9%	10.7%
Third	$6,958 - 10,959		1.3%	3.2%	1.7%	6.2%	6.5%	4.0%	10.1%
Fourth	$10,960 - 15,294		2.5%	2.9%	1.5%	6.9%	5.6%	3.9%	10.8%
Fifth	$15,295 - 20,326		3.1%	2.4%	1.3%	6.8%	4.7%	3.6%	10.4%
Sixth	$20,327 - 25,883		3.9%	2.2%	1.0%	7.1%	4.0%	3.5%	10.6%
Seventh	$25,884 - 32,630		4.1%	2.2%	1.0%	7.3%	3.6%	3.4%	10.7%
Eighth	$32,631 - 41,916		4.4%	2.0%	0.9%	7.3%	2.9%	2.9%	10.2%
Ninth	$41,917 - 56,705		4.8%	1.9%	0.7%	7.4%	2.4%	2.4%	9.7%
Tenth	$56,706 & OVER		5.5%	1.5%	0.5%	7.5%	1.6%	1.6%	9.1%
	TOTAL		3.8%	2.3%	1.1%	7.1%	3.9%	3.1%	10.2%
Top 5%	$72,942 & OVER		5.7%	1.4%	0.4%	7.6%	1.3%	1.3%	8.9%
Top 1%	$147,214 & OVER		6.0%	1.4%	0.3%	7.7%	0.6%	0.6%	8.3%

TABLE A–4

Minnesota Tax Burden Amounts by Population Decile
Others (farmers and those with no property tax)
(Dollar Amounts in Thousands)

POPULATION DECILE	INCOME RANGE	NUMBER	TOTAL INCOME	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
First	$4,151 & UNDER	116,370	$234,028	$375	$14,153	$7,961	$22,490	$2,715	$2,540	$25,030
Second	$4,152 – 6,957	79,513	438,480	1,492	15,805	8,748	26,046	1,500	1,281	27,327
Third	$6,958 – 10,959	63,591	557,558	8,738	17,476	9,518	35,732	2,196	1,736	37,468
Fourth	$10,960 – 15,294	59,245	770,911	19,095	22,451	11,571	53,117	2,798	2,531	55,648
Fifth	$15,295 – 20,326	44,907	791,214	22,994	19,260	10,287	52,541	2,900	2,661	55,202
Sixth	$20,327 – 25,883	36,338	828,366	29,923	18,592	8,808	57,324	3,984	3,931	61,255
Seventh	$25,884 – 32,630	27,765	808,649	30,099	17,926	8,412	56,437	3,366	3,341	59,778
Eighth	$32,631 – 41,916	24,694	912,275	37,944	18,962	8,516	65,423	4,209	4,184	69,606
Ninth	$41,917 – 56,705	18,634	893,572	41,314	17,587	6,458	65,359	3,827	3,827	69,186
Tenth	$56,706 & OVER	14,565	1,324,612	76,667	21,683	7,655	106,005	3,845	3,797	109,801
	TOTAL	485,622	$7,559,666	$268,642	$183,896	$87,935	$540,472	$31,340	$29,829	$570,301
Top 5%	$72,942 & OVER	7,132	$850,686	$52,192	$13,060	$4,478	$69,730	$2,048	$2,000	$71,730
Top 1%	$147,214 & OVER	947	$291,179	$19,325	$4,049	$1,165	$24,539	$433	$433	$24,972

Effective Tax Rates by Population Decile

POPULATION DECILE	INCOME RANGE		STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TOTAL TAXES
First	$4,151 & UNDER		0.2%	6.0%	3.4%	9.6%	1.2%	1.1%	10.7%
Second	$4,152 – 6,957		0.3%	3.6%	2.0%	5.9%	0.3%	0.3%	6.2%
Third	$6,958 – 10,959		1.6%	3.1%	1.7%	6.4%	0.4%	0.3%	6.7%
Fourth	$10,960 – 15,294		2.5%	2.9%	1.5%	6.9%	0.4%	0.3%	7.2%
Fifth	$15,295 – 20,326		2.9%	2.4%	1.3%	6.6%	0.4%	0.3%	7.0%
Sixth	$20,327 – 25,883		3.6%	2.2%	1.1%	6.9%	0.5%	0.5%	7.4%
Seventh	$25,884 – 32,630		3.7%	2.2%	1.0%	7.0%	0.4%	0.4%	7.4%
Eighth	$32,631 – 41,916		4.2%	2.1%	0.9%	7.2%	0.5%	0.5%	7.6%
Ninth	$41,917 – 56,705		4.6%	2.0%	0.7%	7.3%	0.4%	0.4%	7.7%
Tenth	$56,706 & OVER		5.8%	1.6%	0.6%	8.0%	0.3%	0.3%	8.3%
	TOTAL		3.6%	2.4%	1.2%	7.1%	0.4%	0.4%	7.5%
Top 5%	$72,942 & OVER		6.1%	1.5%	0.5%	8.2%	0.2%	0.2%	8.4%
Top 1%	$147,214 & OVER		6.6%	1.4%	0.4%	8.4%	0.1%	0.1%	8.6%

