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## 0324 Colorado Tax Profile Study

COLORADO TAX PROFILE STUDY

1987

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March 1988

## ACKNOWLEDGMENTS

A comprehensive report like the Colorado Tax Profile Study would not have been possible without the support of many individuals. It is particularly appropriate at this time to express our appreciation to Mr. David Morrissey, recently retired Executive Director of the Colorado Legislative Council, and Mr. Charles Brown, current Executive Director of the Council, for their continuous support for such studies.

We also wish to acknowledge the contributions of many other individuals and organizations who assisted in the collection of data for the study. We are grateful for cooperation of the various state agencies which provided information -- particularly the Department of Local Affairs, the Division of Property Taxation, and the Division of Accounts and Control. We also express our gratitude to the Colorado Municipal League and to the Treasury Division of the City and County of Denver. Additionally we wish to thank Sandra L. Martin and Sylvia Labrucherie for preparing the manuscript for publication.

In the 1973 CTPS report, the principal objective of the study was

"to develop a comprehensive tax profile of the state of Colorado which can be used by interested citizens, legislators and public administrators as the basis for assessing the distribution effects of the tax structure, as well as of new tax proposals."

We trust the present study will continue to serve this objective.

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## INTRODUCTION

There is general wide spread interest and concern regarding the level and distribution of Colorado state and local taxes. This report, the sixth in the series of Colorado Tax Profile Studies since 1972, measures the structure and apportionment of the state and local tax burden levied on Colorado households and businesses in fiscal year 1987.

As in the previous "tax profile" studies, this report is primarily concerned with the question of "Who bears the Colorado tax?" It analyzes the apportionment of incomes and tax burdens among the five major income categories of Colorado resident taxpayers. Briefly, this report attempts to show:

- The importance of each major state and local tax levy
- How the state and local tax structure has changed since 1982
- How the state tax burden compares with the local tax burden
- How the major taxes on each level are distributed between households and business
- What the relative tax burdens are for the lower-income, middle-income and high-income categories of households
- And, finally, how these relative tax burdens by income class have changed during the past five years.

In short, this report attempts to measure and analyze the progressivity/regressivity of the overall Colorado tax structure, as well as that of the specific major tax revenues on which the state and local jurisdictions depend.

## SECTION I. THE COLORADO STATE-LOCAL TAX BURDEN

In fiscal year 1987, the combined state-local tax liability for Colorado exceeded \$5.1 billion, a record high which was 57 percent greater than the comparable \$3.2 billion for fiscal year 1982, the year for which the last "Tax Profile Study" was completed. In contrast, the total personal income of Colorado residents during this five year period had increased by only 41 percent. The growth in detailed state and local tax liabilities derived from collections reported by state agencies is shown in Table I.<sup>1/</sup> While the total adjusted gross income for Colorado reported on state tax returns during this five year period rose at an average annual rate of 6.2 percent, total state and local taxes increased at average annual rates of 8.5 percent and 10.2 percent, respectively. Also, during this period the state individual income tax liability increased by 14.3 percent (mainly due to tax law changes), while the federal income tax liability of Colorado residents rose at an average annual rate of only 3.8 percent. Moreover, in 1982 the Colorado federal income tax liability of \$3.9 billion was actually greater than the combined state and local tax liability of \$3.3 billion. By 1987 the situation had been reversed -- the latter exceeded the federal tax by more than 10 percent.

### Recent Trends

It is interesting to note that the growth rates since 1982 are significantly different than those for the preceding decade. Table II

TABLE I. SUMMARY OF STATE AND LOCAL TAX LIABILITIES  
FISCAL YEARS 1982 AND 1987

	Fiscal Year		Percent Change	
	1982	1987	1982-1987	Average Annual
(Money amounts in millions of dollars)				
<u>State Taxes</u>				
Individual Income	\$ 483.1	\$ 942.6	95.1	14.3
Sales and Use <sup>a/</sup>	584.4	612.6	4.8	0.9
Highway User	184.1	376.4	104.5	15.4
Corporate Income	75.6	102.9	36.1	6.4
Cigarette and Liquor <sup>b/</sup>	40.3	64.5	60.0	9.9
All Other <sup>c/</sup>	101.2	108.9	7.6	1.5
Total State Taxes	\$1,468.7	\$2,207.9	50.3	8.5
<u>Local Taxes</u>				
Property	\$ 1201.9	\$1,930.2	60.6	9.9
Sales and Use	394.3	666.2	69.0	11.1
Specific Ownership	103.7	157.6	52.0	8.7
Cigarette	16.9	14.1	-16.6	-3.6
All Other	75.9	140.1	84.6	13.0
Total Local Taxes	\$1,792.7	\$2,908.2	62.2	10.2
<u>State - Local Taxes</u>				
Property	\$ 1201.9	\$1,930.2	60.6	9.9
Sales and Use	978.7	1278.8	30.7	5.5
Individual Income	483.1	942.6	95.1	14.3
Highway User	287.8	534.0	85.5	13.2
Corporate Income	75.6	102.9	36.1	6.4
Cigarette and Liquor	57.2	78.6	37.4	6.6
All Other	177.1	249.0	40.6	7.1
Total State - Local	\$3,261.4	\$5,116.1	56.9	9.4
<u>Addendum</u>				
Federal Individual Income Tax	\$3,850.9	\$4,643.4	20.6	3.8

<sup>a/</sup> Includes tourism tax

<sup>b/</sup> Includes tobacco tax

<sup>c/</sup> Includes franchise, occupation and other regulatory business taxes

shows the percentage change in the price level, income and taxes between the fiscal years 1982 and 1987. The annual inflation rate of 3.8 percent was significantly less than the price inflation of the preceding decade -- 8.3 percent rate for 1980-82 and the 8.8 percent rate for 1972-80. The average growth rate for Colorado income also declined during the past five years. Total personal income increased at a rate of 7.1 percent in the 1982-87 period, a sharp reduction from a rate of about 13 percent for the decade before 1982. Similarly, the rate for adjusted gross income dropped to 6.2 percent from annual rates of 13.7 percent and 12.1 percent for the prior periods.

The percentage increases in specific major taxes were not uniformly the same. For example, the combined state-local sales tax increased at an average annual rate of 5.5 percent, but on the state level the sales tax increase averaged less than 1 percent. The state sales tax, quantitatively the most important single source of state revenue in fiscal 1982, dropped to second place behind the individual income tax in fiscal 1987. This relative decline is partly due to statutory changes enacted prior to 1982 which removed household food and utilities from the sales tax base. In contrast, on the local level the annual increase in the sales tax averaged about 11 percent, primarily because of local rate increases and the addition of new sales tax jurisdictions during the 1982-87 period.

As noted, the state individual income tax averaged the highest rate of growth, in excess of 14 percent annually, while the adjusted gross income for this period increased only at a rate of 6 percent. This variance may be attributed to the large shift in the number of taxpayers

TABLE II. RATES OF CHANGE IN PRICES, INCOME AND TAXES  
BETWEEN 1982 AND 1987

	<u>Percent Change</u>	
	<u>1982-1987</u>	<u>Average Annual</u>
<u>Prices</u>		
BLS consumer price index	20.56	3.81
GNP implicit price deflator	17.03	3.19
<u>Income</u>		
Colo adjusted gross income	35.00	6.19
Colorado total personal income	40.58	7.05
<u>Taxes</u>		
State individual income tax	95.11	14.30
State sales and use tax	4.83	0.95
State corporate income tax	36.11	6.36
Local property tax	60.60	9.94
Local sales and use tax	68.96	11.06
Total state taxes	50.33	8.49
Total local taxes	62.22	10.16
Combined state-local taxes	56.87	9.42
Federal individual income tax <sup>a/</sup>	20.58	3.81

---

<sup>a/</sup> Colorado resident tax liability.

to higher income brackets and the fact that the 1984 graduated income tax rates (except for the top bracket) were all raised by one-half of a percentage point and the indexation for inflation was suspended.

Property taxes on the local level have increased annually at an average rate of almost 10 percent since 1982. This is about two percentage points lower than the growth rate for the early 1980's, but slightly above that experienced during the 1970's.

Overall the revenue growth rates on both the state and local levels in large part reflect statutory tax rate increases which became necessary to offset the slower rate of economic growth and maintain basic government functions during this period.

## SECTION II. THE COLORADO STATE-LOCAL TAX STRUCTURE

Combined state and local net collections in fiscal year 1987 amounted to \$5,429 million.<sup>2/</sup> Total state taxes on this basis were \$2,446 million or 45 percent of the total. This represents a slight downward shift from fiscal year 1982 when the state tax share was 48 percent. Local collections in 1987 amounted to \$2,982 million or 55 percent of the total.

### Tax Liability Adjustments

Tax collections have been adjusted for the Colorado Tax Profile Study to correspond more closely to the actual tax liability borne by Colorado resident households. This adjustment resulted in a total combined state-local tax burden of \$5,116.1 million or six percent less than the collection reported for all government jurisdictions. The net difference between the two amounts represents adjustments made for non-resident tax collections, the excess cash flow over tax liabilities for a given fiscal year, nonallocable and nontax revenue such as penalties, interest earned and audit deficiencies; and vendors discounts on retail sales and excise taxes. The amounts of these adjustments were as follows:<sup>3/</sup>

	<u>Millions of Dollars</u>
Exclusion of:	
Non-resident tax collections	\$ 220.2
Excess of tax collections over liabilities	72.6
Nonallocable and nontax revenues and credits	67.7
Inclusion of:	
Vendor discounts on tax collections	<u>-48.0</u>
Total Adjustments	\$ 312.5



## Relative Importance of Major Taxes

Table III and the accompanying charts show the relative importance of each of the major net taxes levied on Colorado households for fiscal years 1982 and 1987.

On the state level, the income tax as noted has become quantitatively the most important single revenue source increasing from 33 percent of total state taxes in 1982 to nearly 43 percent in 1987. The sales tax, on the other hand, represented only 28 percent in fiscal year 1987 compared to 40 percent in 1982. Combined these two taxes accounted for over two-thirds of the state tax burden. The remaining one-third consisted of the corporate income tax, consumer excise taxes on tobacco products and liquor, highway user taxes and other miscellaneous taxes.

On the local level, the property tax continues to dominate and accounts for more than two-thirds of the total local tax revenues for both years. Notwithstanding statutory increases, the local sales tax as a percent of total local taxes has remained relatively stable at 22 percent for fiscal year 1982 and 23 percent for 1987. Property and sales taxes continue to be the mainstay for local governments, together accounting for almost nine-tenths of total local tax revenues.

Property Tax. The local property tax continued to be the largest single revenue source in the state-local tax structure, amounting to almost \$2 billion in fiscal year 1987. Moreover on this combined basis, the tax has remained a relatively stable portion of the total at 36.9 percent and 37.7 percent for the fiscal years 1982 and 1987, respectively.

TABLE III. CHANGING STRUCTURE OF STATE AND LOCAL TAXES  
BETWEEN FISCAL YEARS 1982 AND 1987

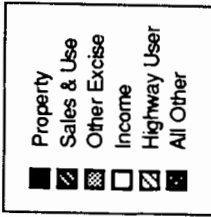
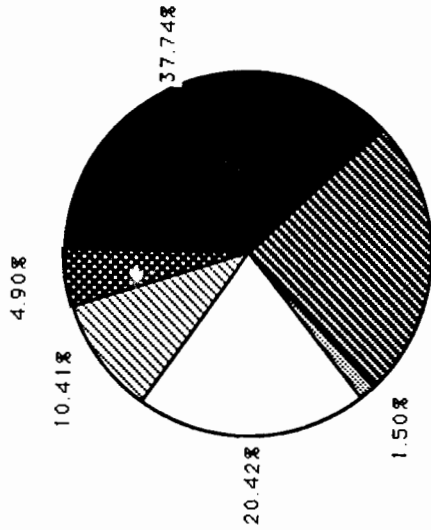
	Percent Distribution	
	<u>1982</u>	<u>1987</u>
<u>State Taxes</u>		
Individual Income	32.9	42.7
Sales and Use	39.8	27.7
Highway User	12.5	17.0
Corporate Income	5.1	4.7
Cigarette and Liquor	2.7	2.9
All Other	6.9	4.9
Total State Taxes	100.0	100.0
<u>Local Taxes</u>		
Property	67.0	66.4
Sales and Use	22.0	22.9
Specific Ownership	5.8	5.4
Cigarette	0.9	0.5
All Other	4.2	4.8
Total Local Taxes	100.0	100.0
<u>State - Local Taxes</u>		
Property	36.9	37.7
Sales and Use	30.0	25.0
Individual Income	14.8	18.4
Highway User <sup>a/</sup>	8.8	10.4
Corporate Income	2.3	2.0
Cigarette and Liquor	1.8	1.5
All Other	5.4	4.9
Total State - Local	100.0	100.0

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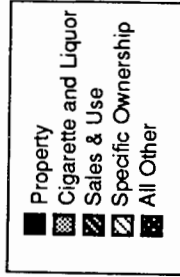
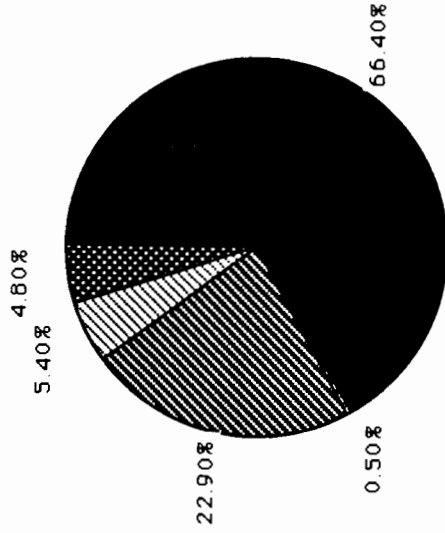
<sup>a/</sup> Includes specific ownership

# Chart 1 : The Colorado Tax Structure, Fiscal Year 1987

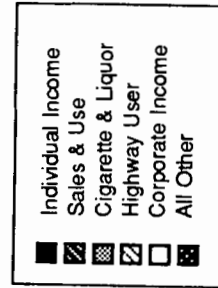
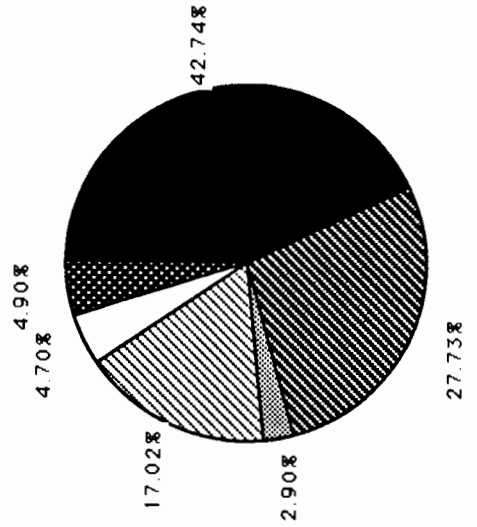
Combined State & Local Tax Structure



