3-1960

Estimated Distribution of the Tennessee Tax Burden and Public Expenditure Benefits--1957

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To the Graduate Council:

I am submitting herewith a thesis written by Thomas M. Humphrey entitled "Estimated Distribution of the Tennessee Tax Burden and Public Expenditure Benefits--1957." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Economics.

Aubrey N. Snellings, Major Professor

We have read this thesis and recommend its acceptance:

Charles P. White, J. Fred Holley

Accepted for the Council:
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Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

March 4, 1960

To the Graduate Council:

I am submitting herewith a thesis written by Thomas M. Humphrey entitled "Estimated Distribution of the Tennessee Tax Burden and Public Expenditure Benefits--1957." I recommend that it be accepted for nine quarter hours of credit in partial fulfillment of the requirements for the degree of Master of Science, with a major in Finance.

Aubrey N. Snellings

Major Professor

We have read this thesis
and recommend its acceptance:

Charles P White

J. Fred Holly

Accepted for the Council:

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Dean of the Graduate School

ESTIMATED DISTRIBUTION OF THE TENNESSEE TAX BURDEN AND PUBLIC EXPENDITURE BENEFITS--1957

A Thesis

Presented to

the Graduate Council of

The University of Tennessee

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

by

Thomas M. Humphrey

March 1960

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CHAPTER I

INTRODUCTION

I. GENERAL INTRODUCTION

One of the primary effects of government fiscal activity is the alteration of the pattern of income distribution

> . . . since through taxation income is taken away from income recipients and transferred, through money payments and government services, to other income recipients . . . and it would be a most unlikely chance if the tax burden . . . of a group of individuals were equal to the value of the services rendered by the government to that . . . income group.[1]

There are several ways in which real income may be shifted from one income group to another as a result of government fiscal policy. Because of the progressive tax rate structure, the wealthy pay a heavier price for most governmental benefits than do the lower income groups who also receive benefits, although their tax bills are lower.[2] (However, this may not be true to as great an extent at the state and local level where reliance on progressive tax structures is circumscribed by the already heavy usage of progressive taxes by the federal government, and by archaic constitutional and legal restrictions on the types of levies that may be imposed.)

Redistribution may occur directly since much of the governmental

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[1]John H. Adler, "The Fiscal System, the Distribution of Income, and Public Welfare," Chap. VIII, Kenyon E. Poole (ed.), Fiscal Policies and the American Economy (New York: Prentice-Hall, 1951), p. 360.

[2]John F. Due, Government Finance: An Economic Analysis, rev. (Homewood, Illinois: Richard D. Irwin, 1959), p. 493.

activities are in the form of retirement, relief, and welfare payments that are taken from the upper income groups in taxes and transferred to the lower income groups, thus directly increasing the money income of the latter.[3] Production and operation by the government sector also tend to even out factor incomes since the incomes of top level management in the government are less than they would be for similar occupations in private enterprise and there are no government stockholders to whom dividends must be distributed.[4] Other methods of redistributing income are the changing of the pattern of resource ownership (such as levying death and gift taxes or limits on holdings of income-producing property), and the establishment of minimum wages or prices.[5]

Whether or not legislators should utilize the government fiscal power to redistribute incomes partially depends upon the consensus of opinion of the electorate as to what is the equitable or optimum income pattern and to what extent the existing income distribution deviates from the optimum.[6]

The concepts of "equity" and "optimum income pattern" are

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[3] *Ibid.*, pp. 493-94.

[4] *Ibid.*

[5] Edward D. Allen and O. H. Brownlee, *Economics of Public Finance* (New York: Prentice Hall, 1947), p. 166.

[6] Due, *op. cit.*, p. 10.

determined by individual value judgments and as such are outside the province of the economist--although at one time these concepts were thought measurable on the assumptions of diminishing marginal utility of income and identical utility systems for all individuals.[7] However, it is now recognized that interpersonal utility comparisons are impossible and that the marginal utility doctrine rests on extremely uneasy ground.

The economist can, however, estimate, in monetary if not in psychological, hedonistic terms, the actual distribution of income, taxes, and expenditures. Society can then use these estimates to evaluate (1) the variance between the true income distribution and the pattern regarded as optimum, and (2) the effectiveness of the governmental fiscal policies in achieving a more equitable income distribution, i.e., the appraisal of how well the distribution of the net tax burden meets the criterion of equity.

II. STATEMENT OF THE PROBLEM

The purpose of this study was to estimate the incidence of the taxes and the distribution of the expenditures of Tennessee state and local governments in 1957 upon resident households (families) classified by income brackets.

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[7] _Ibid._, p. 114.

III. IMPORTANCE OF THE STUDY

Although Tennessee's financial position is not at present as critical as that of some other states, the fact remains that new sources of revenue (or increases of existing ones) must be found if the foreseen increased demand by Tennessee citizens for governmental services is to be satisfied. A recent report estimated that if the state should attempt, in the next 10 to 15 years, to meet its current and estimated future highway needs, it would, under 1955 tax rates, suffer a deficit of from $808 million to $655 million depending upon how quickly the highway facilities were completed.[8] Furthermore, a 1957 study, in analyzing the adequacy of the tax system in financing elementary and secondary education concluded that, because of the predicted upsurge in enrollments in the near future and the acute need for sharp increases in teachers' salaries necessary to attract a sufficient number of qualified teachers, it was doubtful "whether revenues from the existing tax system [would] be sufficient to meet the enlarged needs of education as revealed in this survey."[9] Similar needs for increased state funds in support of state institutions of

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[8]Automotive Safety Foundation, Highway Transportation in Tennessee (Nashville: Tennessee Department of Highways and Public Works, 1955), pp. 10-11, cited by Charles P. White, Report on Financing an Expanded Highway Program in Tennessee (Knoxville: Bureau of Business and Economic Research of the University of Tennessee, 1957), p. 3.

[9]Public Education in Tennessee--Grades 1 Through 12, A Report to the Education Survey Subcommittee of the Tennessee Legislative Council, (Knoxville: University of Tennessee Bureau of Business and Economic Research, 1957), p. 414.

higher learning were also foreseen in a companion study.[10] Federal and state grants and other non-tax revenue such as fees, current charges, special assessments, rentals, etc., can be counted on to provide some of the needed revenues, but the main part of the revenue must, in the long run, come from new taxes or from increasing old ones.

In spite of the importance of the revenue-raising possibilities of potential new taxes, their equity aspects must also be considered. Will they add to or detract from the quality of the existing tax structure when judged by the criteria of equity? In Musgrave's words, ". . . the question who pays the taxes must be answered if taxes are to be raised in accordance with the public's ideas of distributional justice and the maintenance of sound economic conditions."[11] In light of these considerations, it would seem that an analysis of the incidence of the Tennessee taxes and expenditures would provide a more adequate indication of the pattern of the Tennessee fiscal structure than existed before. Even though the estimates are not precisely accurate, they will provide increased knowledge by which to map future policies and to assess old ones. As two authorities have stated:

> It is all well and good to argue that a problem such as this is so complex as to be beyond solution. Yet the legislator,

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[10] Public Higher Education in Tennessee, A Summary Report to the Education Survey Subcommittee of the Tennessee Legislative Council, (Nashville: 1957), pp. 342-43.

[11] R. A. Musgrave et. al., "Distribution of Tax Payments by Income Groups: A Case Study for 1948," National Tax Journal, IV (January, 1951), p. 1.

> in his search for a better tax structure and more adequate revenue, must consider who actually pays the various taxes; it is thus most desirable that his decisions be based on the best estimate that can be made. . . .[12]

Another justification of the study is that, so far as can be determined, the last tax incidence analysis in Tennessee was made in 1947.[13] Since that time conditions have changed and new data and analytical procedures have been developed, so that a more up-to-date study was possible.

IV. SCOPE AND LIMITATIONS OF THE STUDY

This study was solely concerned with the development of statistical estimates of the distribution of the Tennessee tax burden. No attempt was made, on the basis of the estimates derived, to evaluate the fiscal structure in terms of fairness, adequacy, or any other criteria. Moreover, since we were only attempting to estimate the distribution of the burden on families grouped by income brackets, we refrained from examining the possible alternate patterns that might result if families were grouped according to other classifications such as: occupational, geographic, urban-rural, age, etc. Furthermore,

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[12]R. A. Musgrave and D. W. Daicoff, "Who Pays the Michigan Taxes," Chap. IV, Michigan Tax Study Staff Papers (Lansing: n.n., 1958), p. 131.

[13]Report of the Tennessee Tax Revision Commission, 1948 (Nashville: n.n., 1948), pp. 34-37. This study concluded that Tennessee state and local taxes were proportional for incomes of $5,000 and less and slightly regressive for incomes above $5,000; but when combined with federal taxes the burden was progressive throughout. The description of the tax distribution was very brief in this study, and no information was given concerning the methods used.

all family units within any income group were treated alike; that is, no within-bracket distribution patterns were developed since the average-sized family in each bracket was considered as representative of all other families in that income interval.

In developing the incidence estimates we were concerned only with the direct effects of the taxes and expenditures on the income of the groups affected. We abstracted entirely from any estimation of the indirect effects (repercussions) of the incidence of the taxes as they become diffused throughout the economy. Concomitantly, this implies the treatment of public finance as the transferring of resources from the private to the government sector without the alteration of the level of income.

The tax receipts and expenditures treated in this thesis were the actual amounts collected and disbursed in fiscal 1957 rather than the levies and appropriations legislated in that year.

Lastly, the burden of the taxes on corporations and the effects on corporate location were not analyzed in this study.

V. METHODS OF PROCEDURE AND SOURCES OF DATA

The methods used in this study have, in general, followed those employed in the Michigan study by Musgrave and Daicoff.[14] More specifically, the calculation of the impact of Tennessee public finance upon

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[14] Musgrave and Daicoff, *op. cit.*, pp. 131-83.

the distribution of income involved:

1) a description of the various taxes and analyses of the factors involved in the shifting of them and of their probable incidence,

2) distribution of the taxes among the different income brackets on the basis of the pattern of consumption, wealth holdings, and income components,

3) developing estimates of the distribution of income in Tennessee,

4) calculating the effective tax rates from the data found in 2) and 3),

5) developing estimates of the distribution of public expenditure benefits and the effective benefit rates in a manner similar to the development of the tax burden estimates, and

6) comparing the effective tax benefit rates to determine the net burden or benefit in each income class.

Data on the pattern of household consumption of various goods and services were drawn primarily from the *LIFE Study of Consumer Expenditures*.[15] The LIFE Study was chosen because it was thought to best represent consumption patterns in 1957--it being the most recent and comprehensive study available[16] with respect to that period. Since the household was treated

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[15] Alfred Politz Research, Inc., *LIFE Study of Consumer Expenditures--A Background of Market Decisions*, I (New York: *Time*, Inc., 1957).

[16] Estimates of 1956 family consumption expenditures have recently been developed by the Bureau of Labor Statistics. U. S. Department of Labor, *How American Buying Habits Change* (Washington: Government Printing Office, n. d.), pp. 231-32. However, this data was not available when the thesis was begun.

as the basic consuming unit in the LIFE Study it was necessary to employ the same concept as the tax-bearing unit in this thesis.

Information concerning the distribution of the different income types or components (wages and salaries, profits, dividends, rents and royalties, etc.) were taken from Statistics of Income,[17] while the distribution of Tennessee income and income-receiving units was estimated from data found in a variety of sources such as: the 1950 Census of Population,[18] Current Population Reports: Consumer Income,[19] the Federal Reserve Board "Survey of Consumer Finances,"[20] Sales Management Magazine "Survey of Buying Power,"[21] and the Statistics of Income.

The tax and expenditure data used were taken chiefly from two sources: the Compendium of Governmental Finances[22] and the Department

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[17]U. S. Treasury Department, Internal Revenue Service, Statistics of Income, 1957--Individual Income Tax Returns (Washington: Government Printing Office, 1959).

[18]U. S. Bureau of the Census, U. S. Census of Population: 1950 Population, Vol. II, Part 42, Chap. B (Washington: Government Printing Office, 1952), p. 50.

[19]U. S. Bureau of the Census, Current Population Reports, Consumer Income, Series P-60 (Washington: Government Printing Office, 1958).

[20]Board of Governors of the Federal Reserve System, "Survey of Consumer Finances," Reserve Bulletin, Vol. XLIV, No. 9, September, 1958.

[21]"Survey of Buying Power," Sales Management Magazine, May 10, 1958, p. 674.

[22]U. S. Bureau of the Census, Compendium of Government Finances, U. S. Census of Governments: 1957, Vol. III, No. 5 (Washington: Government Printing Office, 1959).

of Finance and Taxation, State of Tennessee, Report for the Biennium Ending June 30, 1958.[23] The 1957 fiscal year was chosen for analysis because it was the latest date for which most of the data was available. Particularly, the release in 1959 of the Compendium of Government Finances, U. S. Census of Government: 1957 made available, in great detail, data concerning the taxing and spending activities of all government bodies in Tennessee during that year. Although data at the state level would have been relatively easy to obtain for other years, information on local governments would have been sparse, scattered, incomplete, and difficult to find.

VI. REVIEW OF RELATED LITERATURE

It would have been impractical to review completely the fairly extensive literature that has developed concerning the statistical estimation of tax burden distributions. Only the more important and recent writings will be mentioned here. However, the interested reader is referred to the bibliography in the American Economic Association's Readings in the Economics of Taxation[24] and to Cartter's book, The Redistribution of Incomes in Postwar Britain[25] for a more complete

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[23]Department of Finance and Taxation, State of Tennessee, Report For the Biennium Ending June 30, 1958 (Nashville: Department of Finance and Taxation, 1958), pp. 20-21.

[24]R. A. Musgrave and C. S. Shoup, (eds.), Readings in the Economics of Taxation, IX (Homewood, Illinois: Richard D. Irwin, 1959), 560-61.

[25]A. M. Cartter, The Redistribution of Income in Postwar Britain (New Haven: Yale University Press, 1955), pp. 2-4.

listing.

Among the earlier American studies, the most important were those by Newcomer, Tarasov, and Colm.[26] In the 1950's a renewed interest in statistical burden estimates was highlighted by the famous studies contributed by Musgrave and his associates[27] and by R. S. Tucker.[28] These studies, which also contained valuable discussions of the conceptual and methodological problems involved in burden analyses, created heated controversy and considerable comment concerning the treatment of non-monetary incomes and the different assumptions concerning the shifting of certain taxes. Both studies indicated that the combination of progressive federal taxes and regressive or proportional state and local taxes resulted in a mildly progressive rate structure in the $1,000 to $7,500 income brackets, with the rates becoming sharply progressive in the last (above $7,500) bracket. However, Musgrave's figures showed the tax structure to be regressive in the lowest (under $1,000) bracket, while Tucker's figures, reflecting the inclusion of income in kind, showed the pattern to be progressive over this range.

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[26]Mabel Newcomer, "Estimate of the Tax Burden on Different Income Classes," Studies in Current Tax Problems (1937), pp. 1-52; Helen Tarasov, Who Pays Taxes?, TNEC Monograph No. 3 (1941); and Helen Tarasov, "Who Does Pay the Taxes," Social Research Supplement, Vol. IV (1942), pp. 60-72.

[27]Musgrave, et. al., op. cit., pp. 1-52.

[28]R. S. Tucker, "Distribution of Tax Burdens in 1948," National Tax Journal, Vol. IV, September, 1951, pp. 269-86.

The above-mentioned studies were limited to analyses of the tax structure alone. However, several attempts have been made to measure both the incidence of the taxes *and* the governmental expenditures of the tax receipts. In 1941, Charles Stauffacher made a brief survey of income redistribution in the decade of the 1930's.[29] Later and more complete studies along this line were contributed by Adler[30] and Tucker.[31] According to these latter studies, the net effect of government fiscal policy was to increase greatly the incomes of the lowest income brackets while decreasing those of the highest brackets. Spending units in the middle brackets just about broke even--the government expenditure benefits accruing to these groups approximately offsetting the taxes paid by them. Two very complete studies analyzing both the distribution of taxes and government benefits were also made in Great Britain,[32] both studies concluding that, as in the United States, a pronounced redistribution of income had taken place--markedly in favor of the low income groups.

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[29] Charles Stauffacher, "The Effect of Governmental Expenditures and Tax Withdrawals Upon Income Distribution, 1930-1939," *Public Policy* (Cambridge: Harvard University Graduate School of Public Administration, 1941), pp. 232-61.

[30] Adler, *op. cit.*

[31] R. S. Tucker, "The Distribution of Government Burdens and Benefits," *American Economic Review, Papers and Proceedings of the American Economic Association*, Vol. XLIII, No. 2, May, 1953, pp. 518-35.

[32] Tibor Barna, *The Redistribution of Incomes Through Public Finance in 1937* (Oxford: Clarendon Press, 1945); and Cartter, *op. cit.*

All of the studies mentioned above were analyses of national and aggregate state and local data. However, several excellent burden analyses have been made recently for individual states, including Minnesota,[33] Michigan,[34] and Wisconsin.[35] The Wisconsin analysis was limited to an estimation of the tax burden while studies for the other states included an examination of both the tax and expenditures distribution. These studies would seem to provide ample precedent for similar research in Tennessee.

VII. ORGANIZATION OF THE STUDY BY CHAPTERS

This thesis was organized into six chapters. The first chapter is a general introduction. In Chapter II the major individual state and local taxes are described preparatory to the analysis in subsequent chapters of the incidence of these taxes. Chapter III contains our estimates of the distribution of the Tennessee tax burden (in dollar terms) as well as a detailed description of the assumptions, methods and procedures employed in deriving the estimates. In that chapter, several alternative cases--based on different assumptions concerning the direction and degree of the shifting and incidence of various

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[33] O. H. Brownlee, "Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits," (University of Minnesota, 1958).

[34] Musgrave and Daicoff, _op_. _cit_.

[35] University of Wisconsin Tax Study Committee, "Distribution of State and Local Taxes in Wisconsin," Chap. II, _Wisconsin's State and Local Tax Burden_ (Madison: 1959), pp. 36-61.

taxes--are considered. In Chapter IV three alternate estimates of the size distribution of Tennessee incomes are developed. The tax payments by households in each income class, as estimated in Chapter III, were then compared with the estimated incomes received in each bracket. The ratio of taxes to incomes in each bracket (effective tax rates) enabled us to determine the pattern of the rate structure over the income scale. Chapter V contains an analysis of the distribution among income brackets of governmental expenditure benefits and their composite or net effect when compared with the distribution of the tax burden. The study is summarized and further areas of research are suggested in the final chapter.

CHAPTER II

AN OVERVIEW OF THE TENNESSEE TAX SYSTEM

At least a working knowledge of the Tennessee tax system is necessary if the reader is to fully understand the rationale of our shifting and incidence assumptions which follow in later chapters. For that reason we have described in this chapter some of the more important attributes of major Tennessee state and local taxes. Attention has been focused primarily on those characteristics of each tax which bear consideration in the development of shifting assumption--particularly the tax base, exemptions and exclusions, and provisions regarding foreign and interstate firms. We have also developed a rough three-way classification in which to group the taxes according to their impact and incidence. This classification will facilitate understanding of our more detailed analysis in Chapter III.

I. STATE TAXES

The comparative yields of the 1957 Tennessee state taxes are shown in Table I. For our purposes, these taxes have been grouped into three main categories: (1) taxes with the initial impact on individuals; (2) consumption taxes, i.e., taxes initially imposed on business firms but usually thought to be shifted forward to consumers; and (3) business cost or profit taxes.

The first category, which accounts for about 6 per cent of total

TABLE I

REVENUE PRODUCED BY TENNESSEE STATE TAXES,

FISCAL YEAR 1956-1957

Tax	Yield	
	Thousands of Dollars	Per Cent of Total
Sales and Use	92,410	31.92
Gasoline	64,830	22.39
Unemployment Compensation	28,485	9.84
Motor Vehicle	20,830	7.19
Excise	19,647	6.78
Tobacco	14,659	5.06
Gross Premium and other Insurance Fees and Taxes	8,381	2.90
Gasoline Inspection	7,568	2.61
Franchise	7,099	2.45
Alcoholic Beverage	5,672	1.96
Income	4,422	1.53
Gross Receipts	3,848	1.32
Privilege	3,494	1.21
Inheritance and Estate	3,362	1.16
Beer	2,680	.93
Motor Fuel	1,880	.65
Corporation Filing Fees	295	.10
Property	10	--
Total	289,583	100.00

Source: Department of Finance and Taxation, State of Tennessee, Report For the Biennium Ending June 30, 1958 (Nashville: Department of Finance and Taxation, 1958), p. 21.

Twenty-Second Annual Report, Department of Employment Security, 1958 (Nashville: n.n., 1958), p. 16.

Eighty-Fifth Annual Report of the Commissioner of Insurance and Banking, 1957 (Nashville: State of Tennessee Department of Insurance and Banking, 1958), p. 16.

state taxes, includes most of the personal income tax, the inheritance and gift taxes and the registration and license fees on individually-owned automobiles. The fact that the personal income (intangibles) tax follows the domicile of the security holder rather than the location of the lender probably precludes any appreciable shifting of this tax. The other taxes, especially the death taxes, are generally considered to be very difficult to shift.