TABLE A–5

Minnesota Tax Burden Amounts by Income Range
All Taxpayers
(Dollar Amounts in Thousands)

INCOME RANGE	NUMBER	TOTAL INCOME	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TAXES TOTAL
$0	16,856	$0	$826	$1,764	$1,042	$3,632	$9,686	$7,604	$11,235
$1 – 4,999	247,501	703,283	360	36,882	20,876	58,118	42,858	30,620	88,737
$5,000 – 9,999	300,312	2,176,721	16,073	70,165	39,133	125,372	108,865	72,900	198,272
$10,000 – 14,999	235,064	2,938,028	56,897	87,527	45,359	189,783	108,489	78,361	268,144
$15,000 – 19,999	204,954	3,567,724	88,278	88,310	47,700	224,287	111,828	92,176	316,463
$20,000 – 24,999	190,114	4,268,018	133,102	96,384	45,456	274,942	116,651	107,404	382,345
$25,000 – 29,999	153,605	4,216,397	145,559	97,352	47,459	290,370	98,971	94,907	385,277
$30,000 – 34,999	133,722	4,326,390	160,040	89,201	40,998	290,239	87,663	86,329	376,568
$35,000 – 39,999	107,218	4,012,884	163,911	84,192	39,381	287,484	73,929	73,626	361,110
$40,000 – 44,999	92,904	3,938,436	167,446	80,118	28,946	276,511	65,079	64,860	341,371
$45,000 – 49,999	74,083	3,509,725	160,230	68,995	25,225	254,450	55,837	55,762	310,212
$50,000 – 74,999	184,986	11,043,700	541,358	204,494	75,590	821,442	185,446	185,152	1,006,594
$75,000 – 99,999	48,185	4,085,954	218,232	69,778	25,878	313,888	69,509	69,385	383,273
$100,000 – 249,999	38,309	5,377,823	316,590	74,563	27,581	418,735	90,732	90,642	509,376
$250,000 & OVER	7,904	5,425,047	343,507	75,233	15,943	434,683	31,098	31,093	465,776
TOTAL	2,035,717	$59,590,130	$2,512,410	$1,224,956	$526,568	$4,263,935	$1,256,641	$1,140,820	$5,404,755

Effective Tax Rates by Income Range

INCOME RANGE		STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TAXES TOTAL
$0		- - -	- - -	- - -	- - -	- - -	- - -	- - -
$1 – 4,999		0.1%	5.2%	3.0%	8.3%	6.1%	4.4%	12.6%
$5,000 – 9,999		0.7%	3.2%	1.8%	5.8%	5.0%	3.3%	9.1%
$10,000 – 14,999		1.9%	3.0%	1.5%	6.5%	3.7%	2.7%	9.1%
$15,000 – 19,999		2.5%	2.5%	1.3%	6.3%	3.1%	2.6%	8.9%
$20,000 – 24,999		3.1%	2.3%	1.1%	6.4%	2.7%	2.5%	9.0%
$25,000 – 29,999		3.5%	2.3%	1.1%	6.9%	2.3%	2.3%	9.1%
$30,000 – 34,999		3.7%	2.1%	0.9%	6.7%	2.0%	2.0%	8.7%
$35,000 – 39,999		4.1%	2.1%	1.0%	7.2%	1.8%	1.8%	9.0%
$40,000 – 44,999		4.3%	2.0%	0.7%	7.0%	1.7%	1.6%	8.7%
$45,000 – 49,999		4.6%	2.0%	0.7%	7.2%	1.6%	1.6%	8.8%
$50,000 – 74,999		4.9%	1.9%	0.7%	7.4%	1.7%	1.7%	9.1%
$75,000 – 99,999		5.3%	1.7%	0.6%	7.7%	1.7%	1.7%	9.4%
$100,000 – 249,999		5.9%	1.4%	0.5%	7.8%	1.7%	1.7%	9.5%
$250,000 & OVER		6.3%	1.4%	0.3%	8.0%	0.6%	0.6%	8.6%
TOTAL		4.2%	2.1%	0.9%	7.2%	2.1%	1.9%	9.1%