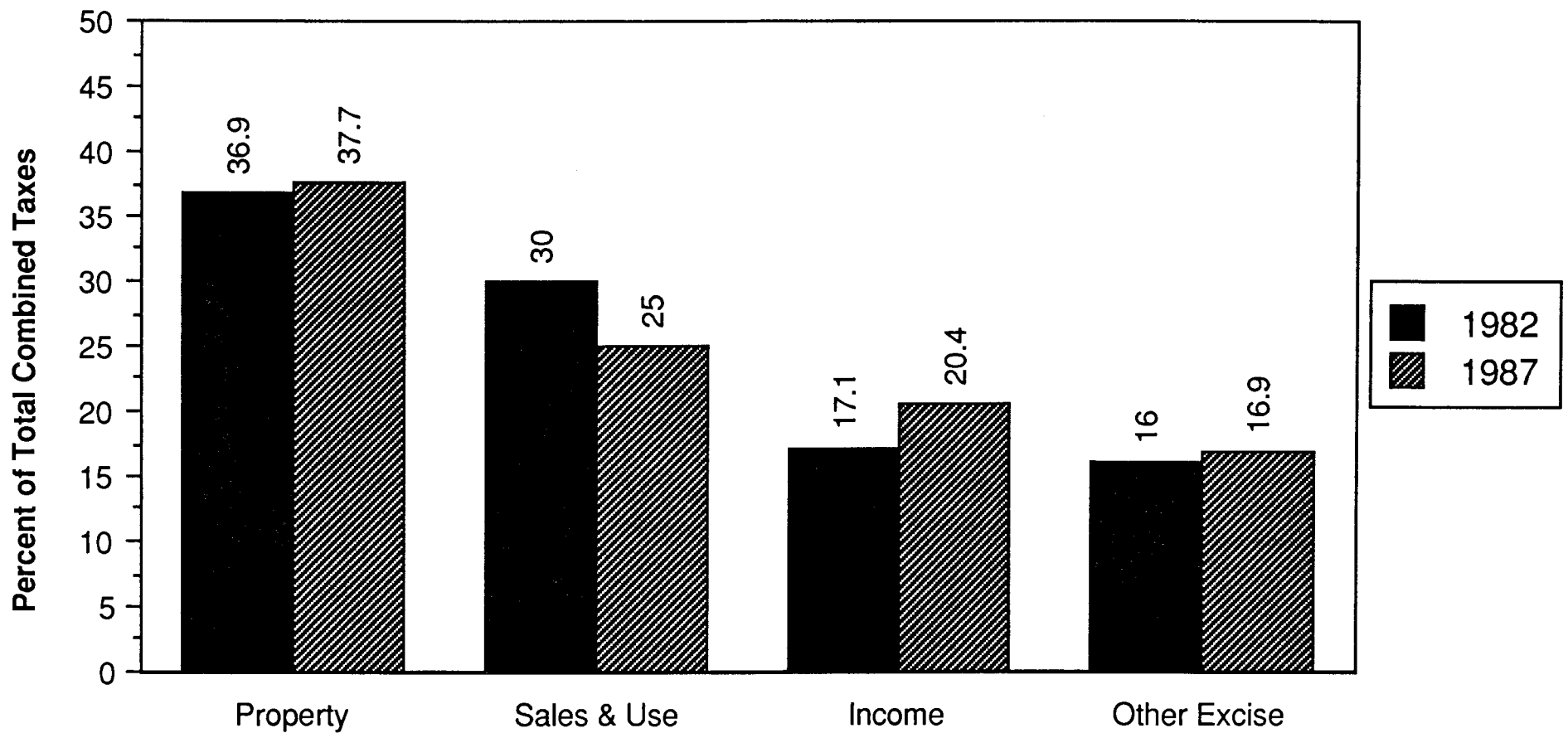
Local Tax Structure



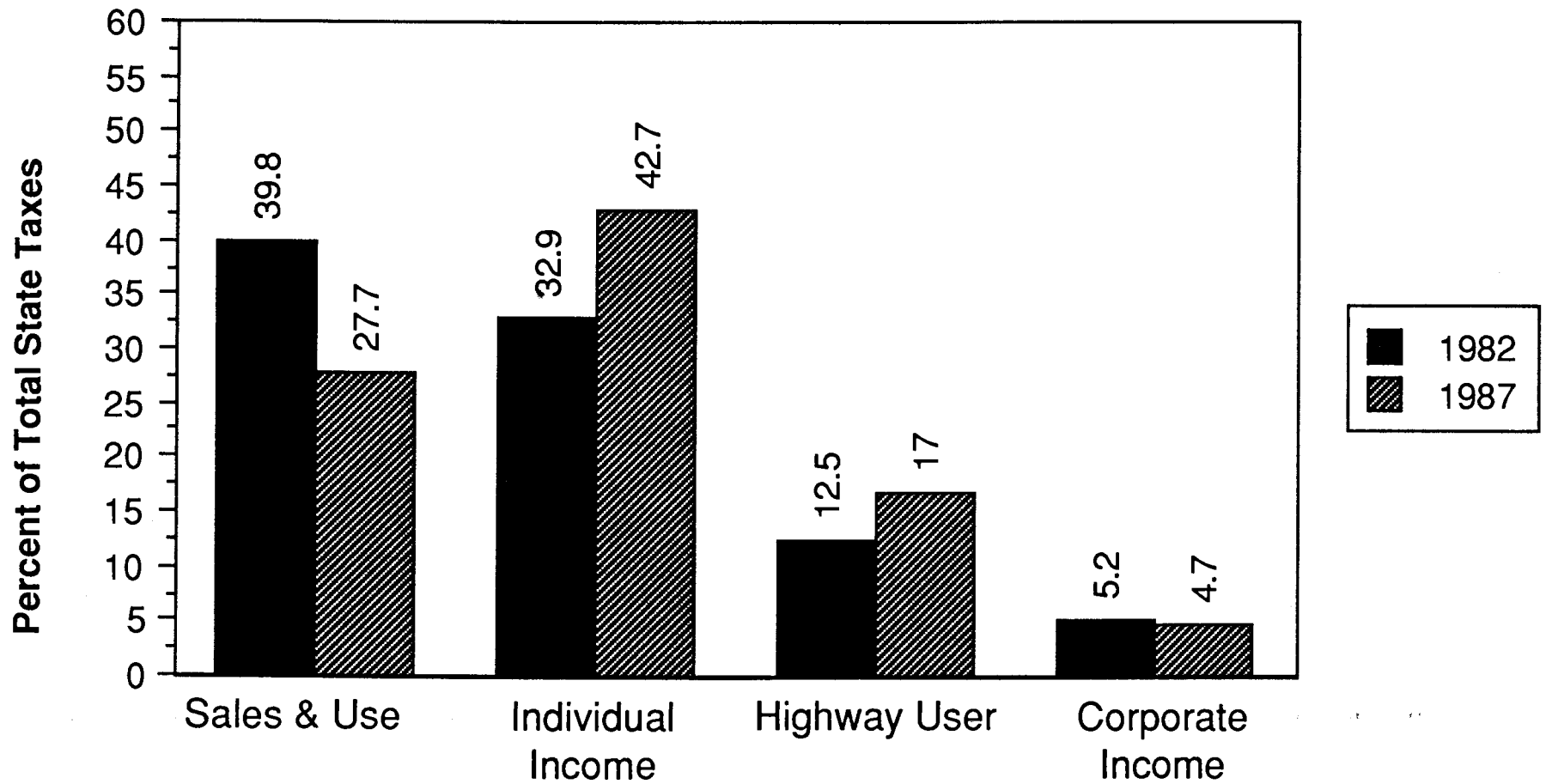
State Tax Structure



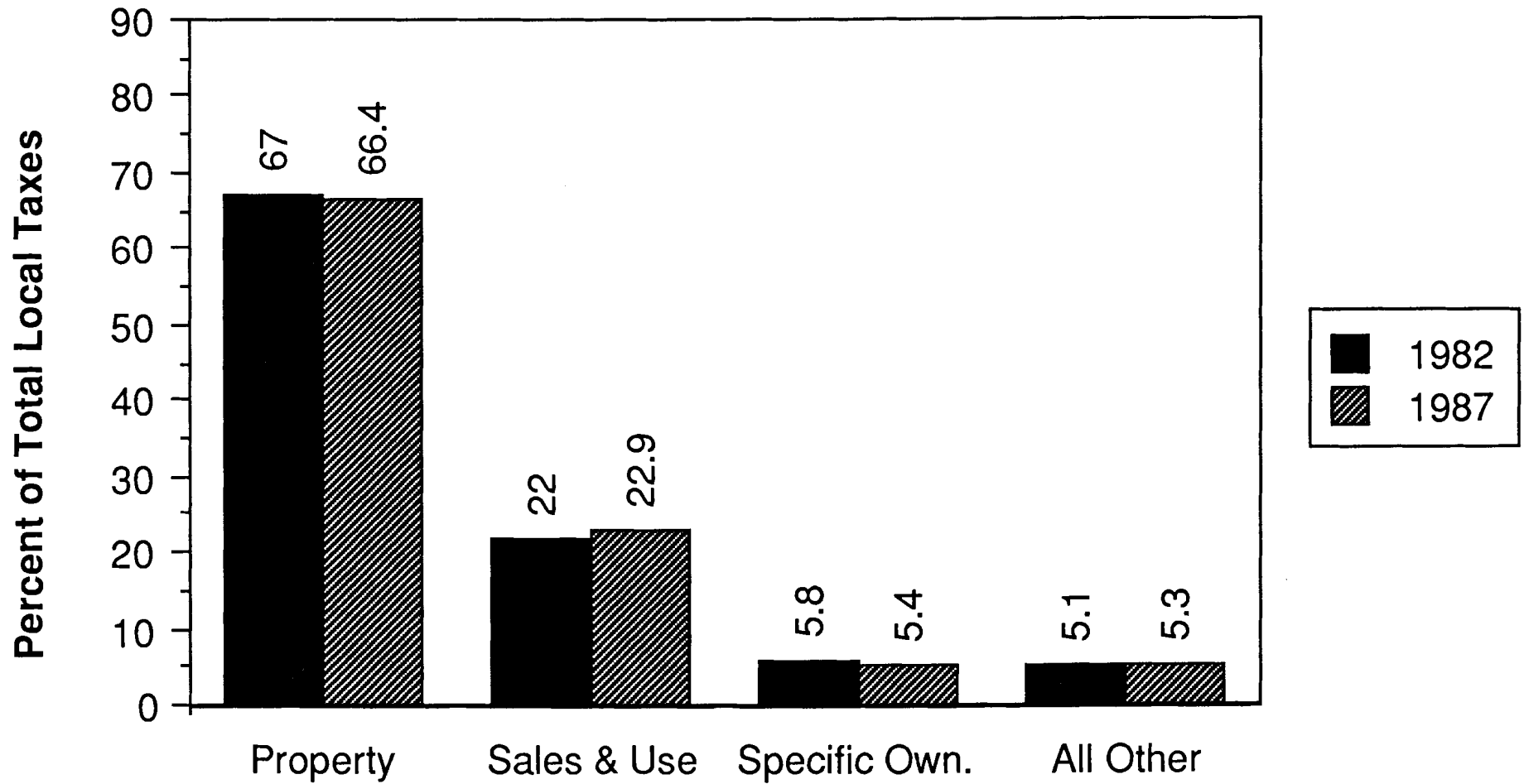
# Chart II: The Changing Combined State—Local Tax Structure, Fiscal Years 1982 and 1987



### Chart III: The Changing State Tax Structure, Fiscal Years 1982 and 1987



### Chart IV: The Changing Local Tax Structure, Fiscal Years 1982 and 1987



Sales and Use Tax. State and local sales taxes together were quantitatively the second most important tax source totaling \$1,279 million in fiscal 1987. For the first time, the local sales tax liability (\$666 million) actually exceeded the state sales tax liability (\$613 million). As a percentage of the total state-local resident tax liability, this tax source represented 25 percent, a decline from 30 percent in fiscal 1982.

Income Tax. The individual and corporate income tax combined ranked third in size by tax liability -- \$1,046 million. Of this total, about nine-tenths came from individuals and only one-tenth from corporations. As a share of the total state tax burden, the individual income tax has increased significantly from 33 percent in fiscal 1982 to nearly 43 percent in fiscal 1987. The corporate income tax, on the other hand, has remained relatively insignificant at about the 5 percent level. On a combined state-local tax basis, the importance of the individual income tax has increased from less than 15 percent in 1982 to over 18 percent in 1987. In contrast, the corporate tax has declined slightly from 2.3 percent in 1982 to 2 percent in 1987.

Highway User Tax. This category includes state excise taxes on gasoline and diesel fuels, vehicle registration fees and ton mile taxes, motor vehicle operators license fees, specific ownership tax and other highway related revenue. The specific ownership tax is a local property tax on motor vehicles. The sum of all these items amounted to \$534 million in fiscal year 1987 and represented 10.4 percent of total tax

liabilities for that year, up from 8.8 percent in 1982.<sup>3/</sup> At the state level, these taxes accounted for 17 percent of the 1987 tax burden, whereas in fiscal 1982, they represented only 12.5 percent. This increase for the most part was due to a change in gasoline taxes from 9¢ per gallon in 1982 to 18¢ per gallon in 1987 and from 9¢ to 20.5¢ per gallon for diesel fuel.

Consumer Excise Taxes. Alcoholic beverage taxes and taxes on cigarettes and tobacco remain quantitatively the least significant in the state-local tax base. In fiscal 1987 they amounted to \$79 million, or only 1.5 percent of the total, and represents a continuing decline from the 1982 share of 1.8 percent. As a portion of state tax liabilities, these taxes have increased from 2.7 percent in 1982 to 2.9 percent in 1987 largely due to an increase in the cigarette tax from 10¢ per pack to 20¢ per pack and the imposition of a tax of 20 percent of the manufacturers list price of other tobacco products.