The largest share of the state tax burden apparently falls on consumers, for taxes in the second group comprise approximately 57 per cent of the total. Included in this group are the retail sales tax and various consumer excises--taxes on tobacco, alcoholic beverages, and motor fuels used in privately-owned vehicles.[1] Most of the insurance premium taxes related to policies sold to individuals[2] are included in this group as are the gross receipts taxes. Taxes of this type are conventionally thought of as being most amenable to shifting, particularly in market structures with a high degree of competition such as those in which Tennessee retailers apparently operate. The fact that the legislature expressly intends that the sales tax be borne by consumers would seem to be a factor further facilitating the shifting of this levy, although retailers located near the border of states such as Kentucky and Virginia--which have no sales tax--may have to absorb

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[1]*Infra*, p. 61.

[2]*Infra*, p. 68.

a portion of the tax in order to compete with the untaxed firms in those areas.[3]

The remainder of the taxes, about 37 per cent, fall in the third category. These taxes include the corporation privilege taxes, motor vehicle taxes on business-owned vehicles, insurance taxes relating to policies written for businesses, and the unemployment compensation tax. Again, the ability of businesses to shift these taxes depends largely upon the type of market structure in which the firm operates and the tax climate in other states where Tennessee firms compete with foreign firms. A more thorough examination of these factors is found in Chapter III. The remainder of Chapter II consists of a description of the Tennessee taxes.

Retail Sales and Use Tax

The sales tax, first enacted in 1947, is a privilege tax on persons selling tangible personal property at retail in Tennessee. Only the last or final sale of an article is taxable--sales for ultimate resale not falling within the scope of the levy. The tax also applies to rentals and some services. The three per cent tax rate[4] is applied

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[3]However, the use tax, if well administered, may enable the retailer to shift the tax even in this situation, since the use tax will absorb the tax-caused price differential in the two areas.

[4]In an effort to encourage industrial development in the state, the tax rate was decreased in 1959 from 3 to 1 per cent on sales of machinery for new and expanding industry. *Prentice Hall State and Local Tax Service--Tennessee* (New York: Prentice Hall, July 1, 1959), p. 21,133.

to monthly gross receipts from taxable sales, and although the dealers are responsible for collecting the tax at the time of the sale and for payment of the tax to the state, they are authorized by law to pass the burden of the tax on to the consumer.[5] Rate structure (brackets) are used for purchases of small value.

The information in Table II shows the taxable status of selected commodities and services in the state. Casual sales are excluded primarily because the cost of administering and collecting these taxes would be greater than the revenue obtained. Tobacco and motor fuel are exempted chiefly because they are taxed heavily under other levies. Except for school lunches, sales of food are not exempt as they are in some other states.[6] Public utility services are exempted as are most other services except hotel and motel accommodation. Direct sales to federal, state and local governments also fall outside the scope of the tax.

Sales of materials and supplies to industrial consumers are excluded from the tax base if they become an ingredient or component part of a product destined for final sale or if they come in direct contact with the manufactured article or are rapidly consumed in the

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[5] Ibid., (August 6, 1957), p. 21,148.

[6] The exemption of food would greatly reduce the tax burden--taxes on food sales being 25.5 per cent of total 1957 sales tax collections. Tennessee Taxpayers Association, Research Report No. 125 (Nashville: 1957), p. i.

manufacturing process.[7] Containers are treated similarly to component parts. However, sales of machinery, tools, and equipment are taxable--as are sales of office supplies and equipment.

The use tax is imposed in conjunction with the sales tax for the purpose of preventing evasion of the sales tax via out-of-state purchases. The tax is applied to tangible personal property, usually imported into Tennessee and stored there for consumption, distribution, or other use.[8] However, this tax does not produce much revenue--only \$3.1 million in fiscal 1957.[9] Because of the difficulty of checking on every out-of-state purchase, the use tax is hard to administer. Only objects of large value or bulk can be easily assessed under this tax, and for that reason most of the revenue is probably derived from taxable purchases of heavy equipment by industrial users.

Retailers are allowed to deduct 2 per cent of the sales and use tax due as compensation for the cost of collecting the tax. Cash discounts, interest and financial charges (if itemized on the consumer's bill), repairs and installation services, credit given on trade-ins, and refunds to the ultimate consumer are deductible in figuring the base of the tax.[10] Moreover, if a sales or use tax on property imported

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[7] Prentice Hall, _op_. _cit_., (July 1, 1959), pp. 21,133-4.

[8] _Ibid_., (August 6, 1957), p. 21,124.

[9] Tennessee Taxpayers Association, _op_. _cit_., p. v.

[10] Prentice Hall, _op_. _cit_., (April 17, 1956), p. 21,136.

TABLE II

TAXABLE STATUS OF SELECTED COMMODITIES AND SERVICES UNDER THE RETAIL SALES TAX IN TENNESSEE, 1956

Commodity	Taxable Status*
Sales to Consumers	
Food	
Consumed off Premises Where Sold	T
Consumed on Premises Where Sold	T
School Lunches	X
Free Meals to Employees	X[a]
Other Commodities	
Medicine	T
Farm Products	X
Occasional Sales	X
Seed, Fertilizer	X
Alcoholic Beverages	T
Motor Fuel	X
Cigarettes	X
Utility Services	
Gas, Electricity--Domestic	X
Water--Domestic	X
Communications	X
Transportation	X
Other Services	
Admissions	X
Newspaper	X
Repair and Installation	X
Tourist Motel, Hotel Lodging	T
Sales to Industrial Users	
Component Part	X
Nonreturnable and Returnable Containers, Labels, etc.	X
Machinery, Tools, Equipment	T
Fuel	X[b]
Office Equipment and Supplies	T

*T-Taxable; X-Nontaxable.

[a]Except meals prepared by retailer.

[b]If used directly in industrial processing.

Source: C. V. Oster, State Retail Sales Taxation, Research Monograph No. 90 (Columbus: Bureau of Business Research of Ohio State University, 1957), pp. 85, 88.

in Tennessee were paid to another state, this amount would be credited to the use tax liability accruing to the importing person in Tennessee, but only if the other state allows a reciprocal concession to Tennessee.[11]

Since the inception of this tax there have been some important changes, with non-profit institutions being exempted in 1949, and installation, remodeling, repairing and carrying charges being declared outside the scope of the tax in 1951. The broadening of the base in 1955 to include alcoholic beverages, hotel and auto storage services, and materials, supplies, and equipment used by contractors, plus a 50 per cent increase in the tax rate (from 2 to 3 per cent), resulted in a 62 per cent increase in 1956 tax revenues over those of the previous year.[12]

Other Consumer Excises

In addition to paying various licenses and registration fees, manufacturers, dealers and distributors of alcoholic beverages and tobacco products must pay taxes on these articles. Under the tobacco tax, cigarettes are taxed at a specific rate based on the number sold while all other tobacco products are taxed *ad valorem*. Payment of the tobacco tax is made by the firm (usually a wholesaler) making the first sale in intrastate commerce[13] and is evidenced by the affixing of stamps purchased from the state tax commissioner. Payment of the alcoholic

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[11] *Ibid.*, (July 1, 1959), p. 21,140.

[12] Tennessee Taxpayers Association, *Research Report No. 116*, (Nashville: 1956), p. 1.

[13] Distributors making drop shipments in the state are also taxed.

beverage taxes is also done by the wholesaler in a similar manner, although the beer tax is paid directly to the Department of Finance and Taxation.[14] Making the wholesaler responsible, in effect, for the collection of the taxes probably reduces the evasion of these taxes since the number of wholesalers is smaller and thus easier to check than the numerous retailers in the state. Tobacco wholesalers are reimbursed for the cost of performing the tax-stamping function through a 5 per cent discount allowed on the purchase of tax stamps.[15]

The tax on alcoholic beverages decreases as the alcoholic content decreases, distilled spirits being taxed at the rate of $2 per gallon, wine at 70 cents per gallon, and beer at 11 cents per gallon.[16] Exempted from the alcoholic beverage taxes are: beer for export, sales to military establishments, sacramental wine, and medicinal alcohol.

The annual license fees paid by manufacturers, distributors, and dealers of alcoholic beverages are generally much higher (ranging downward from $1,000) than those paid by dealers of tobacco products.

Gasoline and Motor Fuel Taxes

The gasoline tax is imposed at the rate of 7 cents per gallon on all dealers and distributors who store, process, distribute or sell

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[14] Department of Finance and Taxation, State of Tennessee, Report For the Biennium Ending June 30, 1958 (Nashville: Department of Finance and Taxation, 1958), p. 9.

[15] Prentice Hall, op. cit., (December 10, 1957), p. 38,404.

[16] Department of Finance and Taxation, State of Tennessee, Report For the Biennium Ending June 30, 1958, op. cit., p. 9.

gasoline in Tennessee. Exemptions include: 1) aviation gasoline, 2) gasoline stored for export, 3) shipments to and from refineries in the state, 4) gasoline bought in tank car lots from out-of-state refineries by governmental bodies, and 5) gasoline which has not previously come to rest in the state and is still in interstate commerce.[17] In addition, refunds are made to users of certain grades of gasoline for industrial purposes. Users of gasoline for agricultural purposes may also obtain refunds of all but 1 cent per gallon of tax paid.[18]

A tax of 7 cents per gallon is also imposed on motor fuels other than gasoline used on the highways. This tax is levied on final sellers of fuel and those who sell for resale unless the fuel is delivered for non-highway consumption or, in some cases, for use in truck refrigeration. Also liable are "limited users"--those who use the fuel for both taxable and non-taxable purposes. Both quarterly reports and a bond to insure payment of the tax are required from users. Taxable sales to interstate motor carriers operating in Tennessee are determined by dividing the total number of miles traveled in the state by the average number of miles traveled per gallon of fuel and then multiplying this result by the tax rate.[19] A credit is granted for fuel purchased but not used in the state and for fuel taxes paid to other states.

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[17] Prentice Hall, op. cit., (September 11, 1956), p. 45,202.

[18] Ibid., (November 27, 1956), p. 45,207.

[19] Ibid., (September 17, 1957), p. 45,209.

It is interesting to note that diesel fuels are taxed at the same rate as gasoline despite the fact that diesel-powered trucks, by getting more mileage per gallon than gasoline-powered vehicles, have lower per mile fuel costs than the latter vehicles.

Another motor fuel levy is the gasoline inspection fee--although strictly speaking this is not a highway-user revenue since the funds are used to cover the cost of protecting consumers from fraudulently labeled petroleum products.[20]

Other Motor Vehicle Taxes

This category covers two different levies--the vehicle registration tax and the vehicle title tax. The latter tax is not intended to be a revenue-raising measure, being designed to facilitate the regulation of the operation, ownership, and disposition of motor vehicles.

The vehicle license tax can be considered as the privilege tax for using the state highways, and it can also be justified on the benefit principle since 83 per cent of the revenue goes to the Highway Fund.[21] It can also be considered as a way of adjusting the low correlation between a motor vehicle's weight and its fuel consumption--weightier vehicles being taxed higher because they cause more wear and tear on the roads than lighter cars even though they may not use more

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[20]Charles P. White, Report on Financing an Expanded Highway Program in Tennessee (Knoxville: Bureau of Business and Economic Research of University of Tennessee, 1957), p. 64.

[21]Department of Finance and Taxation, State of Tennessee, Report For the Biennium Ending June 30, 1958, op. cit., p. 25.

fuel.

Passenger car taxes are based on the weight of the vehicle--the tax being $9.50 if the vehicle weighs under 3600 pounds and $13.00 if the weight is greater than this.[22] Taxis and busses must pay an additional fee based on seating capacity. Special rates are prescribed for disabled veterans, automobile dealers, government vehicles, and motorcycles.

The fee on trucks and trailers is based on the gross weight of the vehicle and its load. The fees range from $25 to $675 depending on the weight of the vehicle and whether it is a private, common, or contract carrier--private carriers being taxed at a lower rate for each weight class. Vehicles carrying a gross weight in excess of 42,000 pounds are prohibited unless special permission is obtained from the Department of Taxation.[23] Nonfreight hauling tractors, logging trucks, and farm vehicles hauling home-grown products have lower special rates--the argument being, in the case of farm trucks at least, that the average annual mileage traveled by these trucks is less than that by other types of vehicles.[24]

Reciprocal truck license agreements with other states are authorized although such agreements are not in effect with all states. However,

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[22]Ibid., p. 11.

[23]Prentice Hall, op. cit., (December 10, 1957), p. 42,003.

[24]White, op. cit., p. 31.

at present, out-of-state trucks are not required to buy Tennessee plates if they are properly licensed in their own state and if they come under the limitations of Tennessee laws.[25]

Corporation Excise Tax

The corporation excise tax is a tax on the privilege of doing business in Tennessee, and it is applied at the rate of 3.75 per cent to the firm's net income for the period reported. Almost all foreign and domestic corporations doing business in the state, as well as taxable entities who have not qualified, or whose charter is suspended or forfeited, are taxable; the exceptions are national banks and those corporations which have no net income or which are organized for general welfare (non-profit) or to promote in-state industrial development.[26]

The basic net income figure used in measuring the value of the corporate privilege is that shown on the firm's federal tax return. Dividends from wholly-owned subsidiaries are excluded. Employer social-security and other payroll contributions may be deducted as may, in some cases, non-operating income.[27] However, interest on tax-free government securities is not exempt.[28] The tax, in this case, is not on income or net worth (of which interest earnings would be a part) but on the privilege of doing business. Federal income tax payments are not deductible

[25] Prentice Hall, op. cit., (December 10, 1957), p. 42,002.

[26] Ibid., (July 21, 1959), p. 10,203.

[27] Ibid., (July 21, 1959), pp. 10,206-7.

[28] Ibid., (May 21, 1957), p. 10,207.

either. A two-year carry-back and carry-forward of business losses was formerly allowed as a deduction, but this provision is no longer in effect.

In the case of taxable corporations doing interstate business, allocation of the Tennessee portion of the earnings is accomplished via statutory formulas. An arithmetic average of the property ratio (value of property owned in Tennessee relative to the value of all property owned), the production cost ratio (processing cost in Tennessee divided by total production cost), and the sales ratio (relation of gross Tennessee sales to total sales) comprises the basic formula used for manufacturing firms,[29] with variations of this formula being used for other types of businesses. "Hardship formulas" may be used where the corporation feels that the statutory formulas result in unjust or unreasonable apportionment. In this case, the Commissioner may allow allocation based on information in the firm's books, if separate accounts are kept for Tennessee operations.[30]

Corporation Franchise Tax and Annual Filing Fees

Under the franchise tax, the taxable status of different corporations is similar to their treatment under the excise tax. In

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[29]Prior to this method, allocation was accomplished merely by pro-rating net earnings according to the amount of sales made in Tennessee. However, this method was inequitable since both interstate and intrastate firms received equal governmental benefits in the state although the latter firms would be taxed on all their earnings while the former were taxed only on part of their earnings.

[30]Prentice Hall, op. cit., (July 21, 1959), p. 10,219.

addition, banks, trusts, or other foreign corporations who serve as trustees of pension and profit-sharing trusts and who are willing to take federal-backed loans secured by mortgages or deeds on Tennessee realty are exempt, as are corporations in the hands of a receiver or trustee.[31] However, since the franchise tax applies merely to the organizing of a Tennessee corporation rather than to the successful operation of the business, inactive domestic corporations are liable for a minimum tax.[32]

The franchise tax is applied annually at the rate of 15 cents per $100 of the tax base, with a minimum tax of $10. The base consists of the issued and outstanding capital stock, surplus, and undivided profits of the firm.[33] Allocation of the base of interstate corporations is accomplished by formulas similar to those used under the excise tax. However, before allocation, certain deductions and additions must be made. Operating deficits and other business losses such as fire, etc., which impair the firm's capital stock may be deducted as may the value of stock held in another corporation that also pays the tax. Furthermore, if the book value of the corporations' tangible property owned or used in the state is greater than the book value of the capital stock, surplus, and undivided profits, then the former

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[31] Ibid., (July 28, 1959), p. 25,202.

[32] Ibid., (July 28, 1959), pp. 25,202-2A.

[33] Ibid., (May 7, 1957), p. 25,205.

shall be the basis of the tax.[34]

Annual filing fees are required of all domestic and foreign corporations qualified to do business in Tennessee except state and national banks, foreign corporations that merely store for delivery in the state, and insurance companies.[35] There are two alternate bases and rates for this annual tax. Under the first method, gross receipts from Tennessee sales in the previous year are taxed at the rate of one-half of one per cent with a minimum tax of $25. Under the second method, actual issued and outstanding capital stock is the base and is taxed on a graduated basis depending on the value of the stock.[36] The minimum tax is $5 and the maximum is $150.

Gross Premium Tax

The premium tax applies to foreign and domestic insurance companies[37] selling all forms of policies in the state. The basic rate is 2 per cent[38] of gross premiums purchased by Tennessee policyholders or on the value of property located in the state.[39] Companies

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[34]*Ibid.*, (May 7, 1957), p. 25,206.

[35]*Ibid.*, (February 26, 1957), p. 18,202.

[36]*Ibid.*, (February 26, 1957), p. 18,203.

[37]Fraternal benefit associations are exempt.

[38]Since 1957, foreign life companies have been discriminated against in favor of domestic companies, the former being taxed at the 2 per cent rate while the latter only pay a rate of one and three-fourths per cent. *Tennessee Code Annotated, 1959 Cumulative Supplement*, Vol. X (Indianapolis: Bobbs Merrill, 1959), p. 38.

[39]*Tennessee Code Annotated*, Vol. X (Indianapolis: Bobbs Merrill, 1955), p. 220.

writing fire insurance are taxed at a slightly higher rate, presumably because they benefit from state and local fire departments. Special rates are also prescribed for annuity contracts written and for workmen's compensation policies.

As a means of inducing some types of insurance companies to invest in Tennessee securities, the law provides that the tax rate be subject to reductions ranging from 25 to 75 per cent, depending upon the amount of total company assets held in these securities.[40] The law also provides for retaliatory taxing policies on foreign companies from states which tax Tennessee companies at higher rates than are usually imposed in Tennessee.[41]

The premium tax is in lieu of all other taxes except property taxes, privilege taxes on insurance agents, and fees. The tax may also be credited against the combined liability of the corporate excise and franchise taxes. No deductions or exclusions from gross premiums are allowed in computing the tax base, although fees paid for the valuation of life policies are allowed as a credit against the tax.[42]

Insurance companies and their agents must also pay minor privilege taxes and other fees.

Personal Income Tax

In Tennessee only dividend and interest income from stocks and

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[40] *Ibid.*, p. 223.

[41] *Ibid.*, p. 227.

[42] *Ibid.*, p. 223.

bonds are taxable, the state Constitution prohibiting a general income tax. The tax was imposed to reach securities which, being easily concealable, were evading the property tax. The levy applies to most businesses and persons legally domiciled in the state for six months or more, including brokers who hold securities for residents without disclosing their names to the Commissioner.[43]

Exemptions include charitable institutions and their securities, fiduciaries for non-resident beneficiaries, blind persons, and individuals with incomes of $25 or less.[44] Further exclusions are interest on securities issued by governmental units, short-term commercial paper, and income from securities reached under the property tax.[45] This provision is extended to security income received by banks and insurance and investment companies whose holdings of securities "constitute a part of the assets which determine the value of the shares assessed for *ad valorem* taxes to the stockholder."[46]

An inducement is provided to investors who purchase securities of domestic corporations, the tax rate being 4 per cent on dividends from corporations having 75 per cent of their taxable property in Tennessee.[47] Income from stocks of other corporations is taxed at

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[43]Prentice Hall, *op. cit.*, (January 31, 1956), p. 55,101.

[44]*Ibid.*, (January 31, 1956), p. 55,101.

[45]*Ibid.*, (March 5, 1957), p. 55,211.

[46]*Ibid.*, (March 5, 1957), p. 55,205.

[47]*Ibid.*, (March 5, 1957), p. 55,213.

6 per cent.

Unemployment Compensation Tax

The unemployment compensation tax has been included in our analysis because of the importance of the employment security activities in the state's welfare program, although the levy cannot strictly be considered as a tax revenue since the state has little discretion in the spending of the funds.[48]

The tax applies to most employers who hire four or more workers, and the standard tax rate is 2.7 per cent of taxable wages[49]--absorbing the federal credit allowed. In practice, however, an employer's rate will range from the penalty rate of 3 per cent to the minimum rate of .75 per cent, depending upon his experience rating. The tax rate declines as an employer's credit balance with the unemployment compensation fund is built up, the minimum rate applying when a credit equal to 12 per cent of the last annual payroll has accumulated.[50] In the 1957-58 fiscal year, 41.4 per cent of covered firms qualified for less than the standard rate, 16.4 per cent of the firms being assigned the minimum rate.[51]

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[48]The contributions pass through a state clearing account into the federal Treasury's Unemployment Compensation Fund. From this fund money withdrawn by the state agency must be used solely for the payment of unemployment benefits. Tennessee Code Annotated, op. cit., Vol. IX, pp. 432-34.

[49]The maximum taxable wage for each individual wage earner is $3000.

[50]Tennessee Code Annotated, op. cit., Vol. IX, p. 424.

