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An Analysis of the South Dakota Retail Sales Tax

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AN ANALYSIS OF THE SOUTH DAKOTA

RETAIL SALES TAX

BY

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This thesis is approved as a creditable and independent investigation by a candidate for the degree, Master of Science, and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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CHAPTER I

INTRODUCTION

The use of general retail sales taxes as a means of financing
state government expenditures is a relatively new phenomenon in the
area of state finance. The retail sales tax movement grew out of the
Great Depression with Mississippi leading the way in 1932. By 1940,
twenty states had adopted a general retail sales tax. As of 1974,
forty-five states and the District of Columbia employed a sales tax.
The rates range from 2 to 6 percent and the legal definition of the
base varies from state to state.

The use of sales taxes as a source of state revenue is of great
importance. In fiscal year 1973, sales taxes were the most important
source of tax revenue for twenty-eight states. Total state tax collec-
tions amounted to $67.9 billion in that year with sales taxes accounting
for $19.7 billion.[1] This amounted to 29 percent of total state tax
collections. Only the combined revenue of state personal and corporate
income taxes accounted for more of the 1973 tax collection. In that
year, state income taxes yielded $22 billion or almost one-third of
state tax revenue and also surpassed the sales tax as the leading source
of state tax revenue.

South Dakota enacted the present form of the retail sales tax in
1935. The tax was originally intended to provide relief for the state

[1]State Tax Review, Vol. 35, No. 1 (Chicago: Commerce Clearing
House, Inc., January 2, 1974), p. 1.

property tax which at that time accounted for over 50 percent of state tax revenue. A new source of tax revenue was needed to finance increase-ing demands for state goods and services and to replace declining prop-erty tax revenues brought about by the depressed condition of the state economy.

The importance of the sales tax to the tax structure of the State of South Dakota is well above the national average. In the past two years sales tax revenue has accounted for nearly half of South Dakota tax collections. By most indications, the sales tax will remain the most important source of tax revenue for the State of South Dakota.

JUSTIFICATION

This study is intended to fill an important gap in the knowledge of the tax structure of the State of South Dakota. Despite its fiscal importance, very few studies have been conducted on the sales tax.

The pervasive influence of state revenue and expenditure programs on the economy of South Dakota implies the need for better budgetary planning on the part of policymakers. The planning process requires reliable information on which to base decisions. The government should ideally finance its provision of goods and services through a tax system that will conform to the needs of the citizens and to guidelines of sound tax policy. This study will provide part of the information needed for such decision making.

The demand for public expenditure programs tends to increase with the growth of population and personal income. In order for the state to keep abreast of growing expenditure programs, the tax structure must

insure a level of revenue growth sufficient to meet rising expenditures. An adequate tax system implies the automatic growth in revenue needed to balance the government's budget without the need for continuous changes in the tax structure. The heavy reliance on the sales tax in South Dakota points to the need for an analysis of the adequacy of this tax.

Another characteristic of taxation to which governments should pay close attention is that of equity. Different types of taxes affect the incomes of taxpayers differently. Equity refers to the relative tax treatment of a taxpaying unit with regards to the economic position of the taxpayer. A tax should treat all taxpayers fairly. The base of a tax largely determines the degree of fairness exhibited by the tax. The sales tax has been characterized as a very inequitable method of financing government. An examination of the base of the South Dakota sales tax thus gives insight into the fairness of this tax.

Besides bringing forth information on the adequacy and equity of the sales tax, changes should be offered as a means of improving the tax. This study considers changes in the base structure of the South Dakota sales tax that would insure a more adequate and equitable tax.

OBJECTIVES OF THE STUDY

The overall objective of the study was to analyze the structure and adequacy of the South Dakota retail sales tax. The following specific objectives guided the research.

1. To analyze the tax structure of the State of South Dakota and the revenue and expenditure patterns of the state over

the past 10 years as an indication of the overall adequacy of the tax structure.