All Other Taxes. This group of taxes consists of all business taxes, licenses and fees other than the corporate income tax and the allocated portions of the general sales, property and highway user taxes paid by business. This category also includes severance taxes on oil and gas, coal, molybdenum and metallic minerals; the employer's share of the Denver occupation privilege tax; insurance; franchise and utility taxes; and miscellaneous regulatory fees. In fiscal 1987 these taxes amounted to \$249 million or nearly 5 percent of the total state-local tax total. At the local level these taxes have increased in relative importance to



4.8 percent in 1987 compared to 4.2 percent in 1982. At the state level the reverse is true with these taxes declining from 7 percent to 5 percent.

### SECTION III. THE DIRECT AND INDIRECT TAX ALLOCATION

A distinction often is made between tax "impact" and tax "incidence". The former is where the tax is legally and directly imposed and the latter is where it finally comes to rest. Theoretically, the incidence of all taxes falls on individuals. It is useful however, to initially classify taxes into two general categories: household (or direct) taxes and business (or indirect) taxes. The allocation of taxes between households requires specific tax shifting assumptions with regard to their final incidence.

#### Tax Shifting Assumptions

As in the prior Colorado Tax Profile studies, household taxes are defined as those directly levied or shifted to households and generally are based on the earning of income, the purchase of consumer goods and services, or the ownership of certain forms of wealth (e.g., real estate). In this sense, direct taxes include individual income, retail sales, consumer excise and residential property taxes. The householder cannot shift such direct taxes to others through the pricing system.

In contrast, it is assumed that business taxes are either shifted forward to individuals as consumers or borne by the owners of the resources since such taxes represent business costs which ultimately are reflected in market prices, reduced dividends or undistributed corporate earnings. The corporate income tax, highway user and sales taxes paid by business firms on their purchases, severance taxes and all other

franchise and regulatory business taxes fall into the indirect category.<sup>4/</sup>

It should also be noted that in deriving the resident tax burden for any given state, it is not possible to determine the amount of business taxes exported or imported by firms engaged in interstate commerce. As in prior studies, it is assumed that the export of Colorado business taxes has been approximately balanced by the import of taxes from jurisdictions outside Colorado.<sup>5/</sup>

#### Taxes on Households and Business

Based on the above assumptions, the allocation of Colorado state and local taxes between those levied on resident households and those on businesses for fiscal year 1987 is shown in Table IV and Chart V. On the adjusted liability basis, direct household taxes amounted to \$3,136 million or about three-fifths of the total Colorado tax burden. This ratio is about the same as for fiscal year 1982. The indirect tax portion amounted to \$1,980 million or the remaining two-fifths of the total. The major taxes are as follows:

- The individual income tax ranked first in size and amounted to nearly \$943 million or 30 percent of the total direct tax burden. This represents a shift since 1982 when income taxes ranked third with 26 percent of the total direct burden.
- The residential property tax ranked second of the major taxes and amounted to \$902 million or nearly 29 percent of the direct

TABLE IV. SUMMARY OF MAJOR TAXES ON COLORADO  
RESIDENT HOUSEHOLDS AND BUSINESS  
FISCAL YEAR 1987

	Total Taxes	State Taxes	Local Taxes
(Money amounts in thousands)			
<u>Taxes on Households (Direct)</u>			
Residential Property	\$ 902.3	--	\$ 902.3
Sales and Use <sup>a/</sup>	842.9	\$ 415.7	427.2
Individual Income	942.6	942.6	--
Highway User <sup>b/</sup>	369.9	219.8	150.1
Cigarette and Liquor	78.6	64.5	14.1
Total Direct Taxes	<u>\$3,136.3</u>	<u>\$1,642.6</u>	<u>\$1,493.7</u>
<u>Taxes on Business (Indirect)</u>			
Non-residential Property	\$1,028.0	--	\$1,028.0
Sales and Use <sup>a/</sup>	435.9	\$ 196.9	239.0
Corporate Income	102.9	102.9	--
Highway User	164.2	156.7	7.5
Other Business Taxes	249.0	109.0	140.0
Total Indirect Taxes	<u>\$1,980.0</u>	<u>\$ 565.5</u>	<u>\$1,414.5</u>
Total Resident Taxes	\$5,116.3	\$2,208.1	\$2,908.2

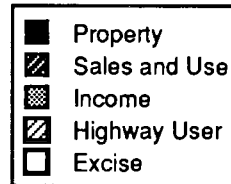
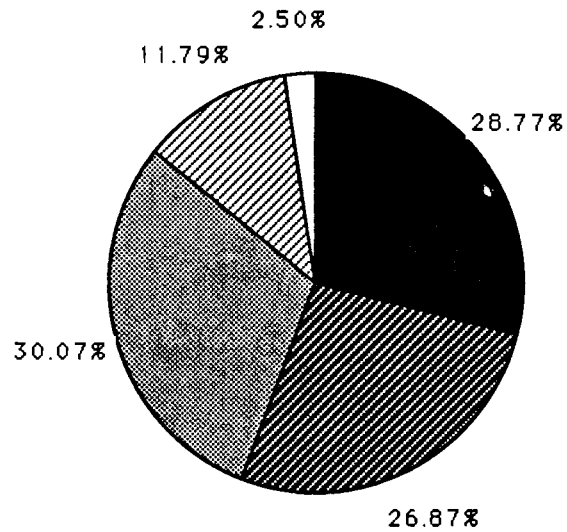
<sup>a/</sup> Includes tourism tax

<sup>b/</sup> Includes share of specific ownership tax

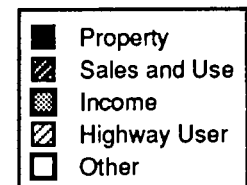
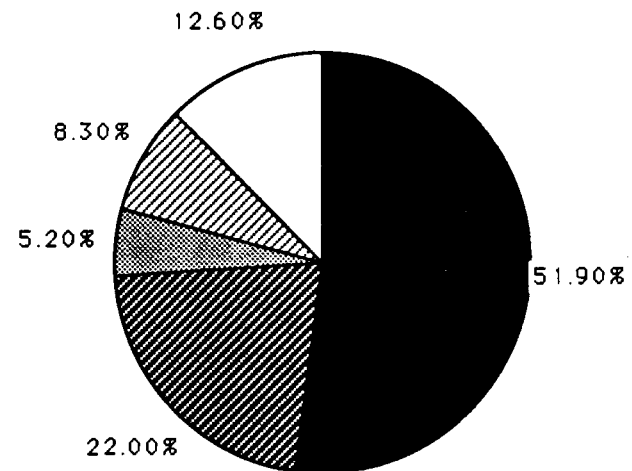
<sup>c/</sup> Includes insurance, severance, occupation, corporate franchise and misc. regulatory taxes

# Chart V: Distribution of Household and Business Taxes, Fiscal Year 1987

## Household Taxes



## Business Taxes



tax total. This represents a decline in the ratio because the 1982 share was 34 percent.

- The non-residential property tax of \$1,028 million accounts for 52 percent of the total business taxes. This is a substantial increase from 1982 when the tax represented 43 percent of the business total but is on par with the 53 percent for 1972.
- The sales and use taxes on households dropped from second place in 1982 to third place in fiscal 1987. It amounted to nearly \$843 million, split about evenly between the state sales tax at 49 percent and the local sales tax at 51 percent. Together the state-local sales tax accounted for 27 percent of the direct tax burden, a decline from the 31 percent in the 1982 fiscal year.
- The sales and use taxes on business retained second place in the list of business related taxes. It amounted to \$436 million or 22 percent of the total indirect taxes. Here again this source declined in importance from the fiscal 1982 share of 30 percent. In 1987 the local share of the total sales and use tax represented 55 percent.
- The corporate income tax quantitatively was the least significant of the indirect taxes levied on business. In fiscal year 1987 it amounted to \$103 million or a little over 5 percent of the combined state-local total. This ratio is about the same as it was in fiscal 1982.

As in the past, the "big three"--income, property and sales taxes--continue to account for bulk of the taxes imposed on the household and business categories. Together they represent 86 percent of the direct taxes on households and 79 percent of the total indirect taxes levied on business in fiscal 1987.

### State Taxes

The direct state taxes on resident households amounted to \$1,643 million or nearly three-fourths of the total state burden. Individual income tax accounted for 57 percent, the sales taxes 25 percent and highway user taxes 13 percent. This represents a shift from 1982 when such taxes represented 50, 36 and 10 percents, respectively. Other state excise taxes accounted for less than 4 percent of the total.

The indirect state taxes (those levied on business) amounted to \$566 million or one-fourth of the state tax burden. Of this total, the sales tax allocated to business was quantitatively the most important and accounted for 35 percent of the total. The second largest category was represented by highway user taxes (28 percent), followed by the corporate income tax at 18 percent. All other state business taxes, such as insurance, corporate franchise, severance and other regulatory taxes accounted for 19 percent of the total.

### Local Taxes

Direct local taxes were estimated to be \$1,494 million or 51 percent of the total direct and indirect local tax burden. The indirect business portion was estimated at \$1,414 million. The allocation of total

property taxes between households and business essentially reflects the classification of the property tax into residential and non-residential categories. It was estimated that the actual and imputed property taxes on owner and renter occupied residences together amounted to \$902 million or 60 percent of the total local taxes levied directly on resident households. This was markedly less than the 70 percent ratio for 1982. The non-residential property tax was determined to be \$1,028 million or 73 percent of the total tax levied on business. A slight increase over the 70 percent share in 1982. On the other hand, local sales tax has increased from 26 percent in fiscal 1982 to 29 percent in fiscal year 1987.



## SECTION IV. A PROFILE OF COLORADO TAXES BY MAJOR INCOME CLASSES

The distribution of Colorado state and local tax liabilities of resident households, classified by five major income categories based on the adjusted gross income reported on state income tax returns, is presented in Tables V through IX. Data on the number of resident taxpayers, household income and individual income tax liabilities have been reported and analyzed in detail in a separate study prepared by the Colorado Department of Revenue.<sup>6/</sup>

### Income Concepts

This section describes the basic concepts and adjustment necessary for the derivation of the income measures used in the analysis of tax burdens.

Adjusted Gross Income. The adjusted gross income reported on individual income tax returns filed in fiscal 1987 by resident households amounted to \$32.3 billion.<sup>7/</sup> This amount represents 65 percent of the 1986 personal income of \$49.8 billion reported by the U.S. Department of Commerce.<sup>8/</sup> The \$17.5 billion variance between those two measures of income represents conceptual differences between economic and statutory definitions of income. Adjusted gross income excludes various forms of tax exempt money income and nontaxable transfer income such as payments for public welfare, portions of unemployment compensation and retirement income. In contrast, the personal income measure, includes in addition

to the above money transfer payments, sundry forms of imputed incomes, such as the estimated rental value of owner-occupied residences, imputed interest and employer contributions to pension funds.

Adjusted Broad Income. Since neither adjusted gross income nor personal income corresponds to the conventional concept of income, an "adjusted broad income" measure was developed for the original 1972 Colorado Tax Profile Study. This measure is narrower than that of the personal income concept but is broader than that of adjusted gross income. It excludes all forms of imputed income but includes an estimate of the nontaxable transfer payments and other forms of tax-exempt income not reported on income tax returns.<sup>9/</sup>

The adjusted broad income for fiscal year 1987 was estimated to be \$37.6 billion or 16 percent larger than the corresponding adjusted gross income, but 25 percent smaller than personal income. The total amount of transfer payments included in the broad income measure was approximately one and one-third times larger than the amount included for other forms of non-taxable income. The largest adjustments required to place resident households on a broad income basis were for those in the lowest and highest income categories since the former were the major recipients of money transfer payments and the latter were the principal beneficiaries of the preferential tax treatment accorded capital gains, interest and dividend income.

For the balance of this report, the comparative tax burdens of Colorado resident households are presented in terms of both adjusted gross income and adjusted broad income. Adjusted broad income, however, is the more appropriate measure for evaluating the distributional effects

TABLE V. DISTRIBUTION OF COLORADO RESIDENT TAXPAYERS, HOUSEHOLD INCOME  
AND MAJOR STATE AND LOCAL TAXES, FISCAL YEAR 1987

	Major Income Classes: <sup>a/</sup>					Total
	Under \$5,000	\$5,000 to \$15,000	\$15,000 to \$25,000	\$25,000 to \$50,000	\$50,000 and over	
<u>Number of Resident Households</u>	304,342	370,184	254,747	350,270	127,405	1,406,948
<u>Household Income:</u>						
Adjusted Gross Income	\$ 628,345	\$3,568,719	\$5,034,776	\$12,351,699	\$10,708,189	\$32,291,728
Adjusted Broad Income	1,492,798	4,773,893	5,777,917	13,273,131	12,281,205	37,598,943
<u>Direct Taxes on Households:</u>						
State Taxes						
Individual Income	3,487	54,608	133,690	369,187	371,637	942,609
Sales and Use	31,592	71,913	71,082	149,230	91,866	415,683
Highway User	20,876	42,412	40,434	78,671	37,358	219,751
Alcoholic Beverage	2,095	3,874	3,578	6,385	3,835	19,767
Cigarette and Tobacco	5,993	10,420	8,632	14,311	5,367	44,723
Total Direct State Taxes	64,043	193,228	257,415	617,784	510,062	1,642,533
Local Taxes						
Residential Property	87,361	195,222	155,774	285,897	178,059	902,313
Sales and Use	32,471	73,913	73,059	153,381	94,421	427,245
Specific Ownership	14,260	28,970	27,619	53,737	25,517	150,102
Cigarette	1,895	3,295	2,729	4,525	1,697	14,140
Total Direct Local Taxes	135,986	301,400	259,181	497,539	299,694	1,493,800
Total Direct Taxes	200,030	494,628	516,596	1,115,323	809,756	3,136,333
<u>Indirect Taxes on Households:</u>						
State Business Taxes	48,114	106,253	97,720	191,690	121,680	565,457
Local Business Taxes	128,715	277,232	250,357	479,498	278,646	1,414,449
Total Indirect Taxes	176,829	383,485	348,077	671,188	400,326	1,979,906
<u>Total State and Local Taxes:</u>						
State Taxes (Direct & Indirect)	112,157	299,481	355,135	809,474	631,742	2,207,990
Local Taxes (Direct & Indirect)	264,701	578,632	509,538	977,037	578,341	2,908,249
Total State-Local Taxes	\$ 376,858	\$ 878,113	\$ 864,673	\$ 1,786,512	\$ 1,210,083	\$ 5,116,239
<u>Addendum:</u>						
Federal Individual Income Tax	\$ 32,264	\$ 260,551	\$ 538,955	\$ 1,515,521	\$ 2,296,115	\$ 4,643,406

<sup>a/</sup> Based on adjusted gross income.

of the Colorado state and local tax structure.