[51]Twenty-Second Annual Report of the Department of Employment Security, 1958 (Nashville: n.n., 1958), p. 14.

Other State Taxes

Other state taxes constitute minor revenue sources, and for that reason are discussed only briefly. These taxes include the gross receipts tax, miscellaneous privilege taxes, and the inheritance and gift taxes.

The gross receipts tax includes privilege taxes on soft drink bottlers, public utility companies, vending machine operators, chain stores, sewing machine agents and dealers, theaters, and others. Payments made by the Tennessee Valley Authority in lieu of taxes lost to the state when the Tennessee Valley Authority impounded taxable property are also received under the gross receipts tax.[52]

Numerous other miscellaneous privilege taxes are levied and collected by the county court clerks for remission to the state. Although these taxes are legion, their aggregate yield totals only $3 million to $3.5 million annually.[53] It is thought that the administrative red tape and trouble and time lost to the business community in paying these taxes has outweighed the paltry revenues obtained from them.

The inheritance tax is imposed on the right of heirs to receive property transferred from decedents. Intangible personal property included in a resident decedent's estate is taxable regardless of its

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[52] Department of Finance and Taxation, State of Tennessee, Report For the Biennium Ending June 30, 1958, op. cit., p. 10.

[53] Ibid., pp. 20-21.

location, but only that real and tangible personal property having situs in the state is taxable.[54] In the case of non-resident decedents, the tax applies only to real and tangible personal property located in the state. Deductions from the taxable estate include: 1) property transferred to governmental bodies or to non-profit welfare (religious, charitable, etc.) institutions; 2) accrued taxes on the deceased and his property; 3) debts of the deceased; 4) funeral expenses; and 5) expenses incurred in the administration of the estate.[55] The law distinguishes between direct and indirect heirs, the tax burden varying inversely with the degree of relationship between the decedent and the beneficiary. A $10,000 exemption is allowed to direct heirs with the tax rates ranging from 1 to 7 per cent depending on the value of the transfer. Indirect heirs are allowed an initial $1,000 exemption, with rates ranging from 5 to 15 per cent.[56]

The gift tax is imposed in conjunction with the inheritance tax to reach transfers of property prior to death, and the provisions of both taxes are similar. Tennessee also imposes an estate tax designed to absorb the differential between all state death taxes paid by an estate and the 80 per cent federal credit.

II. LOCAL TAXES

Until the mid-1920's, the general property tax had easily been

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[54] Tennessee Code Annotated, op. cit., VI, 207.

[55] Ibid., pp. 216-17.

[56] Ibid., pp. 219-20.

the most important single state revenue source.[57] However, the sharp decrease in the tax rate after 1923, coupled with the growing importance of privilege and consumption levies, relegated the property tax to a relatively minor role in state finance. Finally, in 1948, the tax was abolished entirely for state purposes, being relinquished to local governments, where it is second in importance only to state grants as a general revenue source.[58]

If we were to attempt to categorize the property tax in a manner similar to that used for state taxes, we would find portions of the tax falling in all three categories. That portion of the tax on owner-occupied residence, roughly about 22 per cent,[59] would fall in the first group. Probably about 34 per cent[60] would be shifted forward--this portion of the levy having consumption tax characteristics. Included in this class would be that part of the tax shifted by property owners to their tenants and taxes on public utility property--which regulatory bodies tend to consider as a recoverable expense in setting utility rate structures. The remaining share, approximately 44 per cent, would include that part of the tax on productive property of industrial plants and commercial establishments and would be treated by the entrepreneur

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[57]James B. Thorogood, _A Financial History of Tennessee Since 1970_ (Nashville: Tennessee Industrial School, 1949), p. 210.

[58]Revenue from the sales of public utilities is not here included as general revenue.

[59]_Infra_, p. 62-63.

[60]_Infra_, p. 62-65.

as an expense. Here again, the possibility of shifting depends upon many factors: market structure, location, the universality of the tax, and the elasticities of supply and demand for the product. However, some of the tax is probably absorbed by the owners of the business, especially that portion of the tax which falls on land--a factor in fixed supply.[61]

In 1957 the property tax yielded $116,824 thousand, accounting for roughly 86 per cent of all local taxes.[62] Since the property tax comprises the bulk of the tax revenue of local governments, our discussion of local taxes is devoted entirely to this levy.

General Property Tax

Most individuals and corporations are subject to a tax on their property holdings located in the state--the usual exemptions of religious, educational, and governmental property (and securities), cemeteries, highways, and charter-protected property being in effect. In addition, Tennessee law provides for the exemption of: 1) growing crops that are direct product of the soil in the hands of the producer or his immediate vendee (this provision has been extended to include articles manufactured

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[61]A tax on property in relatively fixed supply is said to be capitalized, that is, the expected annual net income flowing from the taxed good is reduced by the amount of the tax, hence its market value is also reduced.

[62]Most of the remaining taxes are in the form of various business privilege taxes and license fees. U. S. Bureau of the Census, Compendium of Government Finances, U. S. Census of Governments: 1957, Vol. III, No. 5 (Washington: Government Printing Office, 1959), p. 148.

from the produce of the state, in the possession of the manufacturer); 2) up to $10,000 in value of homes of disabled American veterans; and 3) $1,000 of personal property for each taxpayer.[63] In 1959, the state legislature enacted a law that enables the tax assessor to assume that no individual has personal property valued in excess of $1,000.[64] This legislation, in effect, virtually eliminates the tax on personal property.

For taxable purposes, property is classified into realty, tangible and intangible personalty. Before passage of the above-mentioned law, tangible personal property had been assessed for taxation under several classifications.[65] Most intangibles, however, were exempt from the property tax, being instead reached indirectly through the personal income tax or the corporation personalty tax.[66] These exempt intangibles

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[63]Cecil Morgan, Property Assessment Administration in Tennessee, 1955-56, Report to County Tax Assessment Subcommittee of the Legislative Council Committee, (n.p., Tennessee Legislative Council, 1956), p. 104.

[64]Tennessee State Planning Commission, "Sources of Municipal Revenue," TSCP Publication No. 297 (Nashville: Tennessee State Planning Commission, 1959), p. 9.

[65]Personalty was grouped according to its general nature, such as household implements and furniture, machinery and vehicles, livestock, boats and watercraft, etc. Morgan, op. cit., pp. 105-6. This should not imply, however, that the property tax is a classified tax. A system of classification is precluded by a provision in the state Constitution which states that all property must be taxed at the same rate.

[66]This tax applies to all domestic manufacturing and personal service corporations and to similar foreign firms having their entire plant and business in Tennessee. The tax was designed to reach intangible personalty of corporations "at the source." The value of the intangible property is measured by the value of the capital stock or corporate property less the value of real and tangible personal property already assessed under the property tax. Prentice Hall, op. cit., pp. 15,205-6.

do not include money on hand or on deposit, nor do they include shares in financial institutions (which are exempt from the personal income tax). These latter intangibles are assessed as personal property of both resident and non-resident stockholders, although, in an effort to get around the difficulty of determining the location of the shares, the law holds the financial institutions responsible for paying the tax.[67]

The effective tax rate is determined by the official tax rate and the assessed value of the taxable property.[68] Both the official tax rates and the assessed to actual property values ratio vary widely among localities. Studies have indicated that property is generally assessed at less than its market value, that unequal assessment within local taxing jurisdictions is widespread, and that much property escapes taxation entirely.[69]

III. SUMMARY

The purpose of this chapter was one of description rather than analysis. A thumbnail description of important Tennessee taxes was presented, as the author considered the knowledge of certain characteristics of these taxes vital to the development and understanding of the

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[67] Ibid., p. 31,203.

[68] The county tax assessor has the responsibility for assessing all property except that of public utilities which is assessed by the State Public Service Commission.

[69] Morgan, op. cit., pp. 27-99.

methods and assumptions used in the incidence analysis found in later chapters.

Consumers apparently bear a large share of the Tennessee tax burden. According to our classification, roughly 57 per cent of the state taxes and 34 per cent of local property taxes fall into the consumer tax category.[70] Since the proportion of income spent for consumption increases as income decreases, we tentatively concluded that the tax structure is regressive. This conclusion is further explored and statistically tested in Chapters III and IV.

[70]These figures do not include all of the taxes that fall on consumers, for, as we have explained, some of the taxes in the business cost and profit tax category may ultimately be shifted to consumers.

CHAPTER III

ALLOCATION OF THE TENNESSEE TAX BURDEN--

ASSUMPTIONS, METHODS, AND FINDINGS

In this chapter--which together with Chapters IV and V forms the heart of our analysis--we have developed estimates of the Tennessee tax burden borne by households in each income bracket. The development of these estimates involved analyses of several related factors. First, since we were concerned with the incidence of the taxes rather than their original impact, we have analyzed some of the more important factors that determine the degree to which firms can shift cost taxes imposed on them by state and local governments. This involved consideration of special problems arising from the "open economy" nature of a single state within a national setting, i.e., potential and actual economic competition among Tennessee businesses and those of the rest of the nation must be considered as well as tax differentials in different states. Second, since our study was limited to Tennessee residents, we have examined the processes by which Tennessee taxes may be shifted outside the state. Third, we have estimated the proportion of all Tennessee households in each income bracket as well as the consumption, income and wealth-holding patterns of these households. These patterns formed the basis for our allocation of the taxes. Lastly, we have apportioned the various taxes described in Chapter II among income brackets, our methods and assumptions being based on the analyses mentioned above.

I. FACTORS AFFECTING THE ABILITY OF BUSINESSMEN TO SHIFT THEIR TAXES--MARKET POSITION AND TAX DIFFERENTIALS

Since taxes are often ultimately borne by groups other than those upon whom the levy is first imposed, analysis of the distribution of the tax burden often involves making assumptions based on economic theory concerning the direction and degree of tax shifting.

These assumptions are, in many cases, controversial. The concept of tax incidence itself is vague and uncertain, there being little common agreement among economists in this field. Alternate assumptions based on diverse theories appear equally valid. Furthermore, the fact that the tax shifting process is influenced by numerous factors and is felt in so many sectors creates great difficulty in the statistical measurement of tax incidence. It has been said that the subject of tax incidence is "a riddle wrapped in a mystery inside an enigma."[1]

While this is true of taxes imposed at the national level, the analysis of state and local taxes offers difficulties that are many times more complex and frustrating because a nation

> is for all practical purposes a "closed" economy from the standpoint of tax policy considerations, whereas state and local governments are operating an "open" economy--among the states there are few artificial or natural barriers to the interstate flow of goods, people, wealth, and industry. Shifting analysis at the state level involves the same type of economic reasoning as in the federal tax case, but, in

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[1]Robert S. Ford, "Some Economic Aspects of the Present Corporate Income Tax," Proceedings of the National Tax Association Conference, 1947 (Sacramento: National Tax Association, 1947), p. 55.

> addition, is complicated by the fact that business concerns in one state may be competing in the national market with firms operating in the substantially different tax climate of another state.[2]

It can thus be seen that the open economy quality of a state forces the economist to consider that: 1) taxes imposed by a state may be borne by residents outside the taxing state[3] (and vice versa), 2) both the intrastate and interstate market positions of taxed business firms are relevant to shifting analysis, and 3) differentials in the tax climate of various states influence the degree of tax shifting possible. All of these factors have been considered in the ensuing analysis. The second and third were analyzed in this section, the first being discussed in the following section.

The market position of most firms paying Tennessee taxes is characterized by outside firms competing with domestic firms for Tennessee business or Tennessee firms competing with outside firms in the national market. Although ordinarily firms are thought of as trying to recoup tax payments in the form of higher prices of the goods they sell (or lower prices for productive factors that they buy), this is impossible when competing, non-taxed firms do not have the cost of Tennessee taxes (or similar taxes imposed in the state of their domicile) to cover

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[2]University of Wisconsin Tax Study Committee, "Distribution of State and Local Taxes in Wisconsin," Chap. 2, _Wisconsin's State and Local Tax Burden_ (Madison: n.n., 1959), pp. 36-37.

[3]Primarily out-of-state consumers who purchase goods that have the taxes subsumed in their price and non-resident stockholders of taxed corporations operating in the taxing state.

in their prices. If Tennessee firms held a more or less monopolistic position over the local market as well as the national market, as do automobile manufacturers located in Michigan, they would be in a strong position to shift a large portion of the taxes imposed on them. However, with the exception of local monopolies such as public utilities, Tennessee industry faces heavy competition from out-of-state industry. The fact that heavily competitive rather than monopolistic elements are present in the market faced by Tennessee firms makes it essential that another pertinent factor be considered, i.e., the relative impact of business taxes imposed in various states. If taxes similar to those imposed on firms in Tennessee were universally levied in all states, complete shifting would be possible. All firms would have identical tax elements subsumed in their costs, the entire amount of which would have to be covered by price in the long run if the firms were to continue to operate. No firm, regardless of location, would have a competitive price advantage caused by tax differentials. In reality, however, the possibility of complete and uniform tax shifting is precluded since it is unlikely that an identical tax climate exists in the various states.

To determine fairly accurately the degree to which firms were able to shift Tennessee taxes would have involved complete knowledge of the relative tax burden differentials between Tennessee and <u>all</u> the other states in which Tennessee firms do business. The investigation of this problem alone would easily require enough research for another thesis. Rather than attempt a task of this magnitude, two alternative cases involving a range of possibilities have been presented. In Case I it it has been assumed that, unless otherwise noted, Tennessee taxes imposed on firms facing national competition were borne entirely by the firm. In Case II it has been assumed that taxes in other states completely offset the Tennessee levies; thus enabling business cost taxes to be completely shifted.

II. EXPORTING OF THE TAXES

Not all of the taxes levied by Tennessee state and local governments are paid by Tennessee residents. Part of the taxes may be borne by out-of-state purchasers of Tennessee products and by non-resident stockholders of taxed corporations operating in Tennessee. In addition, since some of the state taxes are deductible for federal income tax purposes, the federal government, in effect, pays part of the tax bill of Tennessee residents and corporations.

Taxes Borne by Out-of-state Residents

Our study was limited to the estimation of taxes borne by Tennesseans. Thus, that part of the Tennessee taxes estimated to have been paid by out-of-state consumers of Tennessee products was excluded from our analysis. These estimates of the portion of consumption taxes paid by out-of-state residents were based on rather arbitrary assumptions, since no information could be found concerning that portion of total Tennessee sales made to non-resident consumers. However, we have used similar estimates made in the Wisconsin and Michigan studies[4] as a guide--keeping in mind that propably a smaller proportion of Tennessee sales are made in the interstate market than are made by businesses located in Michigan and Wisconsin. In addition, no explicit attempt has been made to estimate that portion of out-of-state taxes borne by Tennesseans.

Out-of-state residents also bear Tennessee taxes in their role as stockholders of corporations taxed by the state and its localities. To the extent that a tax cannot be shifted but falls on corporate profits, the corporation owners bear the tax. If the corporation is wholly owned by Tennessee residents, the tax is borne entirely in Tennessee. But if the corporation is nationally owned, Tennessee stockholders share the tax with other stockholders. In our study it has usually been assumed that Tennessee-owned corporations provide 40 per cent and nationally owned corporations 60 per cent of the taxable corporate bases and, further, it has been assumed that Tennessee stockholders bear .8 per cent of the tax on nationally owned corporations. The former estimated percentages were roughly the proportions that "domestic" and "foreign" corporations--as classified by the Tennessee Department of Finance and Taxation--paid of the Corporate Excise tax in 1957. The latter estimated percentage was the proportion of total dividends paid in the United States in 1956 received by Tennessee residents.[5]

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[4]University of Wisconsin Tax Study Committee, op. cit., pp. 44-45; R. A. Musgrave and D. W. Daicoff, "Who Pays the Michigan Taxes," Chap. 4,

Federal Tax Offsets

Another factor that was considered was that some state and local taxes are deductible for federal income tax purposes. To the extent that these taxes are deductible, the state tax burden was lessened. Since the federal tax rate on corporate incomes is approximately 50 per cent, one-half of the unshifted portions of the state and local taxes on Tennessee corporations were deducted.[6] This deduction can only apply to unshifted portions of the tax, for when the tax is shifted, prices and taxable gross income rise, and the resulting enlarged federal income tax will wipe out the state tax deductions.

Non-incorporated businesses may also offset state and local taxes against the federal personal income tax. Although the marginal rate of offset could range from 0 to 91 per cent, we have, for simplicity, followed Musgrave and Daicoff's assumption[7] of a flat 25 per cent offset on non-corporate business income. Individuals who itemize

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Michigan Tax Study Staff Papers (Lansing: n.n,, 1958), pp. 171-73.

[5]U. S. Treasury Department, Internal Revenue Service, Statistics of Income, 1956, Individual Income Tax Returns (Washington: Government Printing Office, 1958), p. 58.

[6]Actually, the 52 per cent income tax rate applies only to that portion of corporate net incomes above $25,000. Income below this amount is taxed at the 30 per cent rate. No data could be found concerning the portion of Tennessee corporation net income that was taxed at the maximum rate. However, national figures show that 1957 income tax payments by all corporations filing tax returns were 46.48 per cent of taxable income in that year. U. S. Treasury Department, Internal Revenue Service, Statistics of Income, 1956-57: Corporation Income Tax Returns (Washington: Government Printing Office, 1959), p. 6. It is probable that the average tax rate paid by Tennessee corporations does not deviate appreciable from this figure.

[7]Musgrave and Daicoff, op. cit., p. 171.

deductions on their personal income tax returns may also offset some state and local tax payments against their personal income tax payments,[8] the offset being equal to the marginal tax rate multiplied by the per cent of returns with itemized deductions as seen in Table III.

III. ESTIMATED BRACKET DISTRIBUTION OF SPENDING UNITS (HOUSEHOLDS), INCOME TYPES AND CONSUMPTION EXPENDITURES

Preliminary to the allocation of the taxes was the development of the estimated distribution of Tennessee households by income brackets. The technique used is presented in Table IV. Data were available concerning the distribution of families[9] in Tennessee in 1949 and for the region of the South in the years 1949 and 1957. It was assumed that Tennessee had exhibited the same change in percentages as had the South between those two years.[10] The resulting percentages in each bracket

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[8]For those who take the standard deduction the deductibility of state and local taxes is immaterial since the deduction is the same, regardless of the amount of state and local taxes paid.

[9]Although the Bureau of the Census' definition of families differs slightly from the concept of the household as a spending unit, the two concepts are similar enough in meaning and distribution to be used for our purpose.

[10]It was recognized that the procedure used to estimate the 1957 Tennessee distribution was not mathematically correct since it assumed that the change (increase or decrease) in the percentage in a given income bracket was the same for Tennessee as for the South. However, we were handicapped by the lack of absolute data and were forced to rely on percentages. When distributions are shown in percentage terms, it is almost impossible to estimate accurately the change in one set

TABLE III

FEDERAL TAX OFFSET FOR INDIVIDUALS

Income Class	1 Per cent of Federal Returns with Itemized Deductions	2 Average Marginal Individual Federal Tax Rates	3 Per cent Deduction of State and Local Taxes[a]
0 to $1,999	8.06	0	0.00
$2,000 to $2,999	20.11	20	4.02
$3,000 to $3,999	28.39	20	5.68
$4,000 to $4,999	37.50	20	7.50
$5,000 to $6,999	44.44	20	8.88
$7,000 to $9,999	42.03	22	9.26
$10,000 and over	58.38	30	11.68

[a]Product of columns 1 and 2.

Source: U. S. Treasury Department, Internal Revenue Service, Statistics of Income--1954. Individual Income Tax Returns (Washington: Government Printing Office, 1957), cited by R. A. Musgrave and D. W. Daicoff, "Who Pays the Michigan Taxes?" Chap. 4, Michigan Tax Study Staff Papers (Lansing: n.n., 1958), p. 170.

TABLE IV

DERIVATION OF TENNESSEE HOUSEHOLD DISTRIBUTION BY INCOME BRACKETS

INCOME BRACKET	SOUTH			TENNESSEE		
	1	2	3	4	5	6
	1949	1957	CHANGE	1949	1957[a]	Households
	Per cent			Per cent		Number
0 to $1,999	44.7	24.2	-20.5	50.4	29.9	280,912
$2,000 to $2,999	19.0	12.9	- 6.1	19.0	12.9	121,195
$3,000 to $3,999	14.4	13.9	- 0.5	13.1	12.6	118,377
$4,000 to $4,999	8.5	12.3	3.8	7.1	10.9	102,406
$5,000 to $6,999	8.0	20.5	12.5	6.5	19.0	178,504
$7,000 to $9,999	3.1	10.9	7.8	2.2	10.0	93,950
$10,000 and over	2.3	5.3	3.0	1.7	4.7	44,156
Total	100.0	100.0	--	100.0	100.0	939,500[b]

[a]Column 4 plus column 3.

[b]Estimated in "Survey of Buying Power," Sales Management Magazine, May 10, 1958, p. 674.

Source: Column 1 from U. S. Bureau of the Census, 1950 Census of Population, Vol. II, Characteristics of the Population, Part 1 (Washington: Government Printing Office, 1953), p. 137.

Column 4: *Ibid.*, Part 42, Chap. B, p. 50.