TABLE A–6

Minnesota Tax Burden Amounts by Income Range
Homeowners (except farmers)
(Dollar Amounts in Thousands)

INCOME RANGE	NUMBER	TOTAL INCOME	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TAXES TOTAL
$0	6,589	$0	$458	$703	$421	$1,582	$6,647	$5,885	$7,467
$1 – 4,999	42,751	137,650	258	6,841	3,888	10,987	17,265	14,550	25,536
$5,000 – 9,999	72,650	538,045	1,539	17,597	9,980	29,117	39,661	30,819	59,936
$10,000 – 14,999	73,141	914,703	9,349	27,825	14,612	51,787	38,727	30,273	82,060
$15,000 – 19,999	86,449	1,509,758	26,264	38,434	21,115	85,813	49,244	44,356	130,169
$20,000 – 24,999	96,510	2,177,048	54,937	50,010	23,886	128,834	59,451	56,663	185,497
$25,000 – 29,999	90,284	2,487,469	76,767	58,158	28,926	163,851	53,165	51,879	215,730
$30,000 – 34,999	90,526	2,929,432	105,232	60,588	27,972	193,793	59,866	59,107	252,899
$35,000 – 39,999	73,731	2,755,553	109,644	58,215	27,384	195,243	47,720	47,577	242,820
$40,000 – 44,999	71,764	3,046,366	127,725	62,232	22,731	212,688	51,600	51,431	264,119
$45,000 – 49,999	58,352	2,764,628	124,777	54,470	19,949	199,195	45,706	45,706	244,901
$50,000 – 74,999	155,206	9,272,107	452,636	172,109	63,935	688,680	159,566	159,272	847,952
$75,000 – 99,999	40,422	3,432,085	182,048	58,715	21,885	262,648	61,742	61,667	324,315
$100,000 – 249,999	31,651	4,480,974	263,771	62,362	23,143	349,275	78,871	78,845	428,120
$250,000 & OVER	6,726	4,627,775	294,565	64,231	13,604	372,400	28,564	28,560	400,960
TOTAL	996,752	$41,073,592	$1,829,970	$792,492	$323,432	$2,945,893	$797,795	$766,588	$3,712,482

Effective Tax Rates by Income Range

INCOME RANGE		STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TAXES TOTAL
$0		- - -	- - -	- - -	- - -	- - -	- - -	- - -
$1 – 4,999		0.2%	5.0%	2.8%	8.0%	12.5%	10.6%	18.6%
$5,000 – 9,999		0.3%	3.3%	1.9%	5.4%	7.4%	5.7%	11.1%
$10,000 – 14,999		1.0%	3.0%	1.6%	5.7%	4.2%	3.3%	9.0%
$15,000 – 19,999		1.7%	2.5%	1.4%	5.7%	3.3%	2.9%	8.6%
$20,000 – 24,999		2.5%	2.3%	1.1%	5.9%	2.7%	2.6%	8.5%
$25,000 – 29,999		3.1%	2.3%	1.2%	6.6%	2.1%	2.1%	8.7%
$30,000 – 34,999		3.6%	2.1%	1.0%	6.6%	2.0%	2.0%	8.6%
$35,000 – 39,999		4.0%	2.1%	1.0%	7.1%	1.7%	1.7%	8.8%
$40,000 – 44,999		4.2%	2.0%	0.7%	7.0%	1.7%	1.7%	8.7%
$45,000 – 49,999		4.5%	2.0%	0.7%	7.2%	1.7%	1.7%	8.9%
$50,000 – 74,999		4.9%	1.9%	0.7%	7.4%	1.7%	1.7%	9.1%
$75,000 – 99,999		5.3%	1.7%	0.6%	7.7%	1.8%	1.8%	9.4%
$100,000 – 249,999		5.9%	1.4%	0.5%	7.8%	1.8%	1.8%	9.6%
$250,000 & OVER		6.4%	1.4%	0.3%	8.0%	0.6%	0.6%	8.7%
TOTAL		4.5%	1.9%	0.8%	7.2%	1.9%	1.9%	9.0%

TABLE A–7

Minnesota Tax Burden Amounts by Income Range
Renters
(Dollar Amounts in Thousands)