#### Distribution of Households and Income

In fiscal year 1987 over 1.4 million resident Colorado households filed state income tax returns. The income measures and overall tax analysis for this study are based on all resident returns, both taxable and nontaxable. The latter were included since such households were subject to sales, excise and property taxes and were recipients of transfer and other forms of money income not reported in adjusted gross income. Since 1972 there has been a marked rise in nominal and real incomes of Colorado households which has resulted in a significant shift upwards in the distribution of number of households by adjusted gross income categories. This upward movement is shown in the table below.

Percentage Distribution of Households  
by Reported Adjusted Gross Income

<u>CTPS Fiscal Year</u>	<u>Below \$15,000</u>	<u>\$15,000 to \$25,000</u>	<u>\$25,000 and Over</u>	<u>Total</u>
1972	84.1	12.3	3.6	100.0
1982	55.2	19.3	25.5	100.0
1987	47.9	18.1	34.0	100.0

#### Distribution of Taxes

Table V presents a distribution of the number of households and the total dollar amount of household income on both the adjusted gross and adjusted broad income basis for each of the five major adjusted gross income classes. Also presented are the total dollar amounts of state and local taxes on resident households. The relative tax burdens for fiscal year 1987 are developed from these data.

The distribution of the direct state and local tax burden among the relatively low, middle and high income taxpayers is summarized in the following table:

Percent Distribution of Direct Taxes for  
Households with Adjusted Gross Income

	<u>Below \$15,000</u>	<u>\$15,000 to \$25,000</u>	<u>\$25,000 and Over</u>
State Taxes:			
Individual Income	26.5	51.9	65.7
Sales and Use	40.2	27.6	21.4
Consumer Excise	33.3	20.5	12.9
Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Local Taxes:			
Residential Property	64.6	60.1	58.2
Sales and Use	24.3	28.2	31.1
Consumer Excise	11.1	11.7	10.7
Total	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

The largest single state tax liability on the two lowest income classes (under \$15,000), which represent almost one-half of all households, continues to be sales tax. When combined with other expenditure taxes, such as excise taxes on motor fuels, alcoholic beverages and tobacco products, consumer expenditure taxes for those relatively low-income residents accounted for nearly three-fourths of their total direct state tax burden. For the middle income households (\$15,000 to \$25,000) consumer expenditure taxes represented about one half of their direct state tax liability. For households at the highest end of the income spectrum (\$25,000 or more), the consumer expenditure taxes were the least important constituting about one-third of their

TABLE VI. PERCENT DISTRIBUTION OF COLORADO RESIDENT TAXPAYERS, HOUSEHOLD INCOME  
AND MAJOR STATE AND LOCAL TAXES, FISCAL YEAR 1987

	Major Income Classes: <sup>a/</sup>					Total
	under \$5,000	\$5,000 to \$15,000	\$15,000 to \$25,000	\$25,000 to \$50,000	\$50,000 and over	
<u>Number of Resident Households</u>	21.6	26.3	18.1	24.9	9.1	100.0
<u>Household Income:</u>						
Adjusted Gross Income	1.9	11.1	15.6	38.3	33.2	100.0
Adjusted Broad Income	4.0	12.7	15.4	35.3	32.7	100.0
<u>Direct Taxes on Households:</u>						
<u>State Taxes</u>						
Individual Income	0.4	6.9	14.2	39.2	39.4	100.0
Sales and Use	7.6	17.3	17.1	35.9	22.1	100.0
Highway User	9.5	19.3	18.4	35.8	17.0	100.0
Alcoholic Beverage	10.6	19.6	18.1	32.3	19.4	100.0
Cigarette and Tobacco	13.4	23.3	19.3	32.0	12.0	100.0
Total Direct State Taxes	<u>3.9</u>	<u>11.8</u>	<u>15.7</u>	<u>37.6</u>	<u>31.1</u>	<u>100.0</u>
<u>Local Taxes</u>						
Residential Property	9.7	21.6	17.3	31.7	19.7	100.0
Sales and Use	7.6	17.3	17.1	35.9	22.1	100.0
Specific Ownership	9.5	19.3	18.4	35.8	17.0	100.0
Cigarette	13.4	23.3	19.3	32.0	12.0	100.0
Total Direct Local Taxes	<u>9.1</u>	<u>20.2</u>	<u>17.4</u>	<u>33.3</u>	<u>20.1</u>	<u>100.0</u>
Total Direct Taxes	6.4	15.8	16.5	35.6	25.8	100.0
<u>Indirect Taxes on Households:</u>						
State Business Taxes	8.5	18.8	17.3	33.9	21.5	100.0
Local Business Taxes	9.1	19.6	17.7	33.9	19.7	100.0
Total Indirect Taxes	<u>8.9</u>	<u>19.4</u>	<u>17.6</u>	<u>33.9</u>	<u>20.2</u>	<u>100.0</u>
<u>Total State and Local Taxes:</u>						
State Taxes (Direct & Indirect)	5.1	13.6	16.1	36.7	28.6	100.0
Local Taxes (Direct & Indirect)	9.1	19.9	17.5	33.6	19.9	100.0
Total State - Local Taxes	<u>7.4</u>	<u>17.2</u>	<u>16.9</u>	<u>34.9</u>	<u>23.7</u>	<u>100.0</u>
<u>Addendum:</u>						
Federal Individual Income Tax	0.7	5.6	11.6	32.6	49.4	100.0

a/ Based on adjusted

total direct taxes. In contrast, the individual income tax liability accounted for nearly two-thirds of their direct state tax burden. The local tax structure is dominated by the property tax which accounted for three-fifths or more of the direct local tax burden for all income categories.

### Tax Equity

A comparison of the tax distribution with the distribution of household income provides an approximate measure of the tax equity in the state. The percentage distributions of Colorado resident taxpayers, classified by the five major income categories is presented in Table VI. Included in the distributions, based on Table V, are the number of taxpayers, the adjusted gross income, the adjusted broad income and each of the major state and local taxes. A measure of the degree of income inequality in Colorado is provided by the fact that households in the lowest income category (under \$5,000) represented more than one-fifth of the households but only 2 percent of adjusted gross income and 4 percent of adjusted broad income. In contrast, the top income class (\$50,000 and over) represented less than one-tenth of the households but accounted for one third of the total income.

State Taxes. On a combined direct and indirect basis, it appears that the separate shares of state taxes generally parallel the distribution of adjusted broad income for the five major income classes. This distribution is shown by the following tabulation:

	Percent Distribution		
	<u>Adjusted Broad Income</u>	<u>Direct State Taxes</u>	<u>Total State Taxes</u>
Under \$5,000	4.0	3.9	5.1
\$5,000 to \$15,000	12.7	11.8	13.6
\$15,000 to \$25,000	15.4	15.7	16.1
\$25,000 to \$50,000	35.3	37.6	36.7
\$50,000 and over	<u>32.7</u>	<u>31.1</u>	<u>28.6</u>
Total	100.0	100.0	100.0

The share of direct state taxes borne by the two lowest income class (under \$15,000) were slightly lower than their respective broad income shares. Conversely for the next two income classes, (\$15,000 to \$25,000 and \$25,000 to \$50,000) the direct state tax shares were slightly higher than their income shares. But for the top income class, their tax share was actually smaller than their income share. In other words, the direct state tax burden - the combined income, sales and consumer excise taxes imposed on Colorado households in fiscal 1987 - proved to be roughly proportional. On this broad income basis, it appears that the direct state tax structure is slightly progressive through the income classes to \$50,000.

The approximate proportionality of the direct state tax structure reflects a general balancing of the major taxes, but does not hold for any single tax source. For example, the individual income tax appears highly progressive. Households in the lowest category accounted 4 percent of the adjusted broad income but only four-tenths of one percent of the income tax liability. In contrast, households in the highest income class accounted for slightly less than 33 percent of the broad income but more than 39 percent of the total income tax liability.



Households in the middle income class (15,000 - 25,000) accounted for 15 percent of the broad income and 14 percent of the tax.

The distribution pattern of the other major state taxes proved to be essentially regressive -- that is, the tax share relative to income was greater for the lowest income groups and smaller for the highest income groups. The lowest income group with only 4 percent of the broad income accounted for more than 8 percent of the consumer expenditure taxes (retail sales and excises). In contrast, the top income class with nearly one-third of the broad income was liable for less than 20 percent of such taxes. In the middle income class (\$15,000 to \$25,000) the expenditure tax burden was about 18 percent compared to an income share of 15 percent. The indirect state taxes revealed a similar regressive pattern. In summary, although the magnitude and progressivity of the state income tax was large enough to offset the regressivity of the direct consumer expenditure taxes the overall state tax structure (combined direct indirect state taxes) proved to be regressive in fiscal year 1987.

Local Taxes. The local tax burden also worked out to be highly regressive throughout all income classes. For example, the lowest category accounted for nearly 10 percent of the property tax but only 4 percent of the broad income. At the other end of the spectrum, the highest income class with 33 percent of the income accounted for 20 percent of the property tax. The consumer expenditure taxes and the indirect business taxes followed a similar regressive pattern.

Average Household Income and Taxes. The average income and

taxes for each of the five major income categories used in this report are presented in Table VII. Colorado households had an average adjusted broad income of \$26,723 and an average total direct tax burden of \$2,229 of which slightly more than one-half represented state taxes. On a combined direct and indirect basis, the average state and local tax burden was \$3,636 with local taxes representing the larger share.

On an average income and tax basis, the average dollar amount of tax per household increases as the average dollar amount of income increases through all income classes though not proportionally. The average state tax (direct and indirect) rose from \$369 in the lowest income class to \$4,958 in the highest income class. The combined local tax burden (direct and indirect) was much greater than the state burden for all income classes, except the top category. It ranged from \$870 at the lower end of the scale to \$4,539 at the upper end.

TABLE VII. AVERAGE HOUSEHOLD INCOME AND TAXES FOR COLORADO RESIDENT TAXPAYERS CLASSIFIED BY MAJOR INCOME CATEGORIES, FISCAL YEAR 1987

	Major Income Classes: <sup>a/</sup>					Total
	under \$5,000	\$5,000 to \$15,000	\$15,000 to \$25,000	\$25,000 to \$50,000	\$50,000 and over	
<u>Household Income:</u>						
Adjusted Gross Income	\$2,065	\$ 9,640	\$19,764	\$35,263	\$84,048	\$22,952
Adjusted Broad Income	4,905	12,896	22,681	37,894	96,395	26,723
<u>Direct Taxes on Households:</u>						
<u>State Taxes</u>						
Individual Income	11	175	525	1,054	2,917	670
Sales and Use	104	194	279	426	721	295
Highway User	69	115	159	225	293	156
Alcoholic Beverage	7	10	14	18	30	14
Cigarette and Tobacco	20	28	34	41	42	32
Total Direct Sales	<u>211</u>	<u>522</u>	<u>1,010</u>	<u>1,764</u>	<u>4,003</u>	<u>1,167</u>
<u>Local Taxes</u>						
Residential Property	287	527	611	796	1,398	641
Sales and Use	107	200	287	438	741	304
Specific Ownership	47	78	108	153	200	107
Cigarette	6	9	11	13	13	10
Total Direct Sales	<u>447</u>	<u>814</u>	<u>1,017</u>	<u>1,420</u>	<u>2,352</u>	<u>1,062</u>
Total Direct Taxes	657	1,336	2,028	3,184	6,356	2,229
<u>Indirect Taxes on Households:</u>						
State Business Taxes	158	287	384	547	955	402
Local Business Taxes	423	749	983	1,369	2,187	1,005
Total Indirect Taxes	<u>581</u>	<u>1,036</u>	<u>1,367</u>	<u>1,916</u>	<u>3,142</u>	<u>1,407</u>
<u>Total State and Local Taxes:</u>						
State Taxes (Direct & Indirect)	369	809	1,394	2,311	4,958	1,569
Local Taxes (Direct & Indirect)	870	1,563	2,000	2,789	4,539	2,067
Total State - Local Taxes	<u>\$1,239</u>	<u>\$ 2,372</u>	<u>\$ 3,394</u>	<u>\$ 5,100</u>	<u>\$ 9,497</u>	<u>\$ 3,636</u>
<u>Addendum:</u>						
Federal Individual Income Tax	\$ 106	\$ 704	\$ 2,116	\$ 4,327	\$18,022	\$ 3,302

<sup>a/</sup> Based on adjusted gross income.

## SECTION V. A PROFILE OF EFFECTIVE TAX RATES AND BURDENS

A more conventional method of comparing relative tax burdens is to express the absolute dollar amount of tax liability as a percentage of household income before taxes. Since all taxes ultimately are paid out of available income, such a measure of the tax burden actually represents an "effective tax rate" on household income. However, the degree of regressivity or progressivity of the tax structure as a whole or of any particular tax is dependent upon the income concept used. For purposes of this study, the relative state and local tax burdens are expressed as percentages of both adjusted gross income and adjusted broad income.

### Effective Tax Rates Based on Adjusted Gross Income

The relative burdens or effective tax rates for fiscal year 1987, based on adjusted gross income, are shown in Table VIII. On this adjusted gross income basis, the combined state and local tax burden on the poor was more than five times as heavy as that on the highest income group -- a 60.0 percent effective tax rate for households reporting incomes of less than \$5,000 compared to 11.3 percent rate for those with incomes of \$50,000 or more.