Column 2 from U. S. Bureau of the Census, Current Population Reports, Consumer Income, Series P-60, No. 30 (Washington: Government Printing Office, 1958), p. 28.

were then multiplied by the estimated total number of households in 1957 to obtain the distribution.

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of distributions from the change in another set unless both the distributions and the changes in the two sets are nearly identical.

An alternate method that could have been used would have been to estimate the 1957 Tennessee distribution from the relative change that occurred in each bracket in the South's distribution between 1949 and 1957. Let $S_{i.49}$ and $S_{i.57}$ denote the percentage of families in the i^{th} income bracket for the South for the years 1949 and 1957 respectively. Let $T_{i.49}$ and $T_{i.57}$ denote the percentage of Tennessee families in the i^{th} income class for the same years.

Assuming that $$\frac{T_{i.57} - T_{i.49}}{T_{i.49}} = \frac{S_{i.57} - S_{i.49}}{S_{i.49}},$$

then $$T_{i.57} = T_{i.49} + (S_{i.57} - S_{i.49}) \frac{T_{i.49}}{S_{i.49}}.$$

This assumes that the change in percentage for Tennessee relative to the 1949 percentage for Tennessee is the same as the change in percentage for the South relative to the 1949 percentage for the South. The estimated Tennessee percentage for 1957 obtained by this method would be:

Income Bracket (Thousands)	Per cent of Families
$0-2	27.3
2-3	12.9
3-4	12.6
4-5	10.2
5-7	16.7
7-10	7.7
10 and over	3.9
	91.3

As can be seen, the use of this method does not result in a total of 100 per cent. This is because identical percentages (the change per bracket in the South relative to the 1949 bracket figure) are applied to different bases (i.e., the Tennessee 1949 figures were not identical with those of the South).

In order to obtain the total Tennessee distribution, each bracket estimate must be divided by the 91.3 per cent total. The

It was also necessary to estimate, prior to apportionment of the tax burden, the distributive patterns of 1) the relevant income types and 2) the consumption expenditures. The first estimate was accomplished simply by taking data from the 1956 Statistics of Income[11] and expressing them in percentage terms, as shown in Table V. The second estimate was accomplished in two steps. First, the distribution of average household expenditures in each income bracket for certain

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adjusted distribution would then be:

Income Bracket (Thousands)	Per cent of families
$0-2	29.9
2-3	14.1
3-4	13.8
4-5	11.2
5-7	18.3
7-10	8.4
10 and over	4.3
	100.0

However, this method of "forcing" the discrepancy (between the estimated and the true totals) into the distribution would have been a highly arbitrary and artificial procedure--probably subject to as much error as the method actually used. Moreover, the distribution obtained in this alternative manner does not differ greatly from the one used. Since both methods are merely estimating procedures used in the absence of better data, technical precision and refinement of the techniques used are not essential in this case. The analyst should, however, choose the method which he believes affords results which most closely approximate the true situation.

[11]U. S. Treasury Department, Internal Revenue Service, Statistics of Income, 1956, Individual Income Tax Returns, op. cit., p. 22. This publication shows, among other things, the distribution of types of income--the information being compiled from personal income tax returns. This information was obtained from all federal returns filed in the United States, and it is assumed that it is identical with the Tennessee distribution.

TABLE V

PERCENTAGE DISTRIBUTION OF INCOME COMPONENTS USED TO

ALLOCATE TAXES AMONG INCOME BRACKETS

INCOME BRACKET	1 WAGES AND SALARIES	2 DIVIDENDS	3 BUSINESS INCOME[a]	4 RENTS AND ROYALTIES
0 to $1,999	5.74	2.30	6.40	13.04
$2,000 to $2,999	7.74	2.38	7.32	8.89
$3,000 to $3,999	11.81	2.78	7.93	7.08
$4,000 to $4,999	15.17	2.65	7.90	7.35
$5,000 to $6,999	26.29	5.15	11.56	11.17
$7,000 to $9,999	19.21	6.62	12.36	11.66
$10,000 and over	14.04	78.12	46.53	40.81
All Brackets	100.00	100.00	100.00	100.00

INCOME BRACKET	5 INTEREST INCOME	6 CAPITAL INCOME[b]	7- FARM INCOME	8 LIQUID ASSETS
0 to $1,999	9.98	6.20	9.4	11.50
$2,000 to $2,999	7.55	4.85	11.7	6.25
$3,000 to $3,999	7.13	4.59	13.1	8.75
$4,000 to $4,999	6.61	4.47	12.1	9.50
$5,000 to $6,999	12.02	7.83	18.3	20.50
$7,000 to $9,999	13.33	9.06	14.5	18.00
$10,000 and over	43.38	63.00	20.9	25.50
All Brackets	100.00	100.00	100.0	100.00

[a]Net income of non-incorporated business.

[b]Dividends, interest, rents and royalties.

Source: Columns 1 through 6 derived from data taken from U. S. Treasury Department, Internal Revenue Service, _Statistics of Income, 1956, Individual Income Tax Returns_ (Washington: Government Printing Office, 1958), p. 22.

Column 7 from U. S. Department of Commerce, _Survey of Current Business_.

Column 8 from _Federal Reserve Bulletin_, March, 1956, cited in University of Wisconsin Tax Study Committee, "Distribution of State and Local Taxes in Wisconsin," Chap. 2, _Wisconsin's State and Local Tax Burden_ (Madison: n.n., 1959), p. 52.

items of consumption was abstracted from the LIFE Study of Consumer Expenditures.[12] Second, the average expenditures for each item were multiplied by the number of Tennessee households in each income bracket and the resulting product for each bracket was expressed as a percentage of the total of all expenditures for that item. This afforded a base on which to distribute taxes borne by consumers. The results of both of these steps may be seen in Tables VI and VII.

IV. DISTRIBUTION OF THE TAX BURDEN AMONG INCOME BRACKETS--CASE I ASSUMPTIONS

In this section we have estimated the distribution of the taxes, our methods being based, to a large extent, on the preceding analysis. In general, our procedure was to first apportion the tax burden to the various economic or income groups (wage earners, dividend recipients, consumers, etc.) according to our reasoning concerning the incidence of the taxes. The estimated portion of the taxes shifted to residents of other states was then deducted as were federal tax offsets. The remaining portion of the taxes were then allocated to Tennessee households in accordance with the consumption and income patterns developed in the preceding section. Case I assumptions applied in the analysis of this section. That is, with some exception, most of the Tennessee

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[12] Alfred Politz Research, Inc., LIFE Study of Consumer Expenditures--A Background of Market Decisions, Vol. I (New York: Time, Inc., 1957). This study was based on a nationwide sample of households, both rural and urban. The expenditure patterns obtained refer roughly to the years 1955-1956.

TABLE VI

MEAN HOUSEHOLD EXPENDITURES BY INCOME BRACKETS

INCOME BRACKET	1 ALL GOODS AND SERVICES	2 FOOD	3 TOBACCO	4 BEER, ALE WINE AND LIQUOR	5 GASO-LINE AND OIL	6 AUTOS AND ACCES-SORIES
0 to $1,999	$1933	$ 606	$ 66	$ 17	$ 79	$ 86
$2,000 to $2,999	2924	828	104	44	124	194
$3,000 to $3,999	3839	1011	117	39	147	326
$4,000 to $4,999	4363	1096	132	43	168	342
$5,000 to $6,999	5016	1214	145	58	190	452
$7,000 to $9,999	6063	1381	173	68	205	520
$10,000 and over	7946	1643	152	118	236	694

INCOME BRACKET	7 OIL, AUTOS AND ACCES-SORIES[a]	8 OTHER PERSONAL AND MEDI-CAL CARE	9 HOUSING	10 HOME HEATING, UTILITIES	11 COMMUNI-CATIONS	12 OTHER TRANS-PORTA-TION
0 to $1,999	$165	$ 77	$194	$ 70	$19	$ 30
$2,000 to $2,999	318	79	359	117	25	55
$3,000 to $3,999	473	124	401	154	37	58
$4,000 to $4,999	510	139	493	172	41	71
$5,000 to $6,999	642	158	544	194	48	100
$7,000 to $9,999	725	172	627	181	54	138
$10,000 and over	930	301	758	268	78	196

[a]Combination of Columns 5 and 6.

Source: Columns 1 through 11 from LIFE Study of Consumer Expenditures--A Background of Market Decisions (New York, 1957), pp. 17, 41, 65, 89, 113.

Column 12 from Study of Consumer Expenditures, Incomes, and Savings, 1950, Vol. XVIII, (University of Pennsylvania: 1957), pp. 2-11, cited by E. W. Hanczaryk and J. H. Thompson, The Economic Impact of State and Local Taxes in West Virginia (Morgantown, West Virginia: West Virginia University, 1958), p. 40.

TABLE VII

PERCENTAGE DISTRIBUTION OF CONSUMPTION COMPONENTS USED

TO ALLOCATE TAXES AMONG INCOME GROUPS

INCOME BRACKET	1 ALL GOODS AND SERVICES[a]	2 FOOD[a]	3 TOBACCO[a]	4 BEER, ALE WINE AND LIQUOR[a]	5 GASO-LINE AND OIL[a]	6 AUTOS AND ACCES-SORIES[a]	7 OIL, AUTOS AND ACCES-SORIES[a]
$0 to $1,999	15.02	18.09	17.27	11.63	16.39	8.58	11.12
$2,000 to $2,999	9.81	11.06	11.74	12.98	11.10	8.35	9.24
$3,000 to $3,999	12.57	12.91	12.90	11.24	12.85	13.71	13.43
$4,000 to $4,999	12.36	12.17	12.59	10.72	12.70	12.44	12.53
$5,000 to $6,999	24.77	23.64	24.11	25.20	25.04	28.67	27.49
$7,000 to $9,999	15.76	14.24	15.14	15.55	14.22	17.36	16.34
$10,000 and over	9.71	7.89	6.25	12.68	7.70	10.89	9.85
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00

INCOME BRACKET	8 OTHER PERSONAL AND MEDI-CAL CARE[a]	9 HOUSING[a]	10 HOME HEATING, UTILITIES[a]	11 COMMUNI-CATIONS[a]	12 LIFE INSUR-ANCE PREMIUMS	13 OTHER TRANS-PORTA-TION[a]
$0 to $1,999	18.37	14.14	14.77	15.68	1	12.27
$2,000 to $2,999	8.13	11.29	10.65	8.90	4	9.71
$3,000 to $3,999	12.46	12.32	13.69	12.87	12	9.99
$4,000 to $4,999	12.09	13.10	13.23	12.34	16	10.58
$5,000 to $6,999	23.94	25.19	26.00	25.18	19	25.98
$7,000 to $9,999	13.72	15.28	12.77	14.91	16	18.87
$10,000 and over	11.29	8.68	8.89	10.12	32	12.60
TOTAL	100.00	100.00	100.00	100.00	100	100.00

[a]Table IV multiplied by Table II, Column 6 and the resulting products expressed in percentages.

Source: Columns 1 through 11 and Column 13 derived from Tables II and IV.

Column 12 from Life Insurance Fact Book--1959 (New York: Institute of Life Insurance, 1959), p. 22.

business cost taxes were treated as being unique to the state. As such, the taxes were unshiftable, and they were considered to be borne by the owners of the taxed firms.

Retail Sales and Use Tax and Other Consumer Excises

Since the sales and use tax applies only to certain items of tangible personal property sold at retail, an estimate of the distribution of a sales tax base was obtained, as it would have been too time-consuming to estimate the distribution of expenditures for each taxable item. The distribution of expenditures for all goods and services was shown in Column 1 of Table VIII. In Columns 2 through 6 the distribution of the major exemptions from taxable sales was shown. Deducting Column 7--the total of Columns 2 through 6--from Column 1 gave the distribution of taxable expenditures which were then expressed in percentages.[13]

Not all retail sales (the last or final sale of an article) are made solely to consumers. It was estimated that approximately $9.5 million of the tax was from sales to Tennessee businesses and $1.5 million from sales to out-of-state businesses.[14] These taxes were thus costs

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[13]The total in Column 7 may not be accurate. However, a high degree of accuracy in dollar totals is relatively unimportant here, as the primary purpose was to develop an estimate of the distribution of the base.

[14]Data were available concerning the type of businesses from which sales tax collections were made. It was assumed that tax collections from firms selling the following product types were from sales to business or industrial consumers: office equipment, restaurant and

TABLE VIII

DERIVATION OF THE SALES TAX BASE DISTRIBUTION

INCOME BRACKET	1	2	3	4	5
	TOTAL EXPENDITURES FOR ALL GOODS AND SERVICES[a]	EXCLUSIONS			
		RENTALS[a]	HOUSEHOLD UTILITIES	TOBACCO PRODUCTS	GASOLINE AND OIL
	MILLIONS OF DOLLARS				
$0 to $1,999	543.00	21.26	43.08	21.26	34.47
$2,000 to $2,999	354.37	16.97	31.07	14.45	23.34
$3,000 to $3,999	454.45	18.52	39.93	15.88	27.03
$4,000 to $4,999	446.80	19.69	38.59	15.50	26.71
$5,000 to $6,999	895.38	37.87	75.84	29.70	52.66
$7,000 to $9,999	569.62	22.97	37.25	18.64	29.91
$10,000 and over	350.86	13.05	25.93	7.69	16.19
Total	3,614.48	150.32	291.69	123.10	210.31

Source: Columns 1,4, and 5 were obtained by multiplying the mean expenditure by brackets for these items (See Table VI) by Table IV, Column 6. Total rent expenditures were obtained by assuming that 40 per cent of Tennessee households occupy rented dwellings and that the average annual rental paid was $400. These figures were estimated from data in the U. S. Bureau of Census, Statistical Abstract of the United States: 1959 (Washington: Government Printing Office, 1959), pp. 763,767, which showed that 40.1 per cent of occupied dwelling units in the South in 1956 were rented and that the median gross monthly rent paid for dwelling units in Tennessee was $30.73 a month. Total rent expenditures were then distributed according to the distribution of household expenditures for housing (Table VII, Column 9). The estimated expenditures for utilities and other services (including shoe cleaning and repair, cleaning and dyeing, laundering, other services relating to clothing, barbershops and beauty parlors, telephone and telegraph, services of doctors, dentists and other professional services, transportation, radio and television repair, and admissions) were obtained by multiplying the total amount of personal consumption

TABLE VIII (CONTINUED)

DERIVATION OF THE SALES TAX BASE DISTRIBUTION

INCOME BRACKET	6	7	8	9
	EXCLUSIONS		DISTRIBUTION OF THE SALES TAX BASE	
	OTHER SERVICES	TOTAL EXCLUSIONS		PER CENT
	MILLIONS OF DOLLARS			
$0 to $1,999	63.37	183.43	359.57	14.42
$2,000 to $2,999	28.04	113.88	240.50	9.64
$3,000 to $3,999	42.98	144.34	310.11	12.43
$4,000 to $4,999	41.70	142.19	304.60	12.21
$5,000 to $6,999	82.58	278.63	616.75	24.73
$7,000 to $9,999	47.33	156.09	413.53	16.58
$10,000 and over	38.95	101.81	249.06	9.99
Total	344.94	1,120.36	2,494.13	100.00

expenditures for these items in 1957 (as contained in U. S. Department of Commerce, Survey of Current Business, July, 1959, p. 17) by the proportion that Tennessee's 1957 population was of the total United States population in 1957--2.03 per cent. The totals were then distributed according to Table VII, Columns 8 and 10.

of business and as such the firms would have liked to recover these costs by raising the price of goods sold to consumers. However, since the type of firms involved were probably subject to national competition, it was assumed that no shifting of this portion of the sales tax took place. Forty per cent of the tax on sales to in-state businesses was assumed to be made by unincorporated enterprises, with the tax allocated according to the distribution of non-corporation business profits (Table V, Column 3). Of the remainder of the business portion of the tax, 60 per cent was assumed to fall on nationally owned corporations and 40 per cent on locally owned corporations.

It was assumed that taxes on sales to consumers were entirely shifted to the consumer since all sales in Tennessee are taxed regardless of the domicile of the selling firm--no firm having a competitive advantage. Of the taxes on sales to consumers, 5 per cent were estimated to fall on out-of-state consumers and the remainder were distributed, after federal offsets, according to the distribution of taxable consumption expenditures (Table VIII, Column 9).

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hotel equipment, warehouses and storage plants, machine shops and foundaries, mill supplies, signs, petroleum equipment, manufacturers of chemical products, construction equipment, automotive machinery and testing equipment. Taxes from these sales plus the use tax--which was treated as falling entirely on purchases by business firms--amounted to approximately $6 million. Tax receipts on sales by other manufacturers, lumber dealers, builders and contractors were roughly $13 million. Although sales by these latter concerns to businesses were not classified separately from sales to other consumers, it seemed reasonable and conservative to estimate that $5 million in taxes came from sales to businesses. See Tennessee Taxpayers Association, Research Report No. 125 (Nashville: Tennessee Taxpayers Association, 1957), pp. i-v. It was then arbitrarily assumed that $1.5 million of total sales tax collections were from sales to out-of-state firms.

Of the other types of sales taxes--excises on selected commodities--the taxes on alcoholic beverages and tobacco products were assumed to fall entirely on Tennessee consumers in accordance with their expenditures on these commodities.[15]

Motor Vehicle Taxes

The highway user taxes were divided between consumers and business firms according to data obtained from a 1954 study of the taxation of motor vehicles in Tennessee.[16] This study estimated that owners of private vehicles[17] for non-business purposes paid 65.82 per cent of the Tennessee fuel taxes and 51.04 per cent of the vehicle registration fees, while vehicles used by businesses paid 34.18 and 48.96 per cent, respectively, of these taxes. These portions, which were assumed to apply in 1957, were distributed to consumers according to their expenditures for gas and oil and automobiles and accessories, and to businesses as unshiftable elements of cost.[18]

Inheritance, Estate and Gift Taxes

Death and gift taxes, like the selective excises mentioned

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[15]No attempt was made to segregate manufacturers' and distributors' license fees from the commodity taxes.

[16]Tennessee Motor Transport Association, An Analysis of Tennessee Motor Vehicles and Motor Vehicle Taxation (Nashville: n.n., 1954), pp. 8, 11.

[17]Passenger cars, handicapped drivers, and farm trucks.

[18]Thirty per cent of the cost tax was apportioned to unincorporated enterprises and 70 per cent to corporations.

above, were assumed to fall entirely on individuals; although, unlike the excises, the initial impact of the death and gift taxes as well as their incidence is borne by the same individuals. These taxes were distributed among individuals according to the distribution of property (capital) income, but the federal deductions allowed were taken entirely from the top bracket since it seemed reasonable to assume that ". . . given the high level of federal exemptions, beneficiaries would all be found in that bracket."[19]

Property Tax

Property tax collections were distributed among different types of property in accordance with the 1957 Census of Governments[20] percentage breakdown of total assessed taxable property values in Tennessee by property types. Thus, according to this breakdown, approximately 16 per cent of the property tax revenue came from public utility property, 39 per cent from residential property, 15 per cent from acreage and farms, 13 per cent from commercial real property, 6 per cent from industrial real property and the remainder from locally assessed personal property. Eighty-eight per cent of the tax on this personalty was divided between commercial and industrial property in the proportions these properties paid of the tax on real estate. The remaining

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[19]R. A. Musgrave and D. W. Daicoff, op. cit., p. 180.

[20]U. S. Bureau of the Census, U. S. Census of Governments: 1957, Vol. V, Taxable Property Values in the United States (Washington: Government Printing Office, 1959), pp. 23, 25.

12 per cent[21] was similarly apportioned to farm and residential property.

Because of the local monopoly nature of public utilities, the tax on utility property was assumed to be entirely shifted, in the form of higher rates to Tennessee consumers of home heating and utilities (Table VII, Column 10).

Of the tax on residences, 56.5 per cent[22] was paid by owner-occupiers and was thus allocated according to the estimated distribution of house values as seen in Table IX.[23] Following Musgrave and Daicoff's example, the landowner was assumed to bear one-third of the remainder of the tax on residential property, while two-thirds was treated as being shifted to tenants and distributed according to the distribution of consumer expenditures for housing (Table VII, Column 9).

Of the tax on farm property, 5 per cent was estimated to be shifted to out-of-state consumers, while of the remainder, three-fourths

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[21]Cecil Morgan, Property Assessment Administration in Tennessee, 1955-56 (Knoxville: n.n., 1956), p. 14. In this study it was found that of the total assessed personalty values in Tennessee, commercial and industrial property accounted for 88.3 per cent and individual-owned property 11.7 per cent.

[22]This was the percentage of occupied dwelling units that were owner-occupied in 1950. See U. S. Bureau of the Census, Statistical Abstract of the United States: 1959, 80th Ed. (Washington: Government Printing Office, 1959), p. 767.

[23]The average house values shown here were obtained from a nationwide sample. For our purposes of obtaining a percentage distribution we assumed that the data is applicable to Tennessee.