INCOME RANGE	NUMBER	TOTAL INCOME	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TAXES TOTAL
$0	3,932	$0	$23	$386	$220	$629	$2,150	$915	$1,544
$1 – 4,999	68,829	213,270	63	10,924	6,204	17,191	23,187	13,854	31,045
$5,000 – 9,999	122,581	888,961	7,161	28,693	16,036	51,890	66,551	39,837	91,727
$10,000 – 14,999	94,415	1,183,106	27,629	34,900	17,989	80,517	66,692	45,436	125,953
$15,000 – 19,999	71,732	1,248,505	38,428	30,072	15,966	84,466	59,749	45,241	129,707
$20,000 – 24,999	59,722	1,335,377	51,276	29,481	13,615	94,373	53,337	46,924	141,297
$25,000 – 29,999	41,284	1,124,649	45,921	25,228	11,842	82,991	43,578	40,831	123,821
$30,000 – 34,999	25,185	815,608	33,148	16,623	7,542	57,313	25,478	24,928	82,241
$35,000 – 39,999	20,847	782,173	34,099	15,961	7,220	57,279	23,545	23,386	80,665
$40,000 – 44,999	11,574	486,502	21,971	9,687	3,304	34,962	11,794	11,744	46,705
$45,000 – 49,999	7,702	363,865	17,315	7,026	2,501	26,842	8,635	8,559	35,401
$50,000 – 74,999	16,485	974,053	48,508	17,619	6,193	72,320	22,518	22,518	94,838
$75,000 – 99,999	3,630	308,775	15,957	5,161	1,838	22,956	6,800	6,800	29,756
$100,000 – 249,999	4,520	606,134	34,898	8,209	2,951	46,058	11,103	11,040	57,098
$250,000 & OVER	905	625,896	37,402	8,598	1,782	47,782	2,390	2,390	50,173
TOTAL	553,343	$10,956,873	$413,798	$248,569	$115,202	$777,569	$427,505	$344,403	$1,121,972

Effective Tax Rates by Income Range

INCOME RANGE		STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TAXES TOTAL
$0		- - -	- - -	- - -	- - -	- - -	- - -	- - -
$1 – 4,999		0.0%	5.1%	2.9%	8.1%	10.9%	6.5%	14.6%
$5,000 – 9,999		0.8%	3.2%	1.8%	5.8%	7.5%	4.5%	10.3%
$10,000 – 14,999		2.3%	2.9%	1.5%	6.8%	5.6%	3.8%	10.6%
$15,000 – 19,999		3.1%	2.4%	1.3%	6.8%	4.8%	3.6%	10.4%
$20,000 – 24,999		3.8%	2.2%	1.0%	7.1%	4.0%	3.5%	10.6%
$25,000 – 29,999		4.1%	2.2%	1.1%	7.4%	3.9%	3.6%	11.0%
$30,000 – 34,999		4.1%	2.0%	0.9%	7.0%	3.1%	3.1%	10.1%
$35,000 – 39,999		4.4%	2.0%	0.9%	7.3%	3.0%	3.0%	10.3%
$40,000 – 44,999		4.5%	2.0%	0.7%	7.2%	2.4%	2.4%	9.6%
$45,000 – 49,999		4.8%	1.9%	0.7%	7.4%	2.4%	2.4%	9.7%
$50,000 – 74,999		5.0%	1.8%	0.6%	7.4%	2.3%	2.3%	9.7%
$75,000 – 99,999		5.2%	1.7%	0.6%	7.4%	2.2%	2.2%	9.6%
$100,000 – 249,999		5.8%	1.4%	0.5%	7.6%	1.8%	1.8%	9.4%
$250,000 & OVER		6.0%	1.4%	0.3%	7.6%	0.4%	0.4%	8.0%
TOTAL		3.8%	2.3%	1.1%	7.1%	3.9%	3.1%	10.2%

TABLE A–8

Minnesota Tax Burden Amounts by Income Range
Others (farmers and those with no property tax)
(Dollar Amounts in Thousands)