This overall regressivity is largely due to the local tax portion for which the relative burden on the lowest income group was almost eight times larger than that on the highest -- 42.1 percent compared to 5.4 percent. All taxes on the local level show a high degree of regressivity and in the case of of the residential property tax, the effective rates

TABLE VIII. RELATIVE BURDEN OF MAJOR TAXES ON COLORADO RESIDENT TAXPAYERS,  
TAXES EXPRESSED AS PERCENT OF ADJUSTED GROSS INCOME, FISCAL YEAR 1987

	Major Income Classes: <sup>a/</sup>					Total
	under \$5,000	\$5,000 to \$15,000	\$15,000 to \$25,000	\$25,000 to \$50,000	\$50,000 and over	
<u>Direct Taxes on Households:</u>						
State Taxes						
Individual Income	0.53	1.82	2.66	2.99	3.47	2.92
Sales and Use	5.04	2.01	1.41	1.21	0.86	1.29
Highway User	3.34	1.19	0.80	0.64	0.35	0.68
Alcoholic Beverage	0.34	0.10	0.07	0.05	0.04	0.06
Cigarette and Tobacco	0.97	0.29	0.17	0.12	0.05	0.14
Total Direct State Taxes	<u>10.22</u>	<u>5.41</u>	<u>5.12</u>	<u>5.00</u>	<u>4.76</u>	<u>5.08</u>
Local Taxes						
Residential Property	13.90	5.47	3.09	2.26	1.66	2.79
Sales and Use	5.18	2.07	1.45	1.24	0.88	1.32
Specific Ownership	2.28	0.81	0.55	0.43	0.24	0.47
Cigarette	0.29	0.09	0.06	0.04	0.02	0.04
Total Direct Local Taxes	<u>21.65</u>	<u>8.44</u>	<u>5.15</u>	<u>3.97</u>	<u>2.80</u>	<u>4.63</u>
Total Direct Taxes	31.86	13.86	10.26	8.97	7.56	9.71
<u>Indirect Taxes on Households:</u>						
State Business Taxes	7.65	2.98	1.94	1.55	1.14	1.75
Local Business Taxes	20.48	7.77	4.97	3.88	2.60	4.38
Total Indirect Taxes	<u>28.14</u>	<u>10.75</u>	<u>6.92</u>	<u>5.43</u>	<u>3.74</u>	<u>6.13</u>
<u>Total State and Local Taxes:</u>						
State Taxes (Direct & Indirect)	17.87	8.39	7.06	6.55	5.90	6.84
Local Taxes (Direct & Indirect)	42.13	16.21	10.12	7.85	5.40	9.01
Total State - Local Taxes	<u>60.00</u>	<u>24.61</u>	<u>17.18</u>	<u>14.41</u>	<u>11.30</u>	<u>15.84</u>
<u>Addendum:</u>						
Federal Individual Income Tax	5.13	7.30	10.71	12.27	21.44	14.39

<sup>a/</sup> Based on adjusted gross

ranged from 13.9 percent for the lowest income group to 1.7 percent for the highest.

The state tax structure as a whole was only about half as regressive as the local tax structure, since the regressivity of the consumer expenditure and business taxes was partially offset by the progressivity of the state's individual income tax. Overall, the effective tax rates ranged from 17.9 percent for the lowest stratum to 5.9 percent for the highest. But as already noted, the above disparities in the relative tax burdens between the low and high income categories are misleading because the adjusted gross income measure on which they are based understates the money income of households in the lowest income stratum, and therefore overstates their tax burden relative to that of other taxpayers.

#### Effective Tax Rates Based on Adjusted Broad Income

When the effective tax rates are expressed in terms of the more comprehensive adjusted broad income, the relative tax burdens and the measured regressivity of both the state and local tax structures are significantly reduced. As shown in Table IX., the effective rates of the combined state and local taxes ranged from 25.3 percent for the lowest income group to 9.8 for the highest. For the overall state tax structure the effective rate for low-income households was 7.5 percent compared to 5.1 percent for those in the highest income class. And the total direct state taxes (individual income and consumer expenditure taxes levied on households) proved to be almost proportional since households in the under \$5,000 income class had an effective rate of 4.3 percent compared

TABLE IX. RELATIVE BURDEN OF MAJOR TAXES ON COLORADO RESIDENT TAXPAYERS,  
TAXES EXPRESSED AS PERCENT OF ADJUSTED BROAD INCOME, FISCAL YEAR 1987

	Major Income Classes: <sup>a/</sup>					Total
	under \$5,000	\$5,000 to \$15,000	\$15,000 to \$25,000	\$25,000 to \$50,000	\$50,000 and over	
<u>Direct Taxes on Households:</u>						
State Taxes						
Individual Income	0.22	1.36	2.31	2.78	3.03	2.51
Sales and Use	2.12	1.50	1.23	1.12	0.75	1.10
Highway User	1.41	0.89	0.70	0.59	0.30	0.58
Alcoholic Beverage	0.14	0.08	0.06	0.05	0.03	0.05
Cigarette and Tobacco	0.41	0.22	0.15	0.11	0.04	0.12
Total Direct State Taxes	4.30	4.05	4.46	4.66	4.15	4.37
Local Taxes						
Residential Property	5.85	4.09	2.69	2.10	1.45	2.40
Sales and Use	2.18	1.55	1.27	1.16	0.77	1.14
Specific Ownership	0.96	0.60	0.48	0.40	0.21	0.40
Cigarette	0.12	0.07	0.05	0.03	0.01	0.04
Total Direct Local Taxes	9.11	6.31	4.48	3.69	2.44	3.97
Total Direct Taxes	13.41	10.36	8.94	8.35	6.59	8.34
<u>Indirect Taxes on Households:</u>						
State Business Taxes	3.22	2.23	1.69	1.44	0.99	1.50
Local Business Taxes	8.62	5.81	4.33	3.61	2.27	3.76
Total Indirect Taxes	11.85	8.03	6.03	5.06	3.26	5.27
<u>Total State and Local Taxes:</u>						
State Taxes (Direct & Indirect)	7.52	6.27	6.15	6.10	5.14	5.87
Local Taxes (Direct & Indirect)	17.74	12.12	8.82	7.31	4.71	7.73
Total State - Local Taxes	<u>25.26</u>	<u>18.39</u>	<u>14.97</u>	<u>13.41</u>	<u>9.85</u>	<u>13.61</u>
<u>Addendum:</u>						
Federal Individual Income Tax	2.16	5.46	9.33	11.42	18.70	12.36

<sup>a/</sup> Based on adjusted gross

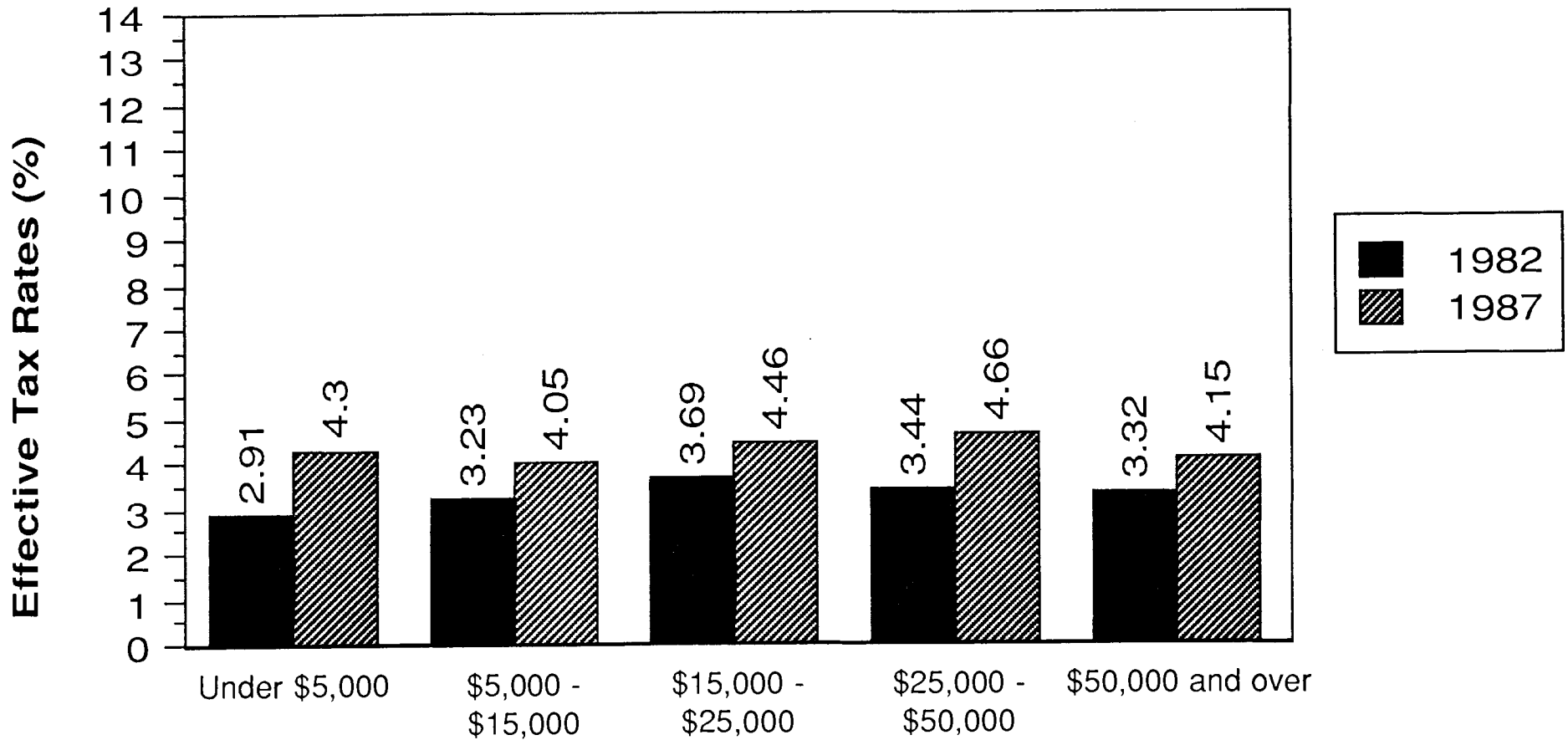
to a 4.1 percent rate for those in the top income category. Moreover, the marked progressivity of the state income tax is shown by effective tax rates which ranged from two-tenths of one percent for the lowest income class to 3 percent for the highest. Thus, the effective income tax rate on the highest group was almost 14 times greater than that for the lowest. Conversely, for the property, sales, consumer excise and business taxes, the effective rates consistently varied inversely by income class -- in each instance they were highest for under \$5,000 class, and lowest for the \$50,000 and over category. It is also important to note, as shown in the following tabulation and Charts VI, VII, VIII, and IX that both the state and local direct tax burdens, as measured by effective tax rates based on broad income increased significantly between 1982 and 1987 for all income categories. Moreover, the lowest income groups experienced the largest increase in the combined state-local tax burden -- almost 41 percent; while the top group with incomes over \$50,000 had the smallest increase in tax burden -- about 21 percent.

Effective Tax Rates on Broad Income  
for Direct Combined State and Local  
Taxes Fiscal Years 1982 and 1987

<u>Income Class</u>	<u>1982</u>	<u>1987</u>	<u>Percent Change</u>
Under \$5,000	9.52	13.41	40.9
\$5,000 to \$15,000	7.72	10.36	34.2
\$15,000 to \$25,000	7.35	8.94	21.6
\$25,000 to \$50,000	6.43	8.35	29.9
\$50,000 and over	5.44	6.59	21.1