TABLE IX

DISTRIBUTION OF HOUSE VALUES USED TO ALLOCATE PROPERTY TAXES TO OWNER-OCCUPIERS

INCOME BRACKET	1 AVERAGE HOUSE VALUE	2 PER CENT DISTRIBUTION OF TOTAL HOUSE VALUES[a]
	DOLLARS	PER CENT
$0 to $1,999	7,505	21.62
$2,000 to $2,999	9,081	11.29
$3,000 to $3,999	9,921	12.04
$4,000 to $4,999	10,051	10.55
$5,000 to $6,999	11,500	21.05
$7,000 to $9,999	14,000	13.49
$10,000 and over	22,000	9.96
Total		100.00

[a]Column 1 multiplied by Column 6, Table II.

Source: Survey Research Center, University of Michigan, Study 650, Table HV-2, cited by R. A. Musgrave and D. W. Daicoff, "Who Pays the Michigan Taxes?" Chap. 4, Michigan Tax Study Staff Papers, (Lansing: n.n., 1958), p. 170.

was assumed to be shifted to Tennessee consumers of farm products (food). The remaining one-fourth was assumed to be borne by the farm owner according to the distribution of farm income[24] (Table V, Column 7).

Since all industrial property was considered to be corporate owned, the tax on this type of property was treated as a non-shiftable cost tax.

Half of the tax on commercial property was assumed to be shifted forward to the consumer,[25] and the other half was treated as a cost tax and divided six to four among corporations and non-corporations.

Corporation Excise and Franchise Taxes

Traditional analysis treats a tax on net economic profits--corporation income tax--as being unshiftable. Recently, however, several arguments have been advanced against this conclusion. In the first place, the arguments run, the net income tax is not imposed on pure economic profits alone. The tax base is usually the businessman's or accountant's concept of profit, which includes, in addition

[24]Not all of the tax was shiftable since a part of the tax representing the non-reproducible portion of the farm property value may have been capitalized. Another factor that would partially have prevented shifting was the reluctance of sub-marginal farmers to quit the industry.

[25]That these taxes could be shifted at all reflects the fact that many types of commercial enterprises engage in activity of an inherently local nature and that these enterprises may obtain quasi-monopolistic power due to being situated in a strategic location, etc. However, as in the case of farm land, that part of the tax that has been capitalized cannot be shifted.

to economic profits, elements of opportunity cost and implicit remuneration for risk-taking and innovation.[26] Secondly, a corporation income tax may, in the long run, exhibit consumer excise characteristics. The income tax may reduce the net returns to investors, thereby decreasing the flow of investible funds. A decline in capital formation will follow, and, subsequently, a reduction in the supply of consumer goods will occur. This reduction in supply will be manifested in higher prices charged to consumers, although the net return to investors in the taxed firms will have been forced back up to the prevailing market rate on securities of non-taxed firms.[27] Third, backward shifting of income taxes may occur if strong labor unions have used their bargaining power to relate union wages by contract directly to the size of corporate profits. In this case, the tax-caused reduction in profits will also result in a reduction in wages.[28]

However, even under these conditions it is likely that state and local income taxes cannot be shifted to the extent that national taxes can. In view of the above arguments, two cases have been

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[26]Treated by economists as costs, not elements of pure profit.

[27]C. Lowell Harriss, "Public Finance," Chap. VII, A Survey of Contemporary Economics, Bernard F. Haley (ed.), Vol. II (Homewood, Illinois: Richard D. Irwin, Inc., 1952), p. 265.

[28]It has also been pointed out that markup and full cost pricing practices in which the tax is treated as part of the markup base, and oligopolistic market structures in which price leadership and followership prevail enable the tax to be shifted. However, these factors are more apropos in the case of the federal rather than the state income tax.

distinguished. In Case A all of the tax has been assumed to be borne by corporate profits while in Case B three-fourths of the tax has been assumed to fall on profits with one-eighth being shifted forward to the Tennessee consumer and one-eighth backward to the Tennessee wage earner.[29]

With regard to the corporate franchise tax, Musgrave and Daicoff argue that

> the corporate franchise tax is a tax on net worth. Although an income tax results in tax liability only if profits are being earned currently, the franchise tax imposes a liability even when losses are realized. Moreover, between firms with equal absolute profits the franchise tax will result in a higher tax rate per dollar of profits in the case of a company which has a lower return on net worth. At the same time we note that, in the longer run at least, both taxes are related to profits. Therefore we have treated this tax in the same way as the corporate income tax. . . .[30]

We have followed this reasoning and have analysed the franchise tax in the same manner as the corporate excise tax.[31]

Income Tax on Stocks and Bonds

It was estimated that approximately 95 per cent[32] of the

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[29]This does not apply to the taxes on public utilities, which it was assumed were entirely shifted to the Tennessee consumer. No federal offsets were computed in the case of the corporate excise tax, since the state tax is based on net income as reported in the federal income tax return.

[30]R. A. Musgrave and D. W. Daicoff, _op. cit._, pp. 141-42.

[31]For convenience the corporate filing fees were analyzed with the franchise tax.

[32]These figures seemed appropriate in view of the information on the holdings of corporate bonds and stocks by different types of

personal income tax would rest on individuals[33] (either directly on individual owners or shifted to individuals by fiduciaries holding securities for them). The remaining 5 per cent was allocated as a cost tax to foreign and domestic corporations in proportions of 6 to 4.

Gross Premium Tax[34]

Life companies received 43 per cent of all gross premium receipts in Tennessee in 1957.[35] Since most life insurance is issued to individuals, and the bulk of other types of insurance is purchased by businesses, it was assumed that 50 per cent of the premiums tax was passed on to individuals according to the distribution of life insurance premium payments among households (Table VII, Column 12). Of the remainder of the tax, 40 per cent was assumed to be shifted to non-incorporated businesses and 60 per cent to corporate business.

Other Taxes

All of the taxes on the gross receipts of public utilities and transportation companies were assumed to be shifted to Tennessee consumers. Forty-four per cent of the Tennessee Valley Authority in lieu

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investors in 1958. See H. C. Carr, "Personal Trust Accounts--A New 'Financial Institution'?" Banking, November, 1959, pp. 4-10.

[33]Distributed according to Table V, Column 6.

[34]Includes other fees and taxes on insurance companies.

[35]Eighty-fifth Annual Report of the Commissioner of Insurance and Banking, State of Tennessee, as of December 31, 1957 (Nashville: n.n., 1958), p. 18.

payments were assumed to fall on the consumer[36]--9 per cent on out-of-state consumers, and 35 per cent on Tennessee consumers.

Tennessee consumers were also assumed to have borne all of the tax on theaters and the local amusement and admission tax. The tax on chain stores was assumed to be borne entirely by the owners of the chains, while the tax on soft drink bottlers and sewing machine companies and agents was distributed equally among corporate owners, non-corporate retailers and the consumer. Finally, the tax on vending machine operators was divided between retailers and corporate owners.

The privilege taxes and licenses were too numerous and varied to analyse individually. Consequently, these collections were arbitrarily allocated equally among consumer, corporate owner, and non-corporate businessman.

Since the unemployment compensation taxes are "uniquely related to labor force size and payrolls . . . and are likely to be partly reflected in lower wages . . . and . . . pressure on employers to substitute capital for labor,"[37] we have assumed that one-fourth of this tax is shifted backward to wage earners. Since this tax is

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[36]This is the portion of all TVA power sales that was made to municipalities, cooperatives and businesses. The remaining 56 per cent of power sales was to federal agencies and was excluded from the analysis. All of the in lieu payments considered were assumed to be shifted again in their entirety to the consumer by the municipalities, cooperatives and businesses. See Tennessee Valley Authority, <u>Financial Statements for the Fiscal Year Ended June 30, 1957</u> (Knoxville: n.n., 1957), p. 11.

[37]University of Wisconsin Tax Study Committee, <u>op</u>. <u>cit</u>., p. 39.

universally imposed throughout the nation, businessmen were considered to be able to shift the remainder of the tax to the consumer.[38] Ten per cent of the tax was assumed to be shifted to out-of-state consumers.

V. DISTRIBUTION OF THE TAX BURDEN AMONG INCOME BRACKETS--CASE II ASSUMPTIONS

The analysis of the preceding section was made under the assumption that portions of the Tennessee imposed taxes were borne outside the state. However, we have also allocated the taxes under an alternative assumption--distinguished as Case II. Under the Case II assumptions Tennessee was considered as a closed economy with all taxes being borne by Tennessee residents. This case could also have been considered as an analysis of the tax system where Tennessee taxes paid by out-of-state residents were completely offset by foreign taxes borne by Tennessee residents, i.e., tax exports equaled tax imports. Since state tax differentials are irrelevant under the Case II assumptions, all cost taxes, with the exception of the capitalized portions of the property tax,[39] were treated as being completely shifted to consumers. Our

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[38]To an extent this may be untrue, in that firms with a poorer merit rating might have to absorb the differential between the tax they pay (at a higher rate) and the tax paid (at low rates) by firms with good merit ratings. However, these effects are uncertain and the tax rate may vary among firms over the course of the business cycle. Consequently this problem was bypassed for convenience and simplicity.

[39]It was assumed that one-fourth of the tax on commercial and industrial property, as well as farm property, was capitalized.

treatment of the taxes on the net profits of corporations, however, is identical to that employed under Case I.

VI. RESULTS OF THE ALLOCATION OF THE TAXES

Tables X through XII summarize the results of the allocation and distribution of the Tennessee taxes.

Table X shows the amounts of Tennessee taxes borne outside the state and the portions borne inside Tennessee. Under our Case I assumptions we find that a little less than 80 per cent of Tennessee's taxes were borne by Tennesseans.[40] The in-state incidence was highest for the excises on alcoholic beverages and tobacco and lowest for the corporate franchise tax.

Tables XI and XII show the distribution of the tax bill among Tennessee households in different income brackets under the Case I and Case II assumptions. Households in the $5,000 to $7,000 bracket paid a greater proportion of the taxes than households in any other bracket, while households in the $2,000 to $3,000 bracket paid the smallest proportion of the taxes. In general it can be said that households in the upper-middle and highest income brackets paid a greater part of the tax bill than households in the lower-middle and lowest brackets. However, households in the lowest bracket paid a greater part of the taxes than households in any of the next three

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[40]No out-of-state shifting takes place under the Case II assumptions.

TABLE X

SHARE OF TENNESSEE'S STATE AND LOCAL TAX BURDEN BORNE BY

TENNESSEE RESIDENTS IN 1957

(Case I Assumptions)

Type of Tax	Total Collections	Burden Borne Outside of Tennessee			Estimated Taxes Borne by Tennessee Residents	
		Federal Tax Offsets	Shifted to Out-of-State Consumers	Borne by Out-of-State Dividend Recipients	Amount	Per Cent
	Thousands of Dollars					
Sales and Use	92,420	7,447	4,071	4,892	76,010	82.24
Alcoholic Beverage	14,619	None	None	None	14,619	100.00
Tobacco	15,197	975	None	None	14,223	93.59
Motor Vehicle	97,117	12,007	None	15,236	69,874	71.95
Property	116,814	9,014	921	9,781	97,098	83.12
Inheritance and gift	3,362	449	None	None	2,913	86.65
Corporation Excise						
Case A	19,647	None	None	11,361	8,286	42.17
Case B	19,647	None	None	8,521	11,126	56.63
Corporation Franchise & Fees						
Case A	7,394	1,410	None	4,146	1,838	24.86
Case B	7,394	1,057	None	3,109	3,228	43.66
Income	4,422	451	None	131	3,840	86.84
Gross Premium	8,802	None	None	None	7,231	82.15
Gross Receipts	5,661	72	1,324	1,324	4,104	72.50
Privilege & Misc.	9,571	1,444	None	1,899	6,228	65.07
Unemployment Compensation	28,485	None	2,849	None	25,635	90.00
Total Case A	423,511	33,269	9,165	49,178	331,900	78.37
Total Case B	423,511	32,916	9,165	45,301	336,130	79.37

Source: Data in Column 1 derived from Department of Finance and Taxation, State of Tennessee, Report for the Biennium Ending June 30, 1958, p. 21; Eighty-fifth Annual Report of the Commissioner of Insurance and Banking, as of December 1, 1957 (Nashville : n.n., 1958), p. 15; Twenty-Second Annual Report, Department of Employment Security, State of Tennessee, 1958 (Nashville : n.n., 1959), p. 16; U. S. Bureau of the Census, U. S. Census of Governments: 1957, Vol. VI, No. 40, "Government in Tennessee," (Washington, Government Printing Office, 1959), p. 11.

Data in columns two through six--computed by the author.

TABLE XI

ALLOCATION BY INCOME BRACKETS OF TENNESSEE TAXES PAID

BY TENNESSEE RESIDENTS IN 1957

(CASE I ASSUMPTIONS)

Type of Tax	Income Bracket (Dollars) 0 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	Total
	Thousands of Dollars							
Sales and Use	11,364	7,394	9,327	8,992	17,818	12,064	9,051	76,010
Alcoholic Beverage	1,700	1,898	1,643	1,567	3,684	2,273	1,854	14,619
Tobacco	2,625	1,712	1,850	1,770	3,339	2,088	839	14,223
Motor Vehicle	9,659	6,868	8,229	7,871	15,418	9,505	12,324	69,874
Property	15,448	10,043	11,568	10,984	21,075	13,056	14,924	97,098
Inheritance and Gift	209	163	154	150	263	305	1,669	2,913
Corporation Excise								
Case A	261	243	291	279	543	583	6,086	8,286
Case B	711	616	819	885	1,662	1,289	5,144	11,126
Corporation Franchise & Fees								
Case A	95	80	98	94	184	147	1,140	1,838
Case B	268	224	301	325	611	428	1,071	3,228
Income	262	197	183	175	302	348	2,373	3,840
Gross Premium	182	331	698	871	1,095	993	3,061	7,231
Gross Receipts	596	427	549	531	1,042	534	425	4,104
Privilege & Misc.	647	503	609	600	1,100	842	1,927	6,228
Unemployment Compensation	3,256	2,382	3,174	3,347	6,447	4,260	2,770	25,635
Total Case A	46,304	32,241	38,373	37,231	72,310	46,998	58,443	331,900
Total Case B	46,927	32,758	39,104	38,068	73,856	47,985	57,432	336,130

Source: Computed by the author.

TABLE XII

ALLOCATION BY INCOME BRACKETS OF TENNESSEE TAXES PAID

BY TENNESSEE RESIDENTS IN 1957

(CASE II ASSUMPTIONS)

Type of Tax	Income Bracket (Dollars) 0 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	Total
	Thousands of Dollars							
Sales and Use	13,327	8,909	11,488	11,285	22,856	15,323	9,233	92,420
Alcoholic Beverage	1,700	1,898	1,643	1,567	3,684	2,273	1,854	14,619
Tobacco	2,625	1,784	1,961	1,913	3,664	2,301	950	15,197
Motor Vehicle	14,506	9,988	12,477	12,179	24,642	14,739	8,586	97,117
Property	18,274	12,075	14,092	13,561	26,347	16,264	16,201	116,814
Inheritance and Gift	209	163	154	150	263	305	2,118	3,362
Corporation Excise								
Case A	522	513	607	580	1,128	1,335	14,962	19,647
Case B	907	819	1,056	1,110	2,100	1,853	11,802	19,647
Corporation Franchise and Fees								
Case A	223	212	253	242	470	516	5,478	7,394
Case B	364	323	417	436	825	705	4,324	7,394
Income	266	209	196	194	340	395	2,822	4,422
Gross Premium	705	608	1,081	1,248	1,926	1,398	1,836	8,802
Gross Receipts	842	585	752	730	1,445	786	521	5,661
Privilege & Misc.	1,438	939	1,203	1,183	2,371	1,508	929	9,571
Unemployment Compensation	3,618	2,647	3,526	3,721	7,163	4,736	3,074	28,485
Total Case A	58,255	40,530	49,433	48,533	96,298	61,878	68,564	423,511
Total Case B	58,781	40,947	50,046	49,277	97,625	62,585	64,250	423,511

Source: Computed by the author.

higher brackets.

These findings, while interesting, are not too informative, for it was necessary that the tax bill distribution first be compared with an estimated income total for each bracket in order to obtain a significant idea of the effective tax rates paid in each bracket. This is shown in the next chapter.

VII. SUMMARY

Estimates of the tax bill paid by households in each income bracket were prepared in this chapter. The taxes were allocated according to the distributional patterns of consumption expenditures, income components, and wealth holdings that were developed.

In general, conventional shifting and incidence assumptions were made concerning consumption taxes, death taxes, and the income tax on securities. Taxes on the net income of corporations was treated alternatively as being completely unshiftable (borne entirely by the stockholders) and 75 per cent unshiftable (the other 25 per cent was assumed to have been borne equally by wage earners and consumers).

Tennessee firms were usually assumed to have been faced by competition from outside firms in both the Tennessee and interstate markets. Assumptions concerning the shifting of business cost taxes were formulated under two alternative hypothetical conditions. In Case I it was assumed that these taxes were imposed in no other state but Tennessee. Thus the owners of firms operating in Tennessee were assumed to have absorbed the taxes. In Case II similar business cost taxes were assumed to have been universally levied in every state. Thus the taxes were treated as being entirely shiftable.

It was estimated that, under Case I assumptions, approximately 21 per cent of the Tennessee taxes would have been exported, i.e., borne by out-of-state consumers or dividend recipients and allowed as an offset against the federal income tax.

The dollar tax totals allocated to the various income brackets were not, by themselves, significant measures of the relative tax <u>burden</u> borne by households in each bracket. Obtaining this measure involved the comparison of the estimated tax totals paid in each bracket with the estimated income received in each bracket. This was accomplished in Chapter VI.

CHAPTER IV

COMPARISON OF THE DISTRIBUTION OF INCOME AND TAXES IN TENNESSEE--THE EFFECTIVE TAX RATES

Although the information in Tables XI and XII of Chapter III showed the estimated dollar amounts of the tax burden borne by each income group, it did not permit the determination of whether the tax structure was regressive, proportional, or progressive. In order that this might be done, the estimated taxes paid by each income group were compared in this chapter with the aggregate income received by households in each bracket. This showed the effective tax rates for each bracket, i.e., the proportion that the taxes paid by each bracket were of the income received by each bracket. The analysis thus involved, in addition to the estimates of the distribution of the taxes, the preparation of estimates of income received and its distribution in Tennessee.

In measuring the effective tax rates, three income concepts were used--total money income before taxes, money income plus elements of real income (income in kind and imputed values), and money income after the payment of federal taxes. The estimates of the income totals and their distribution are shown in Table XIII.

I. TOTAL MONEY INCOME BEFORE TAXES

The only available information concerning money income in Tennessee was from federal income tax returns filed in the state.

TABLE XIII

DISTRIBUTION OF INCOME IN TENNESSEE IN 1957

ACCORDING TO THREE INCOME CONCEPTS

INCOME BRACKET	1	2	3
	TYPE OF INCOME		
	MONEY	MONEY AND REAL	AFTER FEDERAL TAXES
	THOUSANDS OF DOLLARS		
$0 to $1,999	287,654	341,158	265,860
$2,000 to $2,999	298,056	357,667	267,788
$3,000 to $3,999	398,380	453,755	356,839
$4,000 to $4,999	459,183	526,683	407,644
$5,000 to $6,999	1,051,296	1,162,733	950,836
$7,000 to $9,999	798,575	864,058	709,923
$10,000 and over	836,889	997,572	566,017
Total	4,130,033	4,703,626	3,524,900

However, since these data are probably incomplete (due to underreporting of farm, interest, and rental incomes and incomes of those persons not required to file returns) and since the units filing tax returns were not entirely comparable with the household spending unit concept used in this thesis, it was thought to be preferable to develop an estimate of money income.

The methodology of developing the estimate of the aggregate income was to multiply the estimated number of households in each income interval[1] by the mid-point income--assumed to be the mean income for that bracket--for each interval. The mean income for the $10,000 and over bracket was estimated from a Pareto Curve distribution.[2]

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[1] In order to obtain greater precision in our estimate, the distribution of households as seen in Table IV, Column 6, was broken down into a greater number of brackets of smaller income intervals. Since the income distribution of families in the South was separated into sixteen brackets, it was assumed that the smaller bracket distribution within larger income intervals used in Table IV was the same for Tennessee as for the South.

[2] Liebenberg and Kaitz explain the Pareto curve in this manner: "For a given interval with class limits x_1 and x_2, and cumulative frequencies above these limits of F_1 and F_2 respectively, the mean of the interval is given by

$$\bar{X} = ab/f, \text{ where}$$

$$f = F_1 - F_2 = \text{frequencies in the given interval,}$$

$$a = F_1x_1 - F_2x_2, \text{ and}$$

$$b = \frac{\log (F_1/F_2)}{\log (F_1x_1/F_2x_2)}$$

For the final open-end interval with only x_1 and the frequencies above x_1 given, the mean can be approximated by computing the immediate value, b, for the closed interval immediately preceding the final interval, and using the formula $\bar{X} = x_1b$." Maurice Leibenberg and Hyman Kaitz,

II. BROAD INCOME CONCEPT

Recognizing that the money income concept might be inadequate since it did not include imputed income components and income in kind, a broader income measure was developed. In addition to money income, this broad income concept included undistributed corporate profits, fiduciary income and elements of income in kind and imputed values such as lodging and food furnished to domestic employees and nurses, imputed rent on owner-occupied dwellings, food and fuel produced on farms for farm consumption, gratuitous services performed by financial intermediaries, employer contributions to private pension funds and accrued interest on savings bonds. Capital gains income was also included since it was not covered under the money income concept, although it was treated as taxable income by the federal government.