INCOME RANGE	NUMBER	TOTAL INCOME	STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TAXES TOTAL
$0	6,335	$0	$345	$675	$401	$1,421	$889	$804	$2,225
$1 – 4,999	135,921	352,363	39	19,116	10,785	29,940	2,407	2,216	32,156
$5,000 – 9,999	105,081	749,715	7,373	23,875	13,117	44,365	2,654	2,244	46,609
$10,000 – 14,999	67,508	840,218	19,919	24,802	12,758	57,479	3,070	2,652	60,131
$15,000 – 19,999	46,773	809,462	23,586	19,803	10,619	54,008	2,835	2,579	56,587
$20,000 – 24,999	33,882	755,593	26,888	16,893	7,954	51,735	3,863	3,817	55,552
$25,000 – 29,999	22,037	604,279	22,871	13,966	6,692	43,528	2,229	2,197	45,725
$30,000 – 34,999	18,011	581,351	21,659	11,990	5,484	39,133	2,319	2,294	41,428
$35,000 – 39,999	12,640	475,159	20,168	10,016	4,778	34,962	2,664	2,664	37,625
$40,000 – 44,999	9,566	405,569	17,750	8,198	2,912	28,860	1,686	1,686	30,546
$45,000 – 49,999	8,029	381,232	18,138	7,498	2,776	28,413	1,496	1,496	29,909
$50,000 – 74,999	13,295	797,540	40,214	14,766	5,461	60,441	3,362	3,362	63,803
$75,000 – 99,999	4,133	345,094	20,228	5,902	2,155	28,284	966	919	29,203
$100,000 – 249,999	2,138	290,715	17,922	3,992	1,488	23,401	758	758	24,159
$250,000 & OVER	273	171,376	11,541	2,404	557	14,501	143	143	14,644
TOTAL	485,622	$7,559,666	$268,642	$183,896	$87,935	$540,472	$31,340	$29,829	$570,301

Effective Tax Rates by Income Range

INCOME RANGE		STATE INCOME TAX	SALES TAX	EXCISE TAXES	TOTAL STATE TAXES	GROSS PROP. TAX	NET PROP. TAX	TAXES TOTAL
$0		- - -	- - -	- - -	- - -	- - -	- - -	- - -
$1 – 4,999		0.0%	5.4%	3.1%	8.5%	0.7%	0.6%	9.1%
$5,000 – 9,999		1.0%	3.2%	1.7%	5.9%	0.4%	0.3%	6.2%
$10,000 – 14,999		2.4%	3.0%	1.5%	6.8%	0.4%	0.3%	7.2%
$15,000 – 19,999		2.9%	2.4%	1.3%	6.7%	0.4%	0.3%	7.0%
$20,000 – 24,999		3.6%	2.2%	1.1%	6.8%	0.5%	0.5%	7.4%
$25,000 – 29,999		3.8%	2.3%	1.1%	7.2%	0.4%	0.4%	7.6%
$30,000 – 34,999		3.7%	2.1%	0.9%	6.7%	0.4%	0.4%	7.1%
$35,000 – 39,999		4.2%	2.1%	1.0%	7.4%	0.6%	0.6%	7.9%
$40,000 – 44,999		4.4%	2.0%	0.7%	7.1%	0.4%	0.4%	7.5%
$45,000 – 49,999		4.8%	2.0%	0.7%	7.5%	0.4%	0.4%	7.8%
$50,000 – 74,999		5.0%	1.9%	0.7%	7.6%	0.4%	0.4%	8.0%
$75,000 – 99,999		5.9%	1.7%	0.6%	8.2%	0.3%	0.3%	8.5%
$100,000 – 249,999		6.2%	1.4%	0.5%	8.0%	0.3%	0.3%	8.3%
$250,000 & OVER		6.7%	1.4%	0.3%	8.5%	0.1%	0.1%	8.5%
TOTAL		3.6%	2.4%	1.2%	7.1%	0.4%	0.4%	7.5%

TABLE A–9

Distribution of Minnesota Income and Taxes
(Dollar Amounts in Thousands)

A. Percent of Total Income and Taxes

Decile	Total Income		State Income Tax		Sales Tax		Excise Taxes		Total State Taxes		Gross Property Tax		Net Property Tax		Total Taxes	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%
First	424,827	0.71	1,132	0.05	25,406	2.07	14,350	2.73	40,888	0.96	39,521	3.14	29,954	2.63	70,841	1.31
Second	1,129,328	1.90	2,775	0.11	40,449	3.30	22,485	4.27	65,709	1.54	56,215	4.47	37,103	3.25	102,812	1.90
Third	1,808,837	3.04	20,363	0.81	57,297	4.68	31,611	6.00	109,272	2.56	84,939	6.76	57,534	5.04	166,806	3.09
Fourth	2,675,467	4.49	55,731	2.22	78,534	6.41	40,809	7.75	175,074	4.11	96,986	7.72	71,014	6.22	246,088	4.55
Fifth	3,612,182	6.06	89,928	3.58	88,931	7.26	47,592	9.04	226,451	5.31	111,870	8.90	93,209	8.17	319,659	5.91
Sixth	4,680,633	7.85	148,749	5.92	105,843	8.64	50,149	9.52	304,741	7.15	124,905	9.94	115,431	10.12	420,173	7.77
Seventh	5,926,852	9.95	207,918	8.28	131,177	10.71	62,714	11.91	401,808	9.42	133,007	10.58	128,794	11.29	530,602	9.82
Eighth	7,558,151	12.68	305,675	12.17	156,865	12.81	69,656	13.23	532,196	12.48	138,372	11.01	137,673	12.07	669,869	12.39
Ninth	9,883,082	16.59	450,865	17.95	193,269	15.78	70,540	13.40	714,674	16.76	162,066	12.90	161,724	14.18	876,398	16.22
Tenth	21,890,772	36.74	1,229,273	48.93	347,186	28.34	116,663	22.16	1,693,122	39.71	308,761	24.57	308,383	27.03	2,001,505	37.03