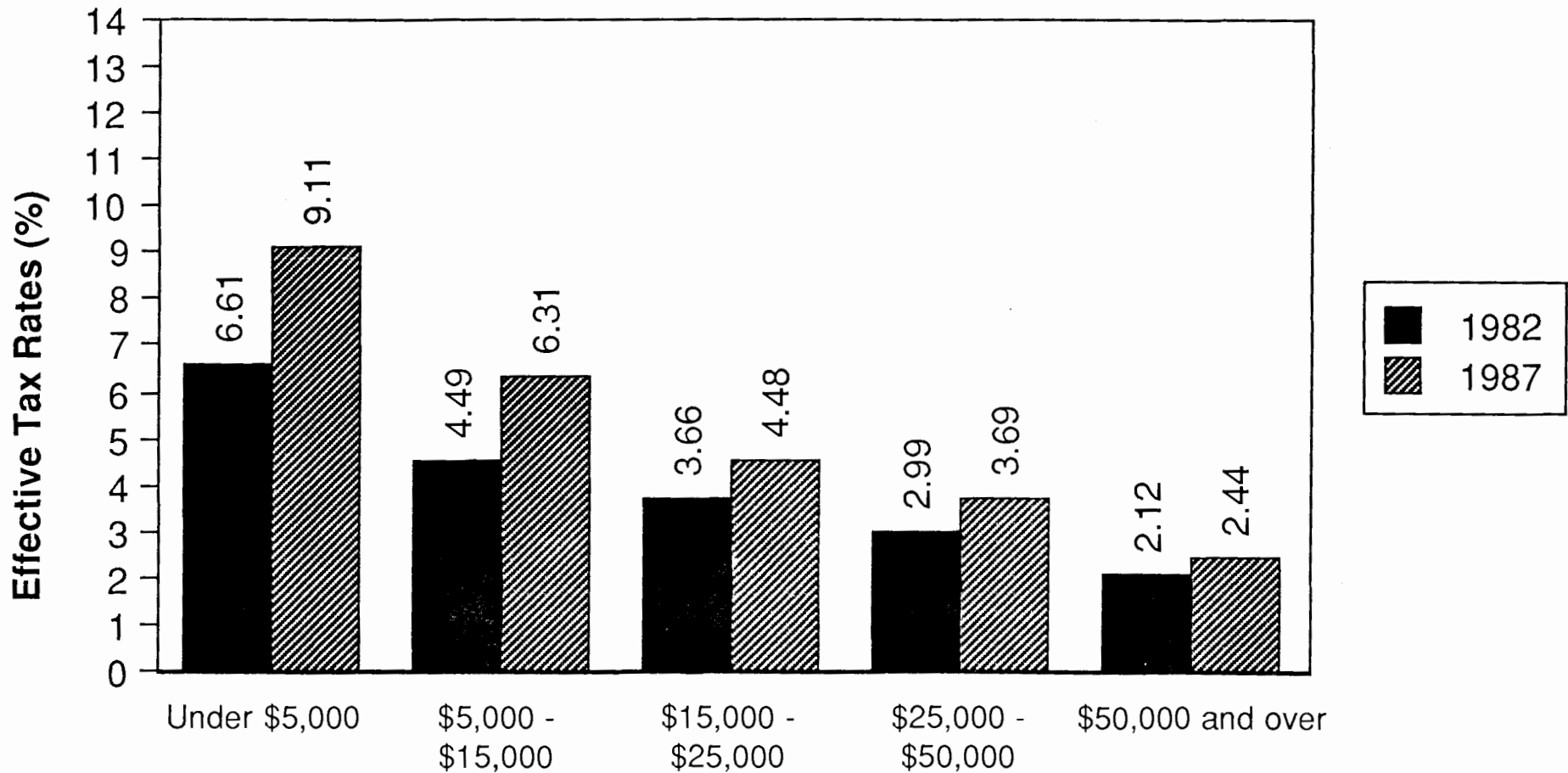


# Chart VI: Comparison of Effective Tax Rates for Direct State Taxes, Fiscal Years 1982 and 1987\*



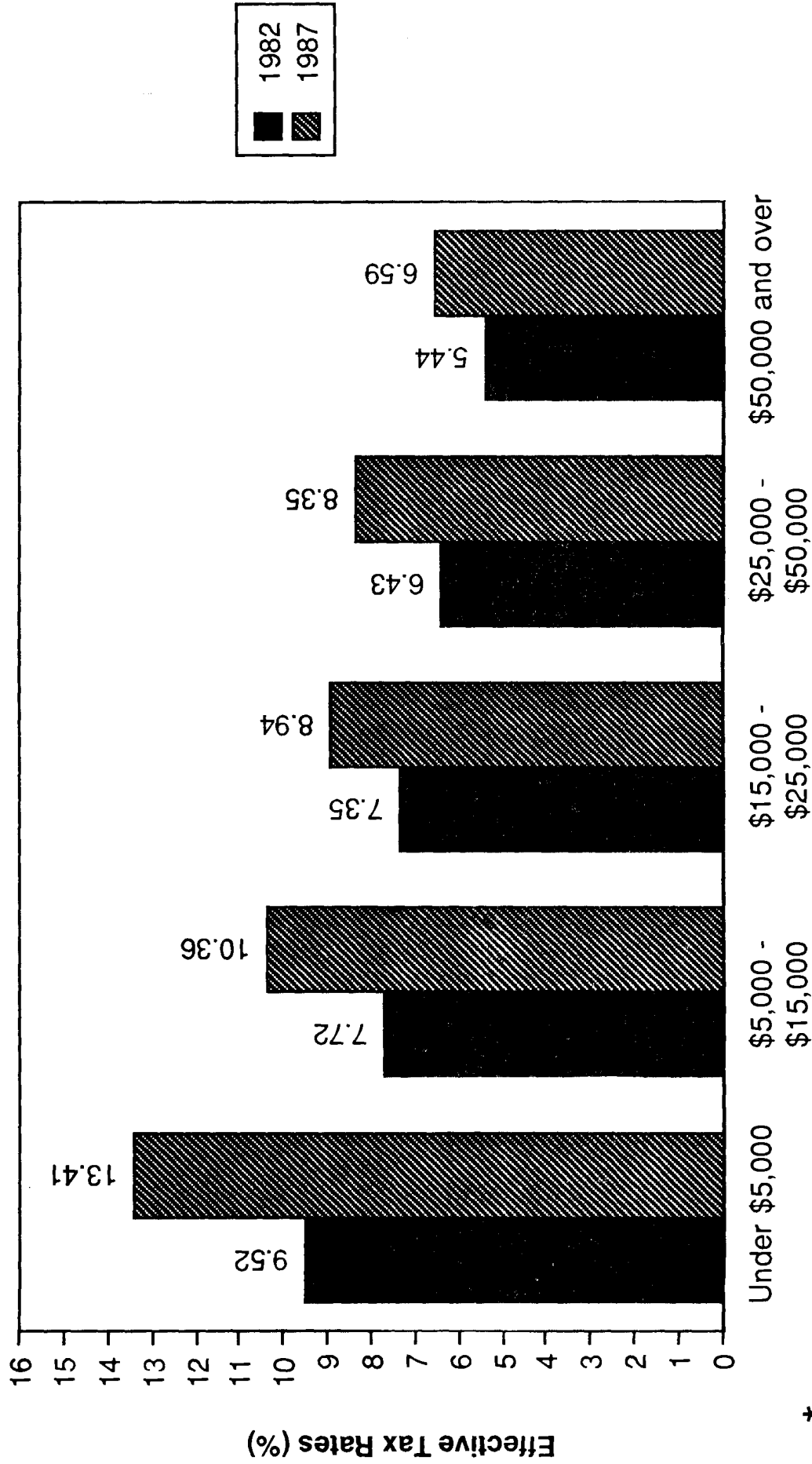
\* Based on Adjusted Broad Income

# Chart VII: Comparison of Effective Tax Rates for Direct Local Taxes, Fiscal Years 1982 and 1987\*



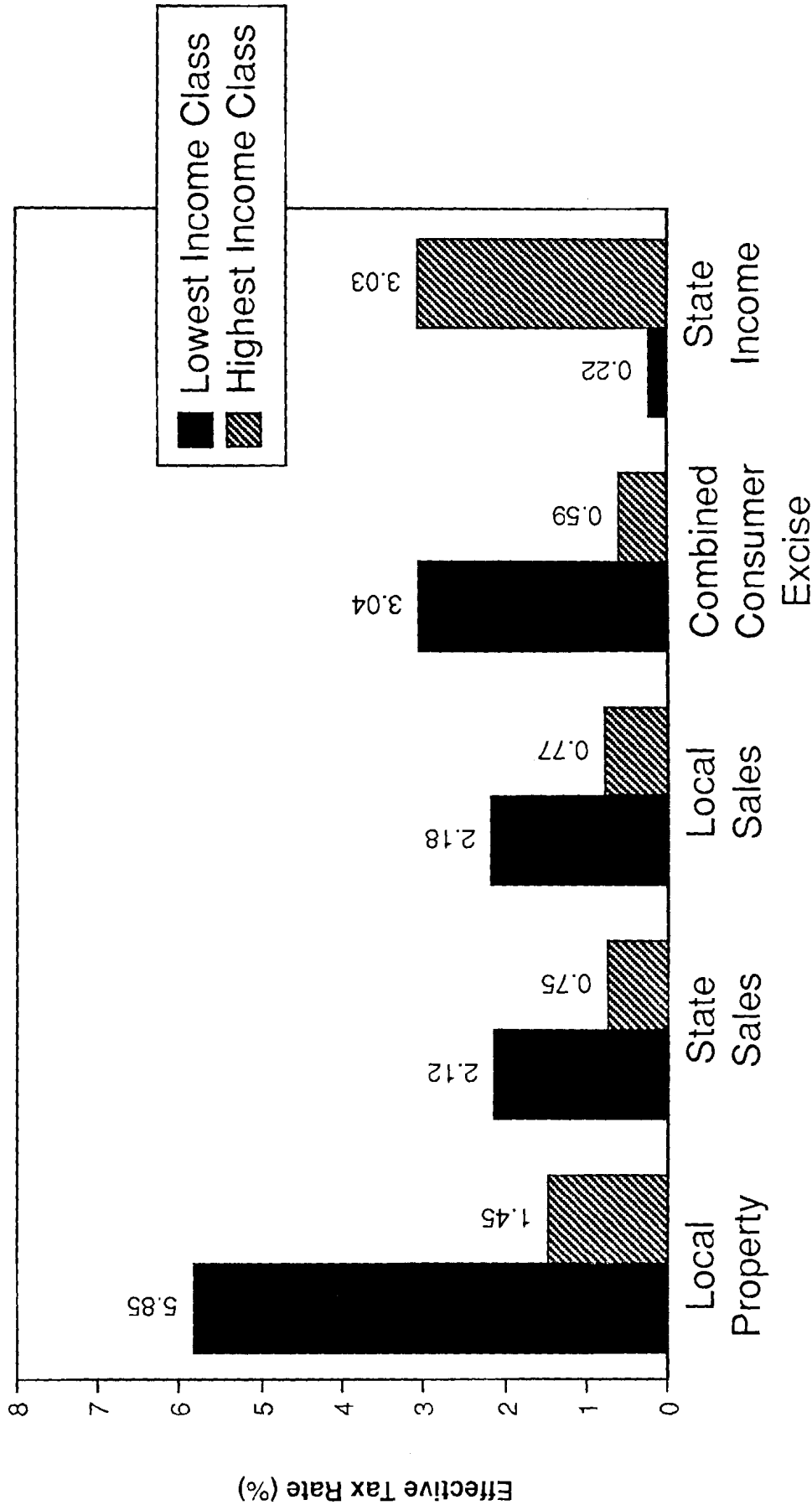
\* Based on Adjusted Broad Income

**Chart VIII: Comparison of Effective Tax Rates for Direct State and Local Taxes, Fiscal Years 1982 and 1987\***



\* Based on Adjusted Broad Income

# Chart IX: Comparison of Effective Tax Rates for Households in Lowest and Highest Income Classes, Fiscal Year 1987\*



\* Based on Adjusted Broad Income

### CTPS Progressivity Index

The following analysis is based on the progressivity/regressivity index developed for the first Tax Profile Study in 1972. This index is an approximate measure of the regressivity or progressivity of each tax expressed as a ratio of the relative tax burden (effective tax rate on broad income) of the lowest income class to that of the highest. A ratio or index number equal to 1.0 indicates that the tax being measured is proportional. If the ratio is less than 1.0 the tax is progressive, and if greater than 1.0 the tax is regressive. The index values for each of the major state and local taxes for fiscal years 1982 and 1987 are summarized below:

	<u>CTPS Progressivity Index Based on Broad Income -- Tax Burden Ratios of Lowest to Highest Income Class</u>	
	<u>1982</u>	<u>1987</u>
<u>State Taxes:</u>		
Individual Income	0.12	0.07
Sales Tax on Households	2.32	2.83
Excise Taxes on Households	3.40	5.30
Direct State Taxes	<u>0.87</u>	<u>1.04</u>
Business Taxes	2.44	3.25
Total State Taxes	<u>1.28</u>	<u>1.46</u>
<u>Local Taxes:</u>		
Residential Property	3.38	4.03
Sales Tax on Households	2.31	2.83
Excise Taxes on Households	3.40	4.91
Direct Local Sales	<u>3.12</u>	<u>3.73</u>
Business Taxes	2.87	3.80
Total Local Taxes	<u>2.90</u>	<u>3.76</u>
<u>Total State and Local Taxes</u>	<u>2.03</u>	<u>2.56</u>

The data clearly show that the overall Colorado tax structure since

1982 has become more regressive. The CTPS progressivity/regressivity index based on broad income has risen since 1982 for both state and local taxes. On a combined basis, the index has increased from 2.03 in fiscal 1982 to 2.56 in fiscal 1987. This means that the relative tax burden of the lowest class (under \$5,000) has risen from being twice that of the highest income class (\$50,000 and over) in fiscal 1982 to over two and one-half times in fiscal 1987. This increased regressivity of the overall Colorado tax structure must be attributed primarily to the local tax structure. In 1988 the relative local tax burden of the lowest income stratum was almost three times that of the highest, by 1987 it had become almost four times larger.

The total state tax burden also has become somewhat more regressive since 1982, with the index increasing from 1.28 to 1.45. The direct state tax structure, which was slightly progressive in 1982 has become essentially proportional 1987, with an index of 1.04. The data also indicate an increase in the regressivity of the consumer expenditure taxes, primarily due to statutory rate increases in fuel and cigarette taxes enacted since fiscal year 1982.

In contrast to the consumer expenditure taxes, the state individual income tax actually shows an increase in progressivity -- the 1982 index of .12 declined to .07 in fiscal 1987. In other words, the relative tax burden for households in the lowest income class was only one-fourteenth as large as that for those in the top income category; whereas in 1982 it was about one-eighth. This increased progressivity of the income tax must primarily be attributed to indexation of the base, rate changes and optional itemizations. While indexation was suspended beginning with the

1983 returns, prior indexation still impacted the base.

In summary it is evident that notwithstanding the increased progressivity of the state individual income tax, the overall state tax structure as well as the local tax system has become significantly more regressive during the past five years.

## Text Footnotes

1. See Appendix A, Table A-1 for a summary of officially-reported state and local net tax collection for fiscal years 1982, 1985, 1986 and 1987 and Table A-2 for a summary of these taxes for the same years adjusted to a CTPS resident liability basis for purposes of this study.
2. See Appendix A, Table A-1. Net state tax collection are exclusive of state estate taxes and pari-mutuel betting taxes which totaled \$27.4 million in fiscal year 1987.
3. Reconciliation of reported net tax collections with adjusted tax liabilities of resident taxpayers at the state level is shown in Appendix A, Table A-3 and at the local level in Table A-4.
4. See Appendix A for the methodology and assumption used for the allocations of specific taxes between household and businesses.
5. A similar offsetting assumption is not required for the direct taxation of non-residents. As indicated, an estimate of the Colorado taxes paid by non-residents (e.g., tourists in Colorado) has been excluded from the adjusted totals of state and local taxes. Similarly, taxes paid elsewhere by Colorado residents as out of state tourists are not considered part of the Colorado tax burden since they are not imposed by Colorado jurisdictions.
6. The separate report presents a detailed analysis of the state individual income tax. See Colorado Department of Revenue, Colorado Statistics of Income, Individual Income Tax Returns Filed in Fiscal Year 1986-87, Colorado Legislative Council Research Publication No. 323, January 1988, Denver, Colorado.
7. For purposes of this study, all non-resident tax returns were excluded. They represented two percent of the returns filed and one percent of the reported income and tax liability.
8. U.S. Department of Commerce, Survey of Current Business, August 1987, p.44.
9. See Appendix B for a description and derivation of the "adjusted broad income" measure.
10. The relatively small average income tax for households in the lowest income class is partly due to the fact that nearly two-thirds of tax returns in this income category were nontaxable returns.



## APPENDIX A

### METHODOLOGY USED FOR ADJUSTMENT AND APPORTIONMENT OF STATE AND LOCAL TAXES BETWEEN HOUSEHOLDS AND BUSINESS

The state and local tax liabilities of Colorado resident taxpayers for fiscal year 1987 used as the basis for the present study were developed from original data obtained from a variety of sources. The state and federal individual income tax data for Colorado households were derived from a stratified random sample of 19,119 state tax returns. A description of the sampling methodology and statistical reliability of the income tax data are provided in the Appendix of the 1986-87 Colorado Statistics of Income report on individual income tax returns filed in fiscal year 1987. State and local revenue data on a collection basis were obtained from the Colorado State Department of Revenue, the Division of Accounts and Control, the Division of Property Taxation, the Department of Local Affairs and the City of Denver Finance Office. These data are summarized and presented in Table A-1. In order to put the data on a resident liability basis, the reported collections were adjusted for nonallocable and nontax revenues, taxes paid by non-resident taxpayers, and vendor discounts on tax collections. The income data also were adjusted for the cash flow difference between collections and liabilities. A summary of the state and local taxes as adjusted for this study is presented in Table A-2.

### Adjustment and Classification of State Taxes

The adjustments made in state taxes and the allocation of the adjusted taxes between those levied on households (direct taxes) and those levied on business (indirect taxes) are presented in Table A-3.

The base figures for "Reported Net Tax Collections" are exclusive of nonallocable state inheritance and gift taxes, hunting and fishing license fees and pari-mutuel betting taxes. All other nonallocable and/or nontax revenues were treated as adjustments to the reported net collections. These items represented sales tax assessments, penalties and interest, audit deficiencies, and sales and motor vehicle taxes collected by the Revenue Department for local jurisdictions. These adjustments amounted to \$46.6 million in fiscal year 1987.