Since no data applying strictly to Tennessee were available concerning the above items, our estimate was fashioned from information applying to the country as a whole.

"An Income Size Distribution from Income Tax and Survey Data, 1944" Part VII, Conference on Research in Income and Wealth, Studies in Income and Wealth, Vol. XIII (New York: National Bureau of Economic Research, Inc., 1951), pp. 444-45.

Following this interpretation, we used the formula:

$$\bar{X} = \$10{,}000 \times \frac{\text{Log } (f \text{ above } \$7{,}000 - f \text{ above } \$10{,}000)}{\text{Log } \dfrac{(f \text{ above } \$7{,}000 \times \$7{,}000)}{(f \text{ above } \$10{,}000 \times \$10{,}000)}}$$

to compute the mean income of the $10,000 and over bracket.

The first step in the derivation of the broad income distribution was to obtain a distribution of money income applicable to the entire country. This was done by multiplying the mean spending unit income of $5,160 by the total number of spending units as reported in the *Federal Reserve Bulletin*,[3] and then distributing the resulting total according to the percentage distribution of money income as reported in the same publication.[4] The result can be seen in Column 1 of Table XIV. The totals of our non-money income components were obtained from various sources and distributed as follows: retained corporate earnings were distributed according to the pattern of dividend payments, Table V, Column 2. Fiduciary income, the estimated value of gratuitous services by financial intermediaries, and accrued interest on savings bonds were distributed according to the pattern of liquid asset holdings as reported by the Federal Reserve[5] (Table V, Column 8). Farm consumption of farm-produced food and fuel was distributed according to the distribution of farm income (Table V, Column 7), and imputed rent was distributed according to the pattern of housing expenditures as reported in the

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[3]Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, Vol. XLIV, No. 9, September, 1958, 1028, 1051.

[4]*Ibid.*, p. 1051.

[5]Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, Vol. XLII, No. 3, March, 1956, p. 226. This material was presented in more workable form in: University of Wisconsin Tax Study Committee, "Distribution of State and Local Taxes in Wisconsin," Chap. II, *Wisconsin's State and Local Tax Burden*, (Madison: n.n., 1959), p. 52, Table VI, Column 9.

TABLE XIV

DERIVATION OF ADJUSTMENT FACTOR FOR BROADER INCOME CONCEPT AND FEDERAL TAX BURDEN

Spending Unit Income Bracket (Dollars)	1 Federal Reserve Money Income	2 Retained Earnings	3 Fiduciary Income	4 Value of Free Services of Financial Intermediaries	5 Accrued Interest on Savings Bonds	6 Food and Fuel consumed on Farms
	Millions of Dollars					
0 to 1,999	14,680	217	256	444	45	166
2,000 to 2,999	14,680	224	139	241	24	206
3,000 to 3,999	26,425	262	195	338	34	231
4,000 to 4,999	32,290	250	212	367	36	213
5,000 to 6,999	67,529	485	456	792	80	323
7,000 to 9,999	64,593	624	401	695	70	256
10,000 and over	73,401	7,360	567	985	99	368
Total	293,604	9,422	2,226	3,863	388	1,763

Source: Totals in: Col. 1 from Board of Governors of the Federal Reserve System; Federal Reserve Bulletin, Vol. XLIV, No. 9, September, 1958,p. 1051.

Col. 2 from U. S. Department of Commerce, Office of Buxiness Economics, U. S. Income and Output, (Washington: Government Printing Office, 1959), p. 4.

Col. 3 from U. S. Treasury Department, Internal Revenue Service, Statistics of Income, 1956, Fiduciary Income Tax Returns, (Washington: Government Printing Office, 1959), p. 4.

Cols. 4,6,7,8 from U. S. Income and Output, op. cit., p. 229.

Col. 5 from U. S. Treasury Department, Treasury Bulletin, October, 1957, p. 13.

TABLE XIV (CONTINUED)

DERIVATION OF ADJUSTMENT FACTOR FOR BROADER INCOME CONCEPT

AND FEDERAL TAX BURDEN

Spending Unit Income Bracket (Dollars)	7 Imputed Rent	8 Domestics' & Nurses' Lodging & Food	9 Employer Contri-butions to Pension Funds	10 Capital Gains	11 Adjustment Factors[a]	12 Federal Tax Burden
	Millions of Dollars				Per Cent	Thousands of Dollars
0 to 1,999	896	40	397	275	118.6	21,794
2,000 to 2,999	1,344	53	536	173	120.0	30,268
3,000 to 3,999	1,568	81	818	154	113.9	41,541
4,000 to 4,999	2,352	105	1,050	147	114.7	51,539
5,000 to 6,999	2,687	181	1,820	306	110.6	100,460
7,000 to 9,999	1,455	132	1,330	353	108.2	88,652
10,000 and over	896	97	972	2,720	119.2	270,872
Total	11,198	649	6,923	--	--	605,126

[a]Computed by expressing Columns 2 through 10 as a per cent of Column 1.

Source: Totals in: Col. 9 from National Industrial Conference Board, Inc., "Employer Payments for Employee Security in Private Industry," Road Maps of Industry, No. 1201, Jan. 2, 1959.

Col. 10 from U. S. Treasury Department, Internal Revenue Service, Statistics of Income, 1957, Individual Income Tax Returns, (Washington: Government Printing Office, 1959), p. 22.

Col. 12 from Commissioner of Internal Revenue, Internal Revenue Service, U. S. Treasury Department, Annual Report for the Fiscal Year Ended June 30, 1957, (Washington: U. S. Government Printing Office, 1957), p. 78.

LIFE Study of Consumer Expenditures.[6] Room and board furnished to domestic servants and employer contributions to pension funds were treated as supplements to wages and salaries and were thus allocated according to the pattern of wage and salary receipts (Table V, Column 1). Finally, capital gains income was distributed as reported in the Statistics of Income.[7]

All of the non-money income components accruing to each income group were then added to the money income in each bracket and the resulting bracket totals were then expressed as percentages of money income in each class (See Table XIV). The percentages so obtained--the ratios between the broad income and money income--were then applied, as adjustment factors, to our estimates of Tennessee money income to obtain the broad income totals. This brought us closer to the Department of Commerce estimate of Personal Income in Tennessee in 1957 of $4,791 million.[8]

The reader should be aware of the tenuous nature and questionable accuracy of our broad income estimate since the adjustment factor

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[6]Alfred Politz Research, Inc., LIFE Study of Consumer Expenditures--A Background of Market Decisions, Vol. I (New York: Time, Inc., 1957), p. 91.

[7]U. S. Treasury Department, Internal Revenue Service, Statistics of Income, 1957, Individual Income Tax Returns (Washington: Government Printing Office, 1959), p. 24.

[8]U. S. Bureau of the Census, Statistical Abstract of the United States: 1959 (Washington: Government Printing Office, 1959), p. 311.

used was developed from data applying to the whole nation, of which Tennessee was not particularly representative, and since the estimate was also derived partly from our money income figures--themselves purely estimates. However, it is believed that this was the best that could be done with the data available.

III. MONEY INCOME AFTER FEDERAL TAXES

Another income measure was used to show the burden of the Tennessee tax structure on money income available after the payment of federal taxes.

Federal taxes paid in Tennessee in 1957 included $139,480 thousand in corporate income taxes, $6,971 thousand in inheritance and gift taxes, $389,588 thousand in personal income taxes, $34,620 thousand in social security taxes, and $34,467 thousand in various excise taxes.[9] All federal taxes paid in Tennessee were assumed to fall on Tennessee residents. The taxes were distributed among brackets and then deducted from our estimates of the money income in each bracket. The corporate income taxes were allocated according to the pattern of dividend payments (Table V, Column 2), while personal income tax payments were apportioned according to the amounts paid in each bracket as reported in Statistics of Income.[10] The entire

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[9]Commissioner of Internal Revenue, Internal Revenue Service, United States Treasury Department, Annual Report for the Fiscal Year Ended June 30, 1957 (Washington: Government Printing Office, 1957), pp. 78, 80.

[10]U. S. Treasury Department, Internal Revenue Service,

amount of the death and gift taxes was allotted to the top bracket. All of the excises and three-fourths of the social security taxes were allocated among brackets in the same proportions as household expenditures on all goods and services (Table VII, Column 1), and the remaining one-fourth of the social security tax was assumed to fall on wages and salaries.

IV. THE EFFECTIVE TAX RATES

After developing the estimated distribution of the three types of income received by Tennessee residents, it was possible to show the effective tax rates paid by Tennessee households in each income bracket under our alternative assumptions. This information is contained in Tables XV through XX.

In Tables XV and XVI the effective tax rates based upon the distribution of money income were presented. Under both the Case I and Case II shifting assumptions, the tax structure was regressive[11] throughout except for the last income bracket. The regressive effect

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Statistics of Income, 1957, Individual Income Tax Returns, op. cit., p. 56.

[11]A tax is said to be regressive if the tax-income ratio decreases as income increases, progressive if the tax-income ratio increases during movement up the income scale, and proportional if the tax-income ratio remains constant throughout the income scale. In using the tax-income ratio as a measure of the tax burden borne in each bracket, we did not consider the possibility that the marginal utility of income might be greater at low than at high income levels. Thus, if the effective tax rate in both the lowest and the highest bracket were 10 per cent, the tax burden borne in each bracket was considered to be equal, even though a 10 per cent decrease in a $1,000 income may lower living standards more than a 10 per cent decrease in a $10,000 income.

TABLE XV

EFFECTIVE TAX RATES BASED UPON A DISTRIBUTION OF MONEY INCOME--

CASE I ASSUMPTIONS

TYPE OF TAX	INCOME BRACKET (DOLLARS) 0 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	TOTAL
	PER CENT							
Sales and Use	3.95	2.48	2.34	1.96	1.70	1.51	1.08	1.84
Alcoholic Beverage	0.59	0.64	0.41	0.34	0.35	0.29	0.22	0.35
Tobacco	0.91	0.58	0.46	0.39	0.32	0.26	0.16	0.34
Motor Vehicle	3.36	2.31	2.07	1.71	1.47	1.19	2.29	1.69
Property	5.37	3.37	2.90	2.39	2.01	1.64	2.77	2.35
Inheritance & Gift	0.07	0.06	0.04	0.03	0.03	0.04	0.31	0.08
Corporation Excise								
Case A	0.09	0.08	0.07	0.06	0.05	0.07	1.13	0.20
Case B	0.25	0.21	0.21	0.19	0.16	0.16	0.95	0.30
Corporation Franchise & Fees								
Case A	0.03	0.03	0.03	0.02	0.02	0.02	0.21	0.05
Case B	0.09	0.08	0.08	0.07	0.06	0.05	0.20	0.08
Income	0.09	0.07	0.05	0.04	0.03	0.04	0.44	0.09
Gross Premium	0.06	0.11	0.18	0.19	0.10	0.12	0.57	0.18
Gross Receipts	0.21	0.14	0.14	0.12	0.10	0.07	0.08	0.10
Privilege and Misc.	0.23	0.17	0.15	0.13	0.11	0.11	0.36	0.15
Unemployment Compensation	1.13	0.80	0.79	0.73	0.61	0.53	0.51	0.62
Total Case A	16.10	10.82	9.63	8.11	6.88	5.89	6.98	8.04
Total Case B	16.31	10.99	9.82	8.29	7.03	6.01	6.86	8.14

Source: Computed from Data in Tables XI and XIII.

TABLE XVI

EFFECTIVE TAX RATES BASED UPON A DISTRIBUTION OF MONEY INCOME--

CASE II ASSUMPTIONS

TYPE OF TAX	INCOME BRACKET (DOLLARS) 0 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	TOTAL
	PER CENT							
Sales and Use	4.63	2.99	2.88	2.46	2.18	1.92	1.30	2.31
Alcoholic Beverage	0.59	0.64	0.41	0.34	0.35	0.29	0.22	0.35
Tobacco	0.91	0.60	0.49	0.42	0.35	0.29	0.13	0.37
Motor Vehicle	5.04	3.35	3.13	2.65	2.34	1.85	1.20	2.42
Property	6.35	4.05	3.54	2.95	2.51	2.04	2.27	2.92
Inheritance & Gift	0.07	0.06	0.04	0.03	0.03	0.04	0.30	0.08
Corporation Excise								
Case A	0.18	0.17	0.15	0.13	0.11	0.17	2.10	0.49
Case B	0.32	0.28	0.27	0.24	0.20	0.23	1.66	0.49
Corporation Franchise & Fees								
Case A	0.08	0.07	0.06	0.05	0.05	0.07	0.77	0.19
Case B	0.13	0.11	0.11	0.10	0.08	0.09	0.61	0.19
Income	0.09	0.07	0.05	0.04	0.03	0.05	0.40	0.11
Gross Premium	0.25	0.20	0.27	0.27	0.18	0.18	0.26	0.22
Gross Receipts	0.29	0.20	0.19	0.16	0.14	0.10	0.07	0.14
Privilege and Misc.	0.50	0.32	0.30	0.26	0.23	0.19	0.13	0.24
Unemployment Compensation	1.26	0.89	0.89	0.81	0.68	0.59	0.43	0.71
Total Case A	20.25	13.60	12.41	10.57	9.16	7.75	8.19	10.25
Total Case B	20.44	13.74	12.56	10.73	9.29	7.84	7.68	10.25

Source: Computed from data in Tables XII and XIII.

was particularly noticeable in the $2,000 and under income bracket. To a certain extent, the high tax-income ratio for the first bracket is misleading. Current income is a relatively poor measure of the welfare and economic status of many families in this bracket. Included in this bracket undoubtedly are many retired people who are living comfortably on savings accumulated in the past or whose property holdings represent considerable value. Also included in this group would be the temporarily unemployed and others whose income is normally much higher. These families tend to maintain their customary consumption standards in spite of their temporarily low income status.

The regressive nature of the tax system on the income groups between $2,000 and $10,000, while not as pronounced as in the first bracket, nevertheless was apparent. Over this interval the tax-income ratio decreased from approximately 11 per cent to 6 per cent under the Case I shifting assumptions, while under the Case II assumptions a similar decrease of from approximately 14 to 8 per cent was shown. Only in the $10,000 and over bracket was a slight progressive tendency shown--a result of our assumptions which distributed large portions of the corporate excise tax, franchise tax, and inheritance taxes to this group. However, the effective rates in this bracket were generally lower than the rates over the first five brackets.

The tax rates under the tax exporting (Case I) assumptions were necessarily lower than in the absence of tax exporting. However, the distributions of the relative tax burdens under the two alternative assumptions were not significantly different.

Under the Case A assumption, where the entire amount of the corporate excise and franchise taxes was assumed to rest on the owners of the taxed corporations, the effective rates of the entire tax structure were slightly higher in the last bracket than under the Case B assumption under which only three-fourths of the taxes on corporate profits were borne by corporate owners, the other one-fourth being divided equally between wage earners and consumers. On the other hand, under the Case B assumptions the effective rates for all the brackets under $10,000 were slightly greater than under the Case A assumptions. However, the differences in the tax structure under the Case A and Case B assumptions were not great, and the general trend of the tax-income ratio was not altered under the two cases except in Case II-B where the effective rate became regressive in the final bracket.

Of the major individual taxes, the sales, tobacco, payroll, and motor vehicle (Case II) taxes were regressive throughout the income scale while the property and motor vehicle (Case I) taxes were progressive in the last bracket only. The regression of the sales, tobacco, motor vehicle, and property taxes was particularly marked. Under the Case II assumptions, the effective rates of these taxes in the first bracket were 4.63 per cent, .91 per cent, 5.04 per cent, and 6.35 per cent, respectively, while in the last bracket the rates were only 1.3 per cent, .13 per cent, 1.2 per cent and 2.27 per cent respectively.

These taxes also showed similar markedly regressive tendencies under the Case I assumptions although the magnitude of the decrease in the effective rates was not quite as great as in Case II. The regression of the sales tax and tobacco excises was to be expected. The shape of the effective rate pattern of the property tax reflects the fact that the value of residential dwellings owned by families in the low-income classes was large relative to their incomes. In addition, since housing expenditures tend to be a larger proportion of low than of high income budgets, that portion of the tax shifted to renters tended to be distributed relatively more heavily in the lower portion of the scale. While it is true that much intangible property (securities) is owned by the upper income groups, property of this type goes practically untaxed.

Over the lower-middle end of the scale the alcoholic beverage tax was the most regressive, and the payroll tax was the least regressive of the major taxes under the Case II assumptions, while over the middle-upper range the tobacco tax was the most regressive and the property tax was the least regressive.[12] There was no single tax

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[12]To determine whether one tax was more regressive than another over the lower-middle range involved comparison of the percentage drop in the effective rates of the various taxes between the $2,000-$3,000 and $4,000-$5,000 brackets. Similar analysis for the middle-upper range involved comparison of effective tax rate changes between the $4,000-$5,000 and $10,000 and over brackets.

It should be noted that when only the middle and last brackets are compared, some taxes appear to be progressive over the entire middle-upper range--see for example the Corporate excise, Property (Case I), and Motor Vehicle (Case I) taxes. This comparison belies the fact that these taxes are regressive over much of this range, as can be seen when smaller intervals are used.

that was progressive or even proportional throughout the entire income range.

The inheritance, corporation excise, corporation franchise, and income (intangibles) taxes were regressive over the lower-middle end of the scale and progressive over the middle-upper range. Although the pattern of these taxes over the lower-middle range may seem surprising, it was the result of our allocation of these levies according to the distribution of property income. Thus it reflects the fact that property income (primarily accruing to retired people who have little other sources of income) was a higher proportion of total income in the low income levels than it was in the middle range.

The data in Tables XVII and XVIII show that the pattern of the tax structure remained distinctly regressive when the effective tax rates were based on the broader income concept. However, since the lower income groups were the major recipients of much of the income in kind components, the tax structure was slightly less regressive at the lower end of the scale when compared with the distribution of broad income than when compared with the distribution of money income alone. The addition of the broad income components also had a tendency toward evening incomes somewhat in the middle brackets, thus slightly reducing the regressive effect of the taxes over the $2,000 to $10,000 range. However, in the last bracket the rate structure became much less progressive (even becoming regressive under the Case II assumptions) than under the money income concept, reflecting the fact that the bulk of the retained corporate

TABLE XVII

EFFECTIVE TAX RATES BASED UPON A DISTRIBUTION OF MONEY AND REAL INCOME--CASE I ASSUMPTIONS

TYPE OF TAX	INCOME BRACKET (DOLLARS)							
	0 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	TOTAL
	PER CENT							
Sales and Use	3.33	2.07	2.06	1.17	1.53	1.40	0.91	1.62
Alcoholic Beverage	0.50	0.53	0.36	0.30	0.31	0.26	0.19	0.31
Tobacco	0.77	0.48	0.41	0.34	0.29	0.24	0.08	0.30
Motor Vehicle	2.83	1.92	1.81	1.50	1.33	1.10	1.24	1.49
Property	4.53	2.81	2.55	2.09	1.81	1.51	1.50	2.06
Inheritance & Gift	0.06	0.05	0.03	0.03	0.02	0.04	0.17	0.06
Corporation Excise								
Case A	0.08	0.07	0.06	0.05	0.05	0.07	0.61	0.18
Case B	0.21	0.17	0.18	0.17	0.14	0.15	0.52	0.24
Corporation Franchise & Fees								
Case A	0.03	0.02	0.02	0.02	0.02	0.02	0.11	0.04
Case B	0.08	0.06	0.07	0.06	0.05	0.05	0.11	0.07
Income	0.08	0.06	0.04	0.03	0.03	0.04	0.24	0.08
Gross Premium	0.05	0.09	0.15	0.17	0.09	0.11	0.31	0.15
Gross Receipts	0.18	0.12	0.12	0.10	0.09	0.06	0.04	0.09
Privilege and Misc.	0.19	0.14	0.13	0.11	0.10	0.10	0.19	0.13
Unemployment Compensation	0.95	0.67	0.70	0.64	0.56	0.49	0.28	0.56
Total Case A	13.57	9.01	8.46	7.07	6.22	5.44	5.86	7.06
Total Case B	13.76	9.16	8.62	7.23	6.35	5.55	5.76	7.14

Source: Computed from data in Tables XI and XIII.