B. Cumulative Percent of Total Income and Taxes

Decile	Total Income		State Income Tax		Sales Tax		Excise Taxes		Total State Taxes		Gross Property Tax		Net Property Tax		Total Taxes	
	$	%	$	%	$	%	$	%	$	%	$	%	$	%	$	%
First	424,827	0.71	1,132	0.05	25,406	2.07	14,350	2.73	40,888	0.96	39,521	3.14	29,954	2.63	70,841	1.31
Second	1,554,155	2.61	3,907	0.16	65,854	5.38	36,835	7.00	106,597	2.50	95,736	7.62	67,057	5.88	173,653	3.21
Third	3,362,992	5.64	24,270	0.97	123,152	10.05	68,446	13.00	215,869	5.06	180,675	14.38	124,591	10.92	340,460	6.30
Fourth	6,038,458	10.13	80,001	3.18	201,686	16.46	109,255	20.75	390,942	9.17	277,661	22.10	195,605	17.15	586,547	10.85
Fifth	9,650,640	16.20	169,930	6.76	290,617	23.72	156,847	29.79	617,393	14.48	389,531	31.00	288,814	25.32	906,207	16.77
Sixth	14,331,273	24.05	318,679	12.68	396,460	32.37	206,996	39.31	922,134	21.63	514,435	40.94	404,245	35.43	1,326,380	24.54
Seventh	20,258,125	34.00	526,596	20.96	527,637	43.07	269,709	51.22	1,323,943	31.05	647,443	51.52	533,040	46.72	1,856,982	34.36
Eighth	27,816,276	46.68	832,272	33.13	684,502	55.88	339,365	64.45	1,856,138	43.53	785,814	62.53	670,713	58.79	2,526,851	46.75
Ninth	37,699,358	63.26	1,283,137	51.07	877,771	71.66	409,905	77.84	2,570,813	60.29	947,880	75.43	832,437	72.97	3,403,250	62.97
Tenth	59,590,130	100.00	2,512,410	100.00	1,224,956	100.00	526,568	100.00	4,263,935	100.00	1,256,641	100.00	1,140,820	100.00	5,404,755	100.00

C. Suits Index Calculation

Decile	Total Income	State Income Tax	Sales Tax	Excise Taxes	Total State Taxes	Gross Property Tax	Net Property Tax	Total Taxes
First	0.25	0.02	0.74	0.97	0.34	1.12	0.94	0.47
Second	3.15	0.19	7.06	9.21	3.28	10.20	8.06	4.29
Third	12.52	1.70	23.42	30.35	11.48	33.38	25.50	14.44
Fourth	35.42	9.32	59.53	75.76	31.95	81.88	63.01	38.50
Fifth	79.80	30.15	121.81	153.16	71.67	160.92	128.70	83.71
Sixth	158.06	76.38	220.28	271.37	141.80	282.51	238.59	162.23
Seventh	288.66	167.31	375.16	450.21	261.96	459.80	408.58	292.91
Eighth	511.62	343.00	627.54	733.54	472.98	723.31	669.16	514.39
Ninth	911.71	698.22	1057.61	1179.97	860.96	1144.06	1092.63	909.86
Tenth	2998.81	2774.86	3152.96	3266.61	2944.21	3222.25	3177.04	2993.36
TOTAL	5000.00	4101.15	5646.11	6171.16	4800.62	6119.44	5812.20	5014.14
SUITS		0.18	−0.13	−0.23	0.04	−0.22	−0.16	−0.00

270.0682 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 (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 of revenue 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 systemwide 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.

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