Income tax collections for any given year in an expanding economy will exceed the actual income tax liability incurred on the previous year's income because of tax withholding and declaration of estimated taxes. In fiscal year 1987 the reported net income tax collections were significantly larger than liabilities. There also was an excess cash flow from the severance tax. Combined, these adjustments amounted to \$72.6 million or three percent of the reported state collections.

The estimates of non-resident taxes by major source were as follows:

	<u>Dollar Amounts in Millions</u>		
	<u>1982</u>	<u>1985</u>	<u>1987</u>
<u>Non-Resident Taxes</u>			
Individual Income	\$ 4.8	\$ 9.2	\$ 7.9
Retail Sales and Tourism	32.4	90.0	99.1
Motor Fuel	15.7	18.0	28.7
Cigarette and Tobacco	1.9	4.8	7.4
Alcoholic Beverage	<u>3.1</u>	<u>3.4</u>	<u>3.4</u>
Total	\$57.9	\$126.3	\$146.5

The non-resident individual income tax was derived from the CTPS income tax analysis. The non-resident sales tax estimate was based on information provided for the Colorado Tourism Board by the U.S. Travel Data Center in two reports A Profile of U.S. Travel To and Through Colorado, 1984 and The Economic Impact of Travel on Colorado Counties, 1984, published in October 1985 and December 1985 respectively. The 1982 data were based on information provided by a different source and are not strictly comparable.

The ratio of non-resident sales tax collections to total sales tax collections directly allocated to households was used as the basis for estimating non-resident excise taxes on motor fuel, cigarettes and alcoholic beverages.

The final adjustment for purposes of resident tax burden analysis was the addition of vendor discounts on sales, motor fuel and cigarette taxes retained by merchants as compensation for their costs of tax collection. This component of the tax burden is not included in either the gross or net taxes reported by the Department of Revenue. Vendor discounts on state tax collections for fiscal 1987 were as follows:

	Dollar Amounts in Millions		
	<u>1982</u>	<u>1985</u>	<u>1987</u>
Vendor Discounts			
Retail Sales	\$18.0	\$20.5	\$19.3
Motor Fuel	2.4	4.0	6.2
Cigarette and Tobacco	0.7	1.3	1.8
Total	<u>\$21.1</u>	<u>\$25.8</u>	<u>\$27.3</u>

On the basis of all of the above adjustments, the estimated state total tax liability averaged 90 percent of the reported net tax collections.

Table A-3 also shows the apportionment of the adjusted state taxes between resident households and business. For the purposes of this study, the individual income tax and excises on cigarettes and alcoholic beverages were treated as direct levies on Colorado resident households. The corporate income tax, insurance, severance and all other franchise and regulatory business taxes were classified as indirect or business taxes since such taxes ultimately are borne by individuals in the form of increased market prices or decreased dividends or undistributed corporate earnings. The remaining major state taxes -- the sales and use and the highway user taxes -- were apportioned between these two broad tax categories on the basis of information provided by the Office of Tax Analysis of the Colorado Department of Revenue. The apportionment of state sales and highway user taxes between households and business firms for fiscal 1987 are shown in Table A-5.

#### Adjustment and Classification of Local Taxes

Tax collections of local governments were treated in a manner similar to that described above for adjusting and allocating state taxes. Colorado local governments generally operate on a calendar year basis and the most recent data available on a uniform statewide basis were for calendar year 1986 which overlaps fiscal year 1987 by six months. A summary of the adjustments made to these levies and their apportionment between households and business are shown in Table A-4.

The specific adjustments made in local taxes for the CTPS study were as follows: the exclusion of the employee share of the Denver city

occupation tax since these levies could not be allocated by income classes; the exclusion of estimated non-resident sales and cigarette taxes based on the method used for computing non-resident state taxes; the reduction of the residential property tax by the state old age property tax credits for the year; and the addition of vendor discounts on local sales and cigarette taxes.

The adjusted local tax totals also were apportioned between households and business firms. Cigarette taxes were classified as direct levies; all utility, franchise and regulatory taxes as indirect. The specific ownership tax was allocated on the basis of motor vehicle license. Also, the two major sources of local tax revenues -- property and sales taxes -- were separately apportioned between households and business. The local sales tax was apportioned on the basis of the ratios described above for allocating the state sales and use tax. The allocation of the residential portion of the property tax by income class is shown in Table A-6. The allocation assumed that property taxes on renter-occupied housing units were shifted forward and that such average taxes generally were smaller than those on owner-occupied units of families of comparable income and household size. The 1987 Colorado Statistics of Income report on individual income tax returns filed in fiscal year 1987 provided the basic data on household real estate tax deductions taken on itemized returns classified by adjusted gross income. The ratio of taxpayers reporting such deductions to the total number of taxpayers in each stratum varied directly and significantly with the level of income.

TABLE A-1. SUMMARY OF STATE AND LOCAL TAXES AS REPORTED  
BY STATE AGENCIES,<sup>a/</sup> FISCAL YEARS 1982, 1985, 1986 AND 1987

	Fiscal Years			
	1982	1985	1986	1987
	(money amounts in millions of dollars)			
<u>State Taxes:</u>				
Income Taxes <sup>b/</sup>	\$ 641.0	\$1,010.3	\$1,074.2	\$1,160.0
Sales and Use <sup>c/</sup>	612.9	762.5	740.2	722.5
Highway User	196.6	255.3	263.8	362.7
Insurance Tax	46.7	63.2	73.6	83.9
Cigarette Tax	19.2	35.3	34.3	50.3
Alcoholic Beverage	25.3	24.8	23.8	23.2
Severance	49.2	23.8	21.7	11.6
Other Business Taxes	21.6	29.2	29.3	32.2
Total State Taxes	<u>\$1,612.5</u>	<u>\$2,204.4</u>	<u>\$2,260.9</u>	<u>\$2,446.4</u>
<u>Local Taxes:</u>				
Property Taxes	\$1,217.4	\$1,638.1	\$1,817.3	\$1,943.1
Sales and Use	406.7	670.7	683.6	717.5
Cigarette taxes	18.0	17.0	16.7	15.9
Specific Ownership	103.7	136.7	146.6	157.6
Denver Occupation	14.1	14.4	14.6	14.8
Other Business Taxes	69.6	138.0	127.6	133.3
Total Local Taxes	<u>\$1,829.5</u>	<u>\$2,614.9</u>	<u>\$2,806.4</u>	<u>\$2,982.2</u>
<u>State and Local Taxes:</u>				
Property Taxes	\$1,217.4	\$1,638.1	\$1,817.3	\$1,943.1
Sales and Use <sup>c/</sup>	1,019.6	1,433.2	1,423.8	1,440.0
Income Taxes <sup>b/</sup>	641.0	1,010.3	1,074.2	1,160.0
Highway User <sup>d/</sup>	300.3	392.0	410.4	520.3
Other Business Taxes <sup>e/</sup>	201.2	268.6	266.8	275.8
Other Excise Taxes <sup>f/</sup>	62.5	77.1	74.8	89.4
Total State & Local	<u>\$3,442.0</u>	<u>\$4,819.3</u>	<u>\$5,067.3</u>	<u>\$5,428.6</u>

<sup>a/</sup> As reported by the Colorado Department of Revenue, the Division of Accounts and Control, the Division of Property Taxation and the Department of Local Affairs. The 1982 specific ownership tax has been adjusted based on additional accounting information.

<sup>b/</sup> Includes surtax and corporate income tax.

<sup>c/</sup> Includes tourism tax.

<sup>d/</sup> Includes local specific ownership.

<sup>e/</sup> Includes insurance, severance, corporate franchise, occupation, miscellaneous regulatory business taxes.

<sup>f/</sup> cigarette.

TABLE A-2. SUMMARY OF COLORADO STATE AND LOCAL TAXES  
AS ADJUSTED FOR COLORADO TAX PROFILE STUDY,  
FISCAL YEARS 1982, 1985, 1986 AND 1987

	Fiscal Years			
	1982	1985	1986	1987
	(Money amounts in millions of dollars)			
<b>State Taxes:</b>				
Income Taxes <sup>a/</sup>	\$ 558.7	\$ 926.0	\$ 958.7	\$1,045.5
Sales and Use <sup>b/</sup>	584.4	649.3	641.9	612.6
Highway User	184.1	241.2	249.1	376.4
Insurance Tax	46.7	63.2	73.6	83.9
Cigarette Tax	18.1	31.7	30.7	44.7
Alcoholic Beverage	22.2	21.4	20.5	19.8
Severance	41.9	20.6	18.7	10.0
Other Business Taxes	12.7	14.1	16.6	15.1
Total State Taxes	<u>\$1,468.8</u>	<u>\$1,967.5</u>	<u>\$2,009.8</u>	<u>\$2,208.0</u>
<b>Local Taxes:</b>				
Property Taxes	\$1,201.9	\$1,624.5	\$1,804.2	\$1,930.2
Sales and Use	394.3	630.3	637.2	666.2
Cigarette taxes	16.9	15.3	14.9	14.1
Specific Ownership <sup>c/</sup>	103.7	136.7	146.6	157.6
Denver Occupation	6.2	6.5	6.6	6.7
Other Business Taxes	69.6	138.0	127.6	133.3
Total Local Taxes	<u>\$1,792.6</u>	<u>\$2,551.3</u>	<u>\$2,737.1</u>	<u>\$2,908.1</u>
<b>State and Local Taxes:</b>				
Property Taxes	\$1,201.9	\$1,624.5	\$1,804.2	\$1,930.2
Sales and Use <sup>b/</sup>	978.7	1,279.6	1,279.1	1,278.8
Income Taxes <sup>a/</sup>	558.7	926.0	958.7	1,045.5
Highway User <sup>d/</sup>	287.8	377.9	395.7	534.0
Other Business Taxes <sup>e/</sup>	177.1	242.4	243.1	249.0
Other Excise Taxes <sup>f/</sup>	57.2	68.4	66.1	78.6
Total State & Local	<u>\$3,261.4</u>	<u>\$4,518.8</u>	<u>\$4,746.9</u>	<u>\$5,116.1</u>

a/ Includes surtax and corporate income tax.

b/ Includes tourism tax.

c/ The 1982 amount has been adjusted based on additional accounting information.

d/ Includes local specific ownership.

e/ Includes insurance, severance, corporate franchise, occupation, miscellaneous regulatory business taxes.

f/ Cigarette and alcoholic beverage taxes.

TABLE A-3. SUMMARY OF COLORADO STATE TAXES  
 ALLOCATED BETWEEN HOUSEHOLDS AND BUSINESS,  
 FISCAL YEARS 1982, 1985, 1986 AND 1987

	Fiscal Years			
	1982	1985	1986	1987
	(Money amounts in millions of dollars)			
<u>Reported Net collections:</u>	\$1,612.5	\$2,204.4	\$2,620.9	\$2,446.4
<u>Adjustments:</u>				
Non-tax Revenues	-23.0	-47.1	-39.5	-46.6
Excess Collections over Tax Liabilities	-84.8	-78.4	-83.8	-72.6
Non-resident Tax Collections	-57.9	-126.4	-129.5	-146.5
Vendor's Discounts on Sales and Excise Taxes	+21.9	+25.8	+25.3	+27.3
Total Adjustments	<u>-143.8</u>	<u>-226.1</u>	<u>-227.5</u>	<u>-238.4</u>
<u>Total State Taxes:</u>	\$1,468.7	\$1,978.3	\$2,393.4	\$2,208.0
<u>Taxes on Resident Households:</u>				
Individual Income <sup>a/</sup>	\$ 483.1	\$ 842.1	\$ 882.2	\$ 942.6
Sales and Use & Tourism	348.4	418.6	418.4	415.7
Highway User <sup>b/</sup>	101.2	131.7	137.6	219.8
Cigarette & Tobacco	18.1	31.7	30.7	44.7
Alcoholic Beverage	22.2	21.4	20.5	19.8
Total Household Taxes	<u>\$ 973.0</u>	<u>\$1,445.5</u>	<u>\$1,489.4</u>	<u>\$1,642.6</u>
<u>Taxes on Business:</u>				
Corporate Income <sup>c/</sup>	\$ 75.6	\$ 83.9	\$ 103.0	\$ 102.9
Sales and Use	236.0	230.6	223.5	196.9
Highway User <sup>d/</sup>	82.8	109.5	111.4	156.7
Insurance	46.7	63.2	73.6	83.9
Severance	41.9	20.6	18.7	10.0
Other Business Taxes <sup>e/</sup>	12.7	14.1	16.6	15.1
Total Business Taxes	<u>\$ 495.7</u>	<u>\$ 521.9</u>	<u>\$ 546.8</u>	<u>\$ 565.5</u>

a/ Includes surtax.

b/ Includes allocation of fuel taxes, motor vehicle licenses & operator's fees, safety inspections and other motor vehicle fees.

c/ Includes fiduciaries.

d/ In addition to allocated highway user taxes listed above, includes special fuel.



TABLE A-4. SUMMARY OF COLORADO LOCAL TAXES  
ALLOCATED BETWEEN HOUSEHOLDS AND BUSINESS,  
FISCAL YEARS 1982, 1985, 1986 AND 1987

	Fiscal Years			
	1982	1985	1986	1987
	(Money amounts in millions of dollars)			
<u>Reported Net Collections<sup>a/</sup></u>	\$1,829.4	\$2,614.9	\$2,806.5	\$2,982.3
<u>Adjustments:</u>				
Nonallocable Taxes <sup>b/</sup>	-7.9	-7.9	-8.0	-8.2
Non-resident Taxes	-25.8	-61.9	-65.4	-73.7
Old Age Property Tax Credit	-15.4	-13.6	-13.2	-12.9
Vendor's Discounts on Sales and Excise Taxes	+12.4	+19.8	+17.2	+20.7
Total Adjustments	<u>-36.7</u>	<u>-63.6</u>	<u>-69.4</u>	<u>-74.1</u>
<u>Total Local Taxes:</u>	\$1,792.7	\$2,551.3	\$2,737.1	\$2,908.2
<u>Taxes on Resident Households:</u>				
Residential Property	\$ 633.4	\$ 757.9	\$ 833.7	\$ 902.3
Sales and Use	233.8	386.8	396.1	427.2
Cigarette	16.9	15.3	14.9	14.1
Specific Ownership	94.4	129.4	137.6	150.1
Total Household Taxes	<u>\$ 978.5</u>	<u>\$1,289.4</u>	<u>\$1,382.3</u>	<u>\$1,493.7</u>
<u>Taxes on Business:</u>				
Non-residential Property	\$ 568.5	\$ 866.6	\$ 970.5	\$1,027.9
Sales and Use	160.5	243.5	241.1	239.0
Other Business Taxes <sup>c/</sup>	85.2	151.8	143.2	147.6
Total Business Taxes	<u>\$ 814.2</u>	<u>\$1,261.9</u>	<u>\$1,354.8</u>	<u>\$1,414.5</u>

<sup>a/</sup> 1982 has been adjusted based on additional accounting information relating to specific ownership taxes.