TABLE XVIII

EFFECTIVE TAX RATES BASED UPON A DISTRIBUTION OF MONEY INCOME AND REAL INCOME--CASE II ASSUMPTIONS

TYPE OF TAX	INCOME BRACKET (DOLLARS) 0 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	TOTAL
	PER CENT							
Sales and Use	3.91	2.49	2.53	2.14	1.97	1.77	0.93	1.97
Alcoholic Beverage	0.50	0.53	0.36	0.30	0.31	0.26	0.19	0.31
Tobacco	0.77	0.50	0.43	0.36	0.32	0.27	0.10	0.32
Motor Vehicle	4.25	2.79	2.75	2.31	2.12	1.71	0.86	2.07
Property	5.35	3.38	3.11	2.58	2.27	1.88	1.62	2.48
Inheritance & Gift	0.06	0.05	0.03	0.03	0.02	0.04	0.21	0.07
Corporation Excise								
Case A	0.15	0.14	0.13	0.11	0.10	0.16	1.50	0.42
Case B	0.27	0.23	0.23	0.21	0.18	0.22	1.18	0.42
Corporation Franchise & Fees								
Case A	0.07	0.06	0.06	0.05	0.04	0.06	0.55	0.16
Case B	0.11	0.09	0.09	0.08	0.07	0.08	0.43	0.16
Income	0.08	0.06	0.04	0.04	0.03	0.05	0.28	0.09
Gross Premium	0.21	0.17	0.24	0.24	0.17	0.16	0.18	0.19
Gross Receipts	0.25	0.16	0.17	0.14	0.12	0.09	0.05	0.12
Privilege and Misc.	0.42	0.26	0.27	0.23	0.20	0.18	0.09	0.20
Unemployment Compensation	1.06	0.74	0.78	0.71	0.62	0.55	0.31	0.61
Total Case A	17.08	11.33	10.89	9.22	8.28	7.16	6.87	9.00
Total Case B	17.23	11.45	11.03	9.36	8.40	7.24	6.44	9.00

Source: Computed from data in Tables XII and XIII.

earnings and capital gains income was attributed to this bracket, thus making the tax-income ratio smaller.

When measured against the distribution of money income after the payment of federal taxes (Tables XIX and XX), the tax structure remained markedly regressive in all but the last bracket where the effective rate increased fairly sharply, reflecting the highly progressive nature of the federal tax structure which reduced the after-tax income of the $10,000 and over bracket to a greater extent than in the other brackets. However, although the effective rates prevailing in the last bracket were generally greater than the average rates for all brackets they were lower than the rates on households with less than $4,000 income.

V. SUMMARY

In this chapter, estimates of income received by Tennessee households in each income bracket were prepared. Three income concepts were used for this purpose: total money income, money income plus elements of "real" income (income in kind), and money income after the payment of federal taxes.

Effective tax rates were computed by expressing the estimated taxes paid in each bracket as a per cent of income received in that bracket. The tax-income ratios gave a better indication of the pattern of the tax structure than did the distribution of the taxes alone.

TABLE XIX

EFFECTIVE TAX RATES BASED UPON A DISTRIBUTION OF MONEY INCOME AFTER FEDERAL TAXES--CASE I ASSUMPTIONS

TYPE OF TAX	INCOME BRACKET (DOLLARS)							
	0 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	Total
	PER CENT							
Sales and Use	4.27	2.76	2.61	2.21	1.87	1.70	1.60	2.16
Alcoholic Beverage	0.64	0.71	0.46	0.38	0.39	0.32	0.33	0.42
Tobacco	0.99	0.64	0.52	0.43	0.35	0.29	0.15	0.40
Motor Vehicle	3.63	2.57	2.31	1.93	1.62	1.34	2.18	1.98
Property	5.81	3.75	3.24	2.69	2.22	1.84	2.64	2.76
Inheritance & Gift	0.08	0.06	0.04	0.04	0.03	0.04	0.30	0.08
Corporation Excise								
Case A	0.10	0.09	0.08	0.07	0.06	0.08	1.08	0.24
Case B	0.27	0.23	0.23	0.22	0.18	0.18	0.91	0.32
Corporation Franchise & Fees								
Case A	0.04	0.03	0.03	0.02	0.02	0.02	0.20	0.05
Case B	0.10	0.08	0.08	0.08	0.06	0.06	0.19	0.09
Income	0.10	0.07	0.05	0.04	0.03	0.05	0.42	0.11
Gross Premium	0.07	0.12	0.20	0.21	0.12	0.14	0.54	0.21
Gross Receipts	0.22	0.16	0.15	0.13	0.11	0.08	0.08	0.12
Privilege and Misc.	0.24	0.19	0.17	0.15	0.12	0.12	0.34	0.18
Unemployment Compensation	1.23	0.89	0.90	0.82	0.68	0.60	0.49	0.73
Total Case A	17.42	12.04	10.75	9.13	7.61	6.62	10.33	9.42
Total Case B	17.65	12.23	10.96	9.34	7.77	6.76	10.15	9.54

Source: Computed from data in Tables XI and XIII.

TABLE XX

EFFECTIVE TAX RATES BASED UPON A DISTRIBUTION OF MONEY INCOME

AFTER FEDERAL TAXES--CASE II ASSUMPTIONS

TYPE OF TAX	INCOME BRACKET (DOLLARS)							TOTAL
	0 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	
	PER CENT							
Sales and Use	5.01	3.33	3.22	2.77	2.40	2.16	2.09	2.72
Alcoholic Beverage	0.64	0.71	0.46	0.38	0.39	0.32	0.33	0.42
Tobacco	0.99	0.67	0.55	0.47	0.39	0.32	0.22	0.45
Motor Vehicle	5.46	3.73	3.50	2.99	2.59	2.08	1.94	2.86
Property	6.87	4.51	3.95	3.33	2.77	2.29	2.86	3.31
Inheritance & Gift	0.08	0.06	0.04	0.04	0.03	0.04	0.37	0.10
Corporation Excise								
Case A	0.20	0.19	0.17	0.14	0.12	0.19	2.64	0.42
Case B	0.34	0.31	0.30	0.27	0.22	0.26	1.66	0.42
Corporation Franchise & Fees								
Case A	0.08	0.08	0.07	0.06	0.05	0.07	0.97	0.21
Case B	0.14	0.12	0.12	0.11	0.09	0.10	0.76	0.21
Income	0.10	0.08	0.06	0.05	0.04	0.06	0.50	0.13
Gross Premium	0.27	0.23	0.30	0.31	0.20	0.20	0.32	0.25
Gross Receipts	0.32	0.22	0.21	0.18	0.15	0.11	0.09	0.16
Privilege and Misc.	0.54	0.35	0.34	0.29	0.25	0.21	0.16	0.27
Unemployment Compensation	1.36	0.99	0.99	0.91	0.75	0.67	0.54	0.80
Total Case A	21.91	15.14	13.85	11.91	10.13	8.72	12.11	12.02
Total Case B	22.11	15.29	14.03	12.09	10.27	8.82	11.35	12.02

Source: Computed from data in Tables XII and XIII.

In general, our estimates indicated that the Tennessee tax structure was regressive (i.e., the effective tax rates declined as income increased) in all but the last bracket.[13] The regression was especially marked over the 0 to $2,000 income range. The degree of progression in the last bracket depended upon the income concept used.

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[13]The tax rate structure was regressive throughout the entire income scale when the broad (money plus real income) income concept was used.

CHAPTER V

THE DISTRIBUTION OF GOVERNMENT BENEFITS IN TENNESSEE IN 1957

A comprehensive view of the impact of government fiscal policy on the distribution of income must include the expenditure side of the picture as well as the tax side. Analysis of the tax burden alone would give an incomplete and distorted view of the true situation because tax burdens may be offset to some degree by government expenditure benefits.

A few qualifications and explanations prior to the ensuing analysis are necessary to clarify our position and to simplify an extremely complex subject. The value of government benefits has been considered to be identical with the dollar expenditures. However, in reality, since government activity is not determined by market forces, the sum of the social and private benefits received may be greater or less than their costs. Also, we did not consider the possibility of any waste or inefficiency in the government, each dollar of expenditure being treated as a dollar's worth of benefit.

The benefit approach, rather than the accounting approach, has been used.[1] That is, expenditures have been attributed to those who

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[1] John H. Adler, "The Fiscal System, The Distribution of Income, and Public Welfare," Chap. 8, Kenyon Poole (ed.), Fiscal Policies and the American Economy (New York: Prentice Hall, Inc., 1951), pp. 360-62.

are intended to be benefited directly or indirectly rather than to the actual recipients of the government outlay. For instance, educational expenditures primarily benefit school children rather than the teachers and administrators who actually receive the funds. Only in the case of transfer payments were the recipients of the funds identical with the beneficiaries.

The level of national income has been held constant both before and after the expenditures. We have not considered the possibility that government expenditures might increase or decrease national income.

No attempt was made to determine what portion of Tennessee government expenditures benefited foreign residents. Practically all of the welfare, public health, housing, and general government expenditures probably benefit Tennesseans solely, although out-of-state motorists, students, property owners, and tourists do benefit from expenditures on Tennessee highways, colleges, fire protection, and local parks and recreation. However, we would expect the amount to be less than the share of the Tennessee taxes borne by foreigners under our Case I tax assumptions.

I. EXPENDITURES ALLOCATED

In Table XXI, total 1957 expenditures of Tennessee state and local governments were broken down by function for which the money was spent. These figures excluded expenditures financed by Federal grants since federal taxes, for the most part, have been excluded

TABLE XXI

EXPENDITURES OF STATE AND LOCAL GOVERNMENTS IN

TENNESSEE BY FUNCTION, 1957

FUNCTION	COLUMN 1 COMBINED TENNESSEE STATE AND LOCAL EXPENDITURES, 1957	COLUMN 2 ADJUSTED EXPENDITURES
	THOUSANDS OF DOLLARS	
Education		
Local Schools & Other	171,927	125,660
State Colleges	28,816	16,434
Highways	118,205	95,556
Public Welfare	50,449	40,304
Hospitals	39,825	19,406
Health	9,212	6,932
Local Fire Protection	9,509	7,173
Housing & Community Redevelopment	8,930	2,746
Non-Highway Transportation		
Airports	1,302	262
Water Transportation, Terminals & Other	878	637
Employment Security Administration	3,886	2,622
Unemployment Benefits Paid	32,187	25,521
Interest on General Debt	15,310	11,866
Police	15,273	11,836
Natural Resources	11,355	7,720
Other Sanitation	7,714	5,985
Local Parks & Recreation	6,635	4,453
Correction	6,456	4,702
Local Libraries	1,216	463
General Control	19,204	15,016
General Public Buildings	6,441	4,690
Other General Government	12,210	9,358
Sewers & Sewage Disposal	8,568	4,169
Total	585,509	423,511

Source: U. S. Bureau of the Census, U. S. Census of Governments: 1957, Vol. III, No. 5, Compendium of Government Finances (Washington: Government Printing Office, 1959), pp. 31, 32, 148, 149.

from our analysis of the tax incidence. Utility expenditures likewise have been excluded, since utility revenues were not treated in Chapters III and IV. Intergovernmental funds (grants-in-aid and tax sharing) flowing between the state and local level were netted out, i.e., they were treated as expenditures, but only once.

Total expenditures of $585,509 thousand compared with total allocated tax revenue of $423,511 thousand, the difference being due primarily to debt financing or spending out of non-tax expendable funds (miscellaneous general revenue). This difference can be narrowed somewhat by subtracting from the various expenditure categories the $62,082 thousand in revenue obtained from current charges and special assessments,[2] our rationale here being that these revenues were obtained directly from beneficiaries in exchange for government services of equivalent value.[3] However, a noticeable discrepancy between the expenditures and revenue totals still remained, most of which could have been attributed to debt financing by local governments. Including this amount in the expenditures allotted to 1957 beneficiaries would have been tantamount to attributing them with benefits that must be paid for by future taxes necessary to amortize the debt.[4] If, in the

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[2]U. S. Bureau of the Census, U. S. Census of Governments: 1957, Vol. 3, No. 5, Compendium of Government Finances (Washington: Government Printing Office, 1959), p. 32. Special assessments of $508 thousand were treated in the same manner as current charges for sewers and sewage disposal.

[3]No redistribution of income occurs in this situation.

[4]The time period problem could have complicated our analysis in

long run, all expenditures can be considered to be financed by taxes, it would seem simpler to have eliminated the debt financed 1957 expenditures rather than include future taxes. Rather than subtract such expenditures from each outlay category--which would have resulted in a large scale reduction of important benefits (highways and education) that were heavily debt financed--we have reduced total expenditures and assumed that the component category expenditures remained the same relative proportions of the total.[5] The resulting expenditures to be allocated after the above adjustments were shown in Column 2 of Table XXI.

II. DISTRIBUTION OF THE SPECIFIC BENEFITS

The functional breakdown of expenditures will enable us to estimate the distribution of the government benefits. And, although our estimates could be considered to be only crude first approximations of the true situation, they have provided information for general observation and broad conclusions.

The first step was to determine the expenditures that could be

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another way. To what extent would the $219,619 thousand of capital expenditures (other than for water supply systems) by the state and local governments in 1957 have accrued to beneficiaries in future years? This amount was probably largely offset by benefits enjoyed in 1957 from capital outlay of earlier years. Also much of the capital expenditures were probably included in the debt financed expenditures that we eliminated below.

[5]The same procedure was employed in the Michigan study. See R. A. Musgrave and D. W. Daicoff, "Who Pays the Michigan Taxes?", Chap. IV, Michigan Tax Study Staff Papers (Lansing: n.n., 1958), p. 153.

allocated fairly precisely to specific groups (specific benefits) as contrasted with indivisible benefits that accrued to the community as a whole (general benefits). Examining the information in Table XXI, it appeared that expenditures for the following functions could be included in the specific category: education, highways, public welfare, hospitals and health, local fire protection, sewers and other sanitation, public housing, non-highway transportation, interest on the general debt, employment security administration, and unemployment security payments. The remaining expenditures, about 15.16 per cent of the total, were classified as general expenditures.

The second step was to allocate the specific expenditures among income groups. With one exception, the distribution patterns found in Chapters III and IV have been used.

Education expenditures primarily benefit the students (who gain earning power) and their parents (who are spared the task of providing education for their children at their own expense). Consequently, that portion of the expenditures for "local schools and other" (mainly elementary and secondary schools) was distributed on the basis of the number of U. S. children of school age in each income bracket.[6] Perhaps this tends to understate the proportion of benefits accruing to the lower income groups since there is probably a greater concentration

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[6]U. S. Bureau of the Census, "Income of Families and Persons In the United States: 1957," Current Population Reports-Consumer Income, Series P-60, No. 30 (Washington: Government Printing Office, 1958), p. 32.

of children in these brackets in Tennessee than for the whole United States. On the other hand, this error could be partially offset by our implicit assumption that all children attend school. It is more likely, however, that the percentage of children in each bracket continuing through high school varies directly with income--a smaller percentage of children in the low brackets continuing their schooling past the eighth grade than of those in the upper brackets.

In the case of college students we have assumed that enrollment is definitely a function of income and we have distributed the college benefits on the basis of both the relative proportions of students and money incomes in the three highest brackets.

Highway expenditures provide benefits for both private motorists and businesses (cutting transportation costs and widening potential markets for the latter). Consequently, they were divided between these two groups in the proportions each paid of all motor vehicle taxes. The private motorists' share was distributed according to consumers' expenditures on gas and oil, while the business portion was treated as a negative sales tax to be passed on to consumers in the form of lower prices. This portion was distributed according to the pattern of consumer expenditures for all goods and services.

Public welfare expenditures consist of categorical programs for old age assistance, aid to dependant children, aid to the blind and disabled, and other relief and assistance programs. Since these expenditures are made, in many cases, on the basis of need or the proven absence of other sources of income, they were distributed to the two lowest brackets one-half inversely to the proportions of income in each bracket and one-half according to the portions of households in each bracket. Public health and hospital expenditures were distributed in the same way as were public welfare outlays, except that hospital benefits were distributed over the first four brackets.

Expenditures for local fire protection chiefly benefit owners of real and tangible personal property. Consequently, this outlay was apportioned between businesses on the one hand and owner occupiers and renters of residences on the other in the proportions that each paid of the property tax. The business share was assumed to have been passed on to consumers of all goods and services in the form of lower prices.

Government expenditures for sewers and sewage disposal mainly benefit the owners and occupiers of dwellings located adjacent to these facilities. Thus, these expenditures were apportioned according to the distribution of property tax payments on residential property.

Public housing projects are primarily intended for the benefit of poorer people, and thus government outlay for this function was allotted according to the pattern of rental payments in the first four income brackets.

Unemployment compensation benefits and expenditures for employment security administration were distributed according to a series constructed in 1953 by R. S. Tucker.[7] This series was a composite of several other series, including the estimated distribution of unemployed workers, wages and wage earners covered by social security, and money income.

Interest payments on the general debt were distributed according to the pattern of interest income received by individuals filing income tax returns.[8]

Expenditures for airport facilities were divided among passengers, mail freight, and business freight and express according to the revenue ton miles flown by each group over domestic scheduled airlines in 1957.[9] The passenger portion was then allocated to income groups according to consumer expenditures for "other transportation." The portion allotted to mail freight was distributed according to the number of households in each bracket. The business freight share, as well as all other types of non-highway transportation benefits were allocated according to the

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[7]Rufus S. Tucker, "The Distribution of Government Burdens and Benefits," American Economic Review, Papers and Proceedings of the American Economic Association, Vol. XLIII, No. 2, May, 1953, p. 526.

[8]Although Adler and Tucker have treated interest payments in this fashion, others argue that interest payments are not really "benefits" to bond holders, being instead merely the inducement or reward for the painful sacrifice of liquidity or consumption in exchange for bonds. These economists maintain that if any benefits do spring from interest payments on the public debt, they should be treated as general benefits, since the promise of interest payments may spur bond purchases and thus deter spending in times when inflationary pressures are high. See Earl R. Rolph, "Government Burdens and Benefits-Discussion," Ibid., p. 538.

[9]U. S. Bureau of the Census, Statistical Abstract of the United States: 1959 (Washington: Government Printing Office, 1959), p. 579.

consumers' outlay pattern for all goods and services.

III. DISTRIBUTION OF THE GENERAL BENEFITS

Allocation of the general benefits, which include expenditures for police protection, natural resources, other sanitation, local parks and recreation, local libraries, public buildings, general control and other general government, was necessarily arbitrary because these expenditures could not be associated closely with particular groups of beneficiaries.[10] The three alternative allocation patterns that have been chosen here for general benefits are: 1) according to the number of households in each bracket--Case C, 2) proportionally to the distribution of money income--Case D, and 3) according to the distribution of property (capital) income--Case E. The validity of the first pattern can be defended on the grounds that general government services are meant to benefit every family alike regardless of

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[10]Many tax authorities would refrain altogether from attempting to distribute general benefits. Rolph states that "the allocation of these government functions to particular persons adds nothing to our knowledge, and it falsely suggests that government could be eliminated altogether if individuals were to decide that they no longer desire governmental services. . . ." Rolph, _op_. _cit_., p. 538. Richard Goode concurrs with Rolph. "Specific allocation of benefits from these general activities implies a rather artificial view of society or a question-begging assumption that individual benefits take the form of satisfaction of altruistic interests in the welfare of one's fellow citizens and of future generations." Richard B. Goode, "Government Burdens and Benefits--Discussion," _Ibid_., p. 542. However, as Cartter points out, the exclusion of these benefits would give an incomplete picture, ". . . and if an equivalent portion of total tax revenues were omitted, it would be tantamount to making an assumption concerning their allocation." Allan M. Cartter, _The Redistribution of Incomes in Great Britain_ (New Haven: Yale University Press, 1955), p. 48.

their station in life. This is the very broad and literal interpretation of democratic government--that all men are equal in the eyes of the state. The plausibility of the second assumption lies in the argument presented by Adam Smith and others that an individual's stake in the government varies directly with the amount of income received under the protection of the state. Our logic in using the third distribution was based upon the fact that one of the main functions of general government services is the protection of property,[11] and that therefore benefits accrue in proportion to the income flow from these protected property holdings.

It should be pointed out that many other rational patterns for the distribution of general benefits could have been suggested. For instance, expenditures could have been allocated identically with the tax burden distribution, the assumption being that benefits accruing to each income group were proportional to their cost in taxes to each bracket. Also, it could have been contended that the benefits should be distributed regressively to income rather than proportionally to

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[11] R. S. Tucker has attempted to go further than this, breaking down general benefits into the protection of property and the protection of life. Assuming that a person values his life in finite terms and that the value of life varies inversely with the age of the individual (a youngster valuing his life more than an octogenarian values his because the former has more years to live), Tucker attempts to construct an estimate of the life expectancies of spending units in each bracket thereby providing a basis for the distribution of the life protecting benefits of the government. He also argues that the value of an individual's life could perhaps be measured by his income and consumption in a year. Tucker, *op. cit.*, pp. 525-27. This attempt to isolate and measure a highly abstract, philosophical phenomenon in concrete terms strikes one as being interesting but futile.

to income as we have done in Case D above. For if

> . . . the marginal value of a large income is less than that of a small one; a wealthy man is supposed to suffer less than a poor man from the loss of 10 per cent of his income. By the same argument he benefits less from government activity that raises his income or reduces his expenses 10 per cent. . . .governmental benefits proportional to income are also regressive if measured against the psychological pleasures of the beneficiaries.[12]

IV. DISTRIBUTION OF GENERAL BENEFITS-- A BROADER INTERPRETATION

The above treatment of specific and general benefits might be criticized on the grounds that it gives too narrow a view of general benefits. It could be argued that many of the expenditures for functions that we have placed in the "specific" category could give rise to general benefits. Expenditures for education may benefit the whole community if increased schooling raises the level of skill and productivity of the labor force, betters the cultural standards and political stability of a society,[13] and lessens the aversion of the population to change. Public health and welfare expenditures may likewise benefit the community at large by increasing the health and efficiency of the labor force and in some cases keeping the level of consumption, national income, and employment from falling by transferring

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[12]Ibid., p. 528.

[13]John F. Due, Government Finance, An Economic Analysis, Rev. Ed. (Homewood, Illinois: Richard D. Irwin, Inc., 1959), p. 14.

funds to those spending units with a high marginal propensity to consume. Expenditures on highways, terminals, and other transportation facilities may stimulate industrial growth, economic development and opportunity in areas formerly unexploited. Many other examples could be given of social benefits springing from "specific" expenditures. In light of these possibilities, we examined the distribution of expenditures under a broader interpretation of social benefits. Under this alternative procedure a third of the benefits theretofore treated as specific were classified as indivisible benefits.[14] This broader interpretation increased general benefits to 43.16 per cent of the total.

V. RESULTS AND CONCLUSIONS--THE EFFECTIVE BENEFIT RATES

The allocation of the dollar amounts of government expenditures was summarized in Table XXII. In Table XXIII the effective benefit rates (expenditures divided by money income in each bracket) were shown as well as the net burden or benefit accruing to each group. The net rates were obtained by deducting the effective tax rates from the effective benefit rates. Because of the extremely rough nature of our estimates it would be both hazardous and presumptuous to construct an elaborate analysis of the figures obtained. However, the estimates

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[14] However, the pattern of the specific benefits remained the same, the amounts in each bracket being reduced to 67 per cent of their former total. The two alternative interpretations were distinguished as Case I and Case II.

TABLE XXII

INCIDENCE OF ADJUSTED TENNESSEE GOVERNMENTAL EXPENDITURES

BY INCOME BRACKET--CASE I[a] and II[b]

CATEGORY	INCOME BRACKET (DOLLARS)							
	Under 2,000	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	TOTAL
	THOUSANDS OF DOLLARS							
SPECIFIC BENEFITS (I)								
Education: Local								
Schools and Other	16,462	11,309	15,708	18,975	34,557	19.603	9,046	125,660
State Colleges	--	--	--	--	7,708	4,991	3,735	16,434
Highways	15,169	10,142	12,178	12,014	23,831	14,142	8,080	95,556
Public Welfare	24,340	15,964	--	--	--	--	--	40,304
Hospitals	7,464	4,566	3,848	3,528	--	--	--	--
Health	4,843	2,089	--	--	--	--	--	--
Local Fire Protection	1,174	746	890	867	1,721	1,088	687	7,173
Sewers and Sewage Disposal	766	471	507	486	953	594	392	4,169
Housing & Community Redevelopment	764	610	665	707	--	--	--	--
Non-Highway Transportation	131	89	107	107	224	147	94	899
Unemployment Benefits & Employment Security Administration	11,482	5,713	3,996	3,068	2,167	1,210	507	28,143
Interest on General Debt	1,184	896	846	784	1,426	1,582	5,148	11,866
GENERAL BENEFITS (I)								
Case C	19,203	8,285	8,092	7,000	12,202	6,422	3,019	64,223
Case D	4,470	4,637	6,198	7,142	16,345	12,421	13,012	64,223
Case E	3,982	3,115	2,948	2,871	5,029	5,819	40,460	64,223
TOTAL BENEFITS (I)								
Case C	102,982	60,880	46,836	47,536	84,790	49,780	30,707	423,511
Case D	88,249	57,232	44,942	47,677	88,933	55,778	40,700	423,511
Case E	87,761	55,710	41,692	43,406	77,617	49,177	68,148	423,511
SPECIFIC BENEFITS (II)								
Total[c]	56,131	35,239	25,959	27,159	48,634	29,050	18,551	240,723
GENERAL BENEFITS (II)								
Case C	54,654	23,580	23,031	19,924	34,730	18,278	8,591	182,788
Case D	12,722	13,197	17,639	20,326	46,520	35,351	37,033	182,788
Case E	11,333	8,865	8,390	8,171	14,312	16,561	115,156	182,788
TOTAL BENEFITS (II)								
Case C	110,785	58,819	48,990	47,083	83,364	47,328	27,142	423,511
Case D	68,853	48,436	43,598	47,485	95,154	64,401	55,584	423,511
Case E	67,464	44,104	34,349	35,330	62,946	45,611	133,707	423,511

[a]Case I Assumes that General Benefits are 15.16 per cent of Total Benefits.
[b]Case II Assumes that General Benefits are 43.16 per cent of Total Benefits.
[c]67 per cent of Total Specific Benefits (Case I).

TABLE XXIII

EFFECTIVE BENEFIT AND NET BENEFIT RATES BASED UPON

A DISTRIBUTION OF MONEY INCOME

	INCOME BRACKET (DOLLARS)							
	Under 2,000	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 6,999	7,000 to 9,999	10,000 and over	TOTAL
	PER CENT							
Effective Benefit Rates								
Case I C	35.80	20.43	11.76	10.35	8.07	6.23	3.67	10.25
D	30.68	19.20	11.28	10.38	8.46	6.98	4.86	10.25
E	30.51	18.69	10.47	9.45	7.38	6.16	8.14	10.25
Case II C	38.51	19.73	12.30	10.25	7.93	5.93	3.24	10.25
D	23.94	16.25	10.94	10.34	9.05	8.06	6.64	10.25
E	23.45	14.80	8.62	7.69	5.99	5.71	15.98	10.25
Effective Tax Rate[a]	20.44	13.74	12.56	10.73	9.29	7.84	7.68	10.25
Effective Net Benefit Rates								
Case I C	15.36	6.69	- .80	- .38	-1.22	-1.61	-4.01	--
D	10.24	5.46	-1.28	-1.35	- .83	- .86	-2.82	--
E	10.07	4.95	-2.09	-1.28	-1.91	-1.68	.46	--
Case II C	18.07	5.99	- .26	- .48	-1.36	-1.91	-4.44	--
D	3.50	2.51	-1.62	- .39	- .24	.22	-1.04	--
E	3.01	1.06	-3.94	-3.04	-3.30	-2.15	8.30	--

[a]Case II B Tax Assumptions.

Source: Derived from Tables XIII, XVI, and XXII.

probably at least indicate the real situation, hence facilitating general analysis and observation and the drawing of broad conclusions.

As can be seen in Table XXIII, the effective rate pattern was, in all cases except the last bracket of Case E, regressive throughout the scale, this being especially true in the low income brackets. The drop in the rates over the first three brackets was roughly 67 per cent. Benefits in the first bracket ranged from approximately 39 per cent to 20 per cent of income depending on the assumptions made, while benefits in the third and fourth brackets averaged about 10 per cent, and benefits in the three top brackets averaged only about 6 per cent. This reflects the fact that a large portion of state and local government expenditures are expressly intended to advance the welfare of the needy.

The sharp decline in the benefit rates seen in the lower middle end of the scale continued over the upper middle range, with the rates in the last bracket being roughly but one-third (Case C) and one-half (Case D) of those in the $4,000 to $5,000 bracket. Only in Case B did the rate pattern rise in the top bracket, this being due to the arbitrary method of distributing the general benefits.

Although the overall rate pattern under all alternative cases was definitely regressive, the degree of regression under each case varied as a result of our distribution assumptions concerning general benefits. Under Case C, we found more benefits accruing to the lower income groups than in the other cases, this being because our distribution of general benefits proportional to families in each bracket resulted in a regressive distribution of these benefits. Under Case D, general benefits were distributed proportionally to the pattern of income distribution, resulting in an effective rate pattern slightly more proportional than Case C, since the specific benefits alone determined the pattern. Under Case B the general benefits were distributed quite progressively in the last bracket because they were allocated proportionally to property income, the bulk of which fell in the top bracket. Accordingly, the effective rates became progressive at the extreme upper end of the scale in Case B, increasing from 6.16 per cent to 8.14 per cent in Case I from 5.71 to 15.98 per cent in Case II.

Because general benefits were weighted more heavily in Case II than in Case I, we found that the rate pattern was more regressive, proportional, and progressive, respectively, under the C, D, and B assumptions of Case I, reflecting the fact that the general benefits were exerting a larger influence on the rate structure in Case II.

A more meaningful measure of the effect of government fiscal policy on income distribution is the net benefit or burden rate, i.e., the difference between tax burden rates and expenditure rates in each bracket. As can be seen in Table XXIII, those spending units in the $3,000 and under income groups experienced a net gain in benefits over and above the taxes they paid, while, with few exceptions, those in the middle and upper brackets contributed more in taxes than they gained in benefits. Depending on the assumption made, the gain to the lowest income group ranged from approximately 18 to 3 per cent and the gain to the second lowest bracket ranged from roughly 7 to 1 per cent. And, although households in the middle brackets absorbed a net loss in terms of benefit income, those losses were not large, ranging from -.26 per cent to -3.94 per cent in the $3,000 to $10,000 class. Moreover, the rate pattern was relatively flat over this range, indicating that although the redistribution gain was heavily concentrated in the first two brackets, the redistribution loss was spread fairly evenly over a large segment of the scale. In other words, a "soak the rich" policy was not apparent there. This conclusion is amplified by the fact that, except in Cases II D and E,[15] the gain in the first bracket was more than three times as great as the loss in the last bracket.

It should be mentioned here that although the above analysis was probably indicative of the <u>pattern</u> or trend of the rates over the income scale, the actual magnitude of the rates were not necessarily correct. In Table XXIII effective benefit rates were compared with tax rates under our Case II tax shifting analysis which, like our treatment of benefits, assumed that all Tennessee taxes were borne within the state. Under these assumptions the break-even point appeared to fall somewhere in the $2,000 to $4,000 income range. If, however, we were to compare benefits with tax burdens under the Case I

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[15]The discrepancy here was partially due to the different assumptions concerning the distribution of the general benefits.

tax shifting assumptions (which treated approximately 20 per cent of the Tennessee taxes as being borne outside the state), we would find that, in practically all cases, net benefits would be positive up to the last bracket[16]--this being attributable to the fact that the total amount of benefits apportioned to Tennesseans would be greater than the total tax burden allocated to them. In practice, we would expect to find the true situation to lie between these two extremes, since, although foreign residents pay Tennessee taxes and receive benefits, it is unlikely that the two amounts would be equal. However, this in no way invalidates our broad conclusions that net benefit rates were distributed rather regressively over the first two brackets and much less so over the remaining portion of the scale.

VI. SUMMARY

An attempt was made in this chapter to estimate the distribution of the government expenditure benefits in Tennessee in the 1957 fiscal year.

The expenditures were classified into two broad types: those that could be identified fairly readily with particular beneficiaries (specific benefits) and those that were meant to benefit the community as a whole (general or indivisible benefits). Both a narrow and a broader interpretation of general benefits were considered. The

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[16]Based on computations by the author but not shown in the thesis.

specific benefits were allocated according to various distributional patterns developed in Chapters II and IV. The general benefits were alternatively allocated proportionally to the distribution of: 1) households, 2) money income, and 3) property income.

The effective benefit rates were obtained by expressing the benefits allocated to each bracket as a percentage of estimated money income received in each bracket. The effective tax rates (obtained in Chapter IV) were then deducted from the effective benefit rates in order to show the net benefit or burden accruing to each income class.

The estimates indicated that the effective benefit rate pattern was generally regressive throughout the income scale, especially in the $3,000 and under income range--although both the pattern and the level differed under the alternative assumptions. Households in the two lowest brackets appeared to receive a greater amount of benefits than they paid for in taxes, while over the remainder of the scale the tax burden was slightly greater than the benefits received.

CHAPTER VI

SUMMARY AND SUGGESTIONS FOR FURTHER STUDY

The more important portions of our analysis and findings as presented in preceding pages are summarized in this chapter. Suggestions for further study are also included.

I. SUMMARY

The purpose of the study was to estimate the incidence of Tennessee taxes and the distribution of Tennessee government expenditure benefits among resident households classified by income brackets. Because of the paucity of available data and the use of many assumptions which were based on economic theory rather than statistical data, a high degree of accuracy could not be claimed for the estimates, although the general distributional patterns obtained were probably at least indicative of the actual situation. In spite of its drawbacks, the study was thought to be justified on the grounds that knowledge of the pattern of the fiscal structure is indispensible in the evaluation and designing of policies that are to conform to the public's concept of justice and equity.

State and local taxes were roughly classified into three types: taxes with both the impact and the incidence on the same individuals, taxes with consumption excise characteristics, and taxes on businesses--either on profits or absorbed into business costs. Taxes of the first type were assumed to be borne by the individuals legally responsible for the payment of the levy. The consumption taxes--which were estimated to comprise approximately one-half and one-third, respectively, of the state and local tax revenues--were generally assumed to be borne by consumers of the taxed articles and were allocated according to the estimated expenditure patterns for these articles.

The ability of firms to shift their business cost taxes was considered to be dependent primarily on two factors: the market position of the firm and the tax climate differentials in various states where Tennessee and national firms compete. Rather than attempting to measure these imponderables, two alternative cases were examined. In Case I it was assumed that, with few exceptions, business cost taxes were unique in Tennessee (i.e., they were not offset by similar taxes in other states) and that Tennessee firms faced competition from outside firms both in the Tennessee and interstate markets. Consequently business cost taxes on firms operating in Tennessee were assumed to be borne by the owners of the firms.[1] It was also estimated that, under the Case I assumptions, approximately 21 per cent of the Tennessee taxes were borne outside the state, either by residents of foreign states who consume Tennessee products

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[1]A distinction was made between business cost taxes and business profits taxes--the latter levies being based on the net incomes of incorporated businesses. Taxes of this type (which included the corporation excise and franchise taxes) were analyzed under two alternative cases. Under Case A they were treated in the conventional manner and were assumed to have been borne entirely by the owners of the firm. Under Case B one-eighth of the tax was assumed to have been shifted backward to wage-earners and one-eighth forward to consumers.

or who own shares in businesses operating in Tennessee, or by the federal government which allows the offsetting of some state taxes against the federal income tax.

In Case II Tennessee business cost taxes were treated as being identical to business taxes imposed in other states, and, thus, since competition was assumed to prevail, these taxes were considered, in most cases, to be entirely shifted. No exporting of the Tennessee taxes was assumed to occur under this case; all Tennessee taxes were treated as being borne entirely by Tennessee residents. As was pointed out, this assumption was also tantamount to a situation where tax exports would equal tax imports from other states.

After allocation of the taxes to households according to consumption patterns and the distribution of income types, the resulting tax distribution was then compared with the estimated distribution of income. Effective tax rates were obtained by dividing the tax totals paid by households in each bracket by the amount of income received in each bracket. Three concepts of income were used for this purpose: money income, money income plus elements of income in kind and imputed values, and money income after payment of federal taxes.

In general, our estimates indicated that the tax rate structure was regressive throughout most of the scale--becoming slightly progressive in the last ($10,000 and over) bracket. The regressive shape of the overall tax burden curve was not surprising considering the heavy reliance by Tennessee governments on consumption levies and property taxes on owner-occupiers of residences. The regression was particularly marked in the lowest (under $2,000) bracket, a situation partially accounted for by the composition of the class as well as the high consumption-income ratio prevailing in this bracket.[2] The decrease in the effective rate pattern was noticeable over the $2,000 to $10,000 range although the drop was relatively smooth from bracket to bracket within this range. Only when the tax distribution was compared with the estimated distribution of money income after federal taxes, did the rate structure become sharply progressive in the last bracket--a result of the sharply progressive nature of federal income taxes which greatly reduce incomes in the top bracket. Although the effective rates under the Case I assumptions (exporting of Tennessee taxes assumed) were naturally lower than under Case II assumptions (closed economy situation--no exporting of the taxes assumed) the shape of the rate pattern did not differ significantly in either case.

Because it was thought that estimates of the tax burden, if considered alone, would give an incomplete and misleading picture of the impact of government finance on different income groups, estimates were also prepared of the distribution of governmental expenditure benefits. Here the value of the benefits received were assumed to be

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[2]Included in this bracket would be many families with temporarily low incomes who tend to maintain their normal standard of living; families in which the major breadwinner is retired and who are living on past savings rather than current income; and families whose taxable property holdings (particularly residences) are sizeable relative to their income.

equal to the dollar amounts of the expenditures.

The benefits were classified into two broad groups--specific and general. Little difficulty was experienced in allocating the specific benefits since they could be easily identified with specific groups of beneficiaries. However, the apportionment of the general benefits offered conceptual difficulties since expenditures of this type are meant to benefit citizens in their corporate capacity as the general public rather than individually. Hence, these benefits were in effect indivisible and could not be associated directly with particular beneficiaries. However, rather than excluding these important expenditures from the analysis, they were allocated according to three alternative patterns: 1) proportional to the distribution of households, 2) proportional to the estimated distribution of money income, and 3) proportional to the distribution of property (capital) income. Both a narrow and a broad interpretation of general benefits were considered, the specific expenditures being assumed in the latter case to give rise to general benefits equal to one-third of the specific expenditures.

The allocated benefits were then compared with the estimated distribution of money income to obtain the effective benefit rates. The findings varied greatly, due primarily to the different distributional patterns used in allocating the indivisible benefits. In general, however, it appeared that the benefits were distributed regressively, this pattern being especially pronounced in the lower two income brackets (where large portions of welfare expenditures are concentrated).

The effective tax rates were then deducted from the effective benefit rates to obtain the net benefit or burden borne by households in each bracket. Although both the pattern and the magnitude of the net benefits (or burdens) varied greatly in alternative cases--this variance again primarily being the result of the radically diverse distributional patterns used in allocating the indivisible benefits--the general picture obtained indicated that governmental benefits accruing to the lower income groups outweighed the taxes paid by these groups, while households in the middle and upper brackets paid slightly more in taxes than they received in benefits. However, the net burden on these groups apparently was not large, and, moreover, it did not become markedly larger in the upper end of the income scale. In other words, although the redistributive income gain brought about by Tennessee government finance was apparently concentrated in the lower two income brackets, the redistributive losses were spread fairly evenly over a wide income range.

II. SUGGESTIONS FOR FURTHER STUDY

The need for further research in the areas covered in this thesis is sharply evidenced by the lack of available data--a handicap which necessitated the use of numerous assumptions. In addition to being of great value in their own right, the fruits of this research could be used in tax incidence studies to obtain more accurate estimates than were developed in this study. Several possible areas of research are listed below.

1) An analysis could be made of the differential impact of business cost taxes imposed by Tennessee governments as compared with similar taxes imposed by neighboring states. This would provide an estimate of the different tax climate in various states which in turn would be useful in estimating the degree to which Tennessee firms can shift their taxes.

2) A further refinement would be to break down and classify Tennessee industry according to the extent of monopoly power exercised by different types of firms. The degree of tax shifting possible by each industrial sub-group could then be related to an index of its domination of the market. This technique would be preferable to our less realistic assumption that all Tennessee industry operates in a competitive market structure.

3) A more dynamic study would consider the variation in the extent of income redistribution occasioned by both secular changes in government policies and short-run fiscal measures designed to mitigate business fluctuations. For example, redistribution by the government might be found to be greater in periods of recession as the bulk of welfare expenditures are for the relief of the unemployed and poverty stricken. Changes in the <u>level</u> (magnitude) as well as the distribution of taxes and government expenditures would also have to be considered. However, since an analysis of this type would involve the comparison

of the fiscal structure at two different points of time, it would be fraught with difficulties of having to consider the other factors contributing to redistribution such as changes in the price and income levels (whether occasioned by government fiscal activities or by other forces).

4) The estimates prepared in this study would be of greater significance if the Tennessee net tax burden curve could be compared with a norm. Therefore, estimates should be similarly prepared from aggregate data for all states. The Tennessee fiscal structure could then be evaluated against the composite structure of all the states.

5) The method used in this thesis of expressing taxes and expenditures as percentages of aggregate income in each bracket is, like all averaging techniques, apt to conceal many significant differences. Hence, we would also suggest that research be made on tax burden differentials borne by families <u>within</u> income brackets. The magnitude and pattern of consumption expenditures (hence consumption taxes borne) can be expected to vary with the size, average age, dependency status, and number of income earners per family. Studies could also be conducted to uncover more information concerning the nature of families in the lowest income bracket. It is generally known that the composition of this bracket is heterogeneous and fluid--including many one-person families, retired families who are net dis-savers, and temporarily low income families. The burden or benefits accruing to these latter families was not indicative of their normal

situation in other years as it was for that "hard core" of chronically low income families. Another suggestion would be to analyze the distribution of taxes and expenditures according to income types rather than income amounts. For example, the net benefits or burdens accruing to recipients of farm income could be compared with the burden borne by wage earners, or recipients of rents and royalities (property owners).

6) Perhaps the most obvious project would be the revision of the present study, incorporating new data as they become available. Particularly, use of 1960 Census data concerning the money income status of Tennessee families would be an improvement over our relatively crude estimates of income distribution. Later studies could either use our shifting incidence assumptions or could substitute new ones. A greater number of alternative cases could be constructed for evaluation, and the hypothetical distribution of possible new taxes could be analyzed.

Further study would be greatly facilitated if the Tennessee Department of Finance and Taxation would increase its research activities, particularly stepping up the functions of tabulation, analysis, and publication of the material in its files. For example, this thesis alone could have been greatly improved if the Department could have provided information concerning the volume of business done in the state by various forms of business organizations and concerning the portion of Tennessee sales made to out-of-state consumers.

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