<sup>b/</sup> Represents employee's share of Denver Occupation Tax.

<sup>c/</sup> Includes business share of Specific Ownership Tax & Denver Occupation Tax.

TABLE A-5. APPORTIONMENT OF COLORADO STATE SALES AND HIGHWAY USER TAXES BETWEEN HOUSEHOLDS AND BUSINESS, FISCAL YEAR 1987

	Ratio of Households to Business	(Dollar Amounts (Thousands))		
		Total	Households	Business
A. Sales and Use Taxes:				
Food and apparel	100/0	\$ 58,345	\$ 8,345	--
Personal services and misc. retail trade	95/5	140,681	133,647	7,034
General mdse., furniture, appliances, autos, auto parts and accessories	90/10	173,535	156,182	17,353
Eating and drinking places	80/20	69,507	55,606	13,901
Hotels and lodging	60/40	19,876	11,926	7,950
Finance, insurance and real estate, NCE	50/50	8,535	4,267	4,268
Electric, gas, communications, transportation, utilities	25/75	47,327	11,832	35,495
Bldg. materials, hardware and farm equipment	15/85	37,675	5,651	32,024
Agr., mining, construction, mfg., whsle. trade	0/100	<u>64,196</u>	<u>--</u>	<u>64,196</u>
Net Sales Tax	--	\$619,677	\$437,456	\$182,221
Less: Non-resident Tax	67/33	-96,630	-64,410	-32,220
Plus: Net use tax	42/58	68,871	28,679	40,192
Vendors Discounts (Res)	67/33	19,263	12,941	6,322
Total Resident Sales and Use Tax	68/32	<u>\$611,181</u>	<u>\$414,666</u>	<u>\$196,515</u>
B. Highway User Taxes:				
Motor fuel taxes	75/25	\$255,355	\$191,516	63,839
Motor vehicle operators licenses and other fees	70/30	75,351	52,746	22,605
Special fuel and ton mile taxes	0/100	68,222	--	68,222
Reported highway user taxes	--	<u>\$398,928</u>	<u>\$244,262</u>	<u>\$154,666</u>
Less: Non-resident motor fuel taxes	100/0	-28,727	-28,727	--
Plus: Vendor's discounts on motor fuel	72/28	5,870	4,216	1,654
Vendor's discounts on special fuel	0/100	368	--	368
Total Resident Highway User Taxes	--	<u>\$376,439</u>	<u>\$219,751</u>	<u>\$156,688</u>

TABLE A-6. DERIVATION OF COLORADO RESIDENTIAL PROPERTY TAXES, FISCAL YEAR 1987

	Adjusted Gross Income Classes					Total
	Under \$5,000	\$5,000 to \$15,000	\$15,000 to \$ 25,000	\$25,000 to \$50,000	\$50,000 and over	
Number of Resident Returns:						
With real estate tax deductions on itemized returns <sup>a/</sup>	16,482	82,648	103,253	264,402	116,475	583,260
All other households	287,860	287,536	151,494	85,868	10,930	823,688
Total households	<u>304,342</u>	<u>370,184</u>	<u>254,747</u>	<u>350,270</u>	<u>127,405</u>	<u>1,406,948</u>
Percent of total with real Estate Deductions	5.4%	22.3%	40.5%	75.5%	91.4%	41.5%
Average Property Taxes:						
Average property tax on returns with real estate tax deduction	\$ 691	\$ 737	\$ 747	\$ 858	\$ 1,438	\$ 932
Average property tax imputed to all other households	309	467	519	688	970	451
Average property tax on all households <sup>b/</sup>	\$ 329	\$ 528	\$ 612	\$ 816	\$ 1,398	\$ 651
Total Property Taxes (in thousands):						
Households with itemized deductions	\$11,388	\$ 60,950	\$ 77,116	\$226,856	\$167,460	\$ 543,770
All other households	88,814	134,338	78,658	59,041	10,599	371,450
Total Tax Unadjusted	<u>\$100,202</u>	<u>\$195,288</u>	<u>\$155,774</u>	<u>\$285,897</u>	<u>\$178,059</u>	<u>\$ 915,220</u>
Percent Distribution of Total Tax	10.95%	21.34%	17.02%	31.24%	19.46%	100.00%
Distribution of CTPS Property Tax	\$100,202	\$195,288	\$155,774	\$285,897	\$178,059	\$ 915,220
Less: Old Age Property Tax Credit	-12,841	-66	--	--	--	-12,907
Net Property Tax	<u>\$ 87,361</u>	<u>\$195,222</u>	<u>\$155,774</u>	<u>\$285,897</u>	<u>\$178,059</u>	<u>\$ 902,313</u>
Percent Distribution of Net Tax	9.68%	21.64%	17.26%	31.68%	19.73%	100.0%

<sup>a/</sup> Adjusted for returns with reported negative adjusted gross income in the lowest income class.  
<sup>b/</sup> Before adjustment for old age property tax credit.

## APPENDIX B

### DERIVATION OF HOUSEHOLD INCOME AND ALLOCATION OF TAXES BY MAJOR INCOME CLASSES

The degree to which a "tax profile" represents the actual burden of state and local taxes borne by the various economic classes depends not only on how accurately the income and tax data are measured, but on the validity of the income concept and the reasonableness of the tax allocators developed for the analysis. This appendix describes both the income measure and tax allocations used for this study.

#### Income Measures for Tax Burden Analysis

It should be noted that the adjusted gross income reported on income tax returns is not an adequate measure of income for tax burden analysis because of differences between the economic and statutory definitions of income. The latter excludes various forms of money income which are considered to be primarily transfer payments, such as public and private welfare payments, social security payments, veterans benefits, and unemployment compensation and other excluded forms of income such as capital gains and interest on public debt. In contrast, the economic concept of income (e.g., the personal income measure in the national income accounts), in addition to transfer payments, includes sundry forms of imputed income, such as imputed rent on owner-occupied residences and interest on insurance and savings. The magnitude of the difference between these measures for Colorado is indicated by the fact that for fiscal 1987 the total adjusted gross income reported on state income tax

returns represented only 65 percent of the total personal income for Colorado as estimated by the U.S. Department of Commerce.<sup>1/</sup>

Intermediate measures of money income also have been based on sample surveys conducted by government agencies. Such money income measures are generally in accord with the popular concept of income since they exclude imputed income but include nontaxable money transfers as well as tax exempt interest, dividends and capital gains.

In order to obtain an alternative measure which would more closely correspond to the conventional concept of income and provide a broader base than the adjusted gross income reported on Colorado income tax returns, an adjusted broad income measure has been developed. A recent study by the Bureau of the Census provides a detailed analysis of household money income for all families and unrelated individuals in the United States for 1986.<sup>2/</sup> In this report the sources of income were classified by Census money income levels. After converting the money income into corresponding adjusted gross income classes, the Census ratio of transfer income to earned income was applied to the 1986 adjusted gross income reported by Colorado households in 1987.

In addition to the above money transfer income adjustment, the CTPS adjusted broad income measure includes an estimate of the tax exempt capital gains, dividends, interest and other money income statutorily excluded from adjusted gross income. An estimate of such nontransfer income for Colorado was derived from the "tax expenditure" data presented in the U.S. Treasury, Special Budget Analysis Fiscal Year 1988.<sup>3/</sup> Nontransfer money income excluded from adjusted gross income, in turn, was allocated among the income strata on the basis of the distribution of

property income, capital gains and interest on public debt reported by the Bureau of the Census and the U.S. Congressional Budget Office.<sup>4/</sup>

A summary of the final adjustments made to the CTPS 1986 adjusted gross income in order to derive the corresponding adjusted broad income measure used as the alternative base is shown in the following table:

TABLE B-1. DERIVATION OF ADJUSTED BROAD INCOME FOR THE COLORADO TAX PROFILE STUDY, FISCAL YEAR 1987

<u>Income Classes</u>	<u>A</u> Average Adjusted Gross Income <sup>a/</sup>	<u>B</u> Ratio of Excluded Tax Exempt Income <sup>b/</sup>	<u>C</u> Ratio of Excluded Transfer Income <sup>c/</sup>	<u>D</u> Income Expansion Factor (1+B+C)	<u>E</u> Average Broad Income (A+D)
Under \$5,000	\$ 2,065	0.0676	1.3078	2.3754	\$ 4,905
\$5,000 to \$15,000	9,640	0.0415	0.2963	1.3378	12,896
\$15,000 to \$25,000	19,764	0.0377	0.1099	1.1476	22,681
\$25,000 to \$50,000	35,263	0.0332	0.0414	1.0746	37,894
\$50,000 and over	<u>84,048</u>	<u>0.1316</u>	<u>0.0153</u>	<u>1.1469</u>	<u>96,395</u>
Totals	\$22,952	0.0686	0.0914	1.1643	\$26,723

a/ Based on total resident returns.

b/ Capital gains, dividends, interest on public debt and other excluded income.

c/ Weighted totals and ratios based on total dollar amounts.

### The Consumer Expenditure Profile

In order to allocate Colorado state and local expenditure taxes on retail sales, cigarettes, liquor and gasoline as well as business taxes shifted forward to consumers, it was necessary to develop an appropriate consumer expenditure profile of Colorado household expenditure, classified by household income level. The most comprehensive data on consumer spending by American households are provided by the U.S. Bureau of Labor Statistics' consumer expenditure survey for 1984.<sup>5/</sup> The

household expenditure and income data contained in these reports were used as the basis for allocating the sales, excise and indirect business taxes among households after the income measures were made comparable and the 1984 expenditure outlays updated for price level changes. In accord with the definitions of taxable commodities and services under Colorado's present statutes, the estimated average household expenditures were classified into taxable and nontaxable categories. These average data were then used to derive the total expenditures for each major category of spending, classified by income level, in order to obtain the current patterns of consumption expenditures of Colorado households.

The specific 1986 consumer expenditure-income ratios developed for the CTPS analysis are summarized below:

TABLE B-2. RATIOS OF CONSUMER EXPENDITURES TO ADJUSTED GROSS INCOME AND ADJUSTED BROAD INCOME USED IN THE COLORADO TAX PROFILE STUDY, FISCAL YEAR 1987

Colorado Consumer  
Expenditures as Ratios of:

Income Classes	Adjusted Broad Income		Adjusted Broad Income	
	Taxable Expendi- tures	Total Expendi- tures	Taxable Expendi- tures	Total Expendi- tures
Under \$5,000	1.776	4.814	0.748	2.026
\$5,000 to \$15,000	0.699	1.801	0.522	1.346
\$15,000 to \$25,000	0.475	1.117	0.414	0.973
\$25,000 to \$50,000	0.396	0.850	0.368	0.791
\$50,000 and over	0.279	0.567	0.243	0.494
Total	0.430	0.980	0.369	0.841

Tax Allocators Used for Burden Analysis

The allocations of individual state and local taxes by income class

were made on the following basis:

- Individual income tax -- allocation obtained directly from the CTPS independent analysis of a stratified, random sample of 1986 Colorado individual income tax returns filed in fiscal year 1987 and prepared by the Department of Revenue for the report, Colorado Statistics of Income, Individual Income Tax Returns, Fiscal 1986-87. A description of the sample and its statistical reliability is presented in Appendix B of that report.
- Sales and use taxes -- the direct portions of state and local sales taxes were allocated on the basis of ratios of taxable consumer expenditures to adjusted gross income developed from U.S. Bureau of Labor Statistics, 1984 Survey of Consumer Expenditures updated to 1986 for price level changes. The indirect portions of these taxes were allocated by total consumer expenditure ratios since such taxes represent business costs assumed to have been shifted forward to consumers.
- Excise taxes -- the cigarette, alcoholic beverage, specific ownership and the direct portions of highway user tax also were allocated on the basis of updated Survey of Consumer Expenditure data. Ratios of consumer expenditure for these particular items to adjusted gross income were developed and applied to the CTPS tax data. The indirect portion of the highway user taxes was allocated on the basis of total consumer expenditure ratios.



- Property taxes -- the allocation of residential property taxes by income classes were based on the CTPS individual income tax analysis which provided detailed data on the number and amount of real estate tax deductions reported on itemized returns. Additional information was based on simulated real estate taxes for owner and renter occupied housing units provided by the U.S. Bureau of Census Annual Housing Surveys.<sup>6/</sup> Non-residential property taxes were allocated on the same basis as other business taxes, i.e., the ratios of total consumer expenditures to adjusted gross income.
- Corporate income tax -- one-half of this tax was assumed to be shifted forward to consumers and allocated on the same basis as the other indirect taxes described above. The remainder was assumed to be borne by equity stockholders and allocated on the basis of the distribution of family property income from interest, dividends and rents as reported by the Bureau of the Census.<sup>2/</sup>
- Other business taxes -- This category includes all taxes levied on business firms other than the corporate income tax. As in the case of all other business costs, these business taxes were assumed to be indirectly borne by households and accordingly were allocated on the basis of the ratios of total consumption expenditures to income.

## APPENDIX B FOOTNOTES

1. U.S. Department of Commerce, Survey of Current Business, August 1987.
2. U.S. Bureau of the Census, Money Income of Households, Families, and Persons in the United States: 1986, Consumer Population Reports, Series P-60, Washington, D.C. Unpublished detailed data on the components of money income by source received by families and individuals in 1986 were provided by the Census Bureau.
3. U.S. Special Analysis of the Federal Budget, Fiscal Year 1988, Table G-2, U.S. Treasury, Washington, D.C. 1987.
4. U.S. Bureau of the Census, Money Income of Households, Families, and Persons in the United States: 1986, Consumer Population Reports, Series P-60, Washington, D.C.; and the Congressional Budget Office, U.S. Congress, Changing Distribution of Federal Taxes, Washington, D.C., October 1987; and Revising the Individual Income Tax, Washington, D.C., July 1983.
5. U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey Series: Interview Survey, 1984, Bulletin 2267, August 1986.
6. U.S. Bureau of the Census, Annual Housing Survey: 1983 for Denver SMSA, Current Housing Reports H 17083-46, Washington, D.C., 1985.