2. To examine the characteristics of the South Dakota sales and use tax with emphasis on the tax base.

3. To examine the sales tax in relation to principles of tax equity.

4. To estimate the income elasticity of the sales and use tax to serve as an indication of sales and use tax adequacy.

5. To analyze structural changes in the base of the tax as to their effect on adequacy and equity.

6. To project sales and use tax revenue on the basis of the method used to estimate income elasticity.

PROCEDURE AND SCOPE OF INVESTIGATION

The study is limited to an analysis of the South Dakota retail sales tax. Although the use tax is legally a separate and distinct tax, the two are combined in much of the study. The reasons for combining the taxes are, first, the use tax serves to supplement the sales tax and has an almost identical tax base. Second, the revenue data used in estimating the income elasticity did not differentiate between sales and use tax collections.

Part of the study deals with the totality of state revenues and expenditures. The total tax structure of South Dakota is described and revenue and expenditure patterns are presented to provide the reader with information necessary to understand the state tax system. Such an analysis shows the state's heavy reliance on consumption taxes.

Much of the analysis that applies to the sales tax as a consumption tax also applies to many of the other state taxes.

Sales tax equity is discussed on a theoretical level with reference to the tax base of South Dakota. Methods of reducing some of the regressivity are analyzed and the current South Dakota sales tax relief program is given considerable attention.

A major task of the study is the estimation of the income elasticity of the sales and use tax from revenue data provided by the Department of Revenue. The revenue data consist of tax yields by the different classifications of retail stores for the years 1961-1974.

The method used in the income elasticity estimation can be called the adjusted tax revenue elasticity method. The income elasticity estimate deals with the relationship between tax revenue and economic growth. Tax revenue was adjusted to show only the effects of economic growth. This process was done by the use of an indexing system. The base year 1961 was chosen and revenue for subsequent years was adjusted to reflect the legal base and rate definitions that existed in the base year. After completing the adjustment process, tax revenues for any given year were attributed to 1961 tax revenue and any increase (or decrease) in revenue brought about by changing economic conditions.

Per capita personal income was chosen as the economic growth variable. Sales tax revenue is dependent upon consumption which is assumed to be determined by the incomes of the people of the state. The level of per capita income would be the important variable in determining the size of the revenue base.

Regression analysis was used to compute the elasticity coeffi-
cent. Expressing the regression equation in logarithmic form,
log TA = log d + e log Y, yields the mathematical relationship
of income elasticity: $E = \frac{\Delta TA}{TA} \Big/ \frac{\Delta Y}{Y}$ where TA is per capita tax revenue
adjusted to reflect only base year tax base and rate definitions, Y is
per capita personal income, d the log equation intercept and e (E) the
elasticity coefficient.

The adjusted tax revenue, TA, was also used as the basis for
projecting sales and use tax revenue. The projections were made by the
use of a trend line regression model and by the equation used to
estimate the income elasticity of the sales and use tax. Projection by
the elasticity method also required population and per capita income
estimates based on trend line analysis.

The study also analyzed hypothetical changes in the base of the
sales tax. Elasticity coefficients were estimated with hypothetical
food and clothing exemptions to show the effect of the exemptions on
adequacy. The food and clothing exemptions were also analyzed in a
theoretical context as to their effect on sales tax regressivity.

REVIEW OF LITERATURE

As indicated earlier, there have been few studies of the South
Dakota retail sales tax. Three studies have specifically dealt with
the tax and a fourth study included the sales tax as a part of an
overall tax structure analysis. The studies were descriptive in nature,
dealing mainly with the historical development of the sales tax and
the pattern of revenue yields.

The most recent study was conducted by Clyde Saukerson for the Office of the Budget.[2] The study was concerned with organizing the data available on the South Dakota sales tax for use in future studies. The state was divided into five regions similar to the six planning districts and revenue trends were analyzed to indicate any geographical shifting of the tax base. A decline in a region's revenue was interpreted to mean an outflow of population from the region and/or a lack of personal income growth in the region. The regions comprising counties bordering the Missouri River were found to be relatively stagnant in terms of personal income and revenue growth. Saukerson also attempted to estimate the income elasticity of the sales tax. The method used was to compare taxable retail sales and personal income over the years 1961 to 1970. The base year was 1961, and the taxable retail sales and personal income totals for each year were divided by the base year total to arrive at an index. Noting that the personal income index was greater than the taxable retail sales index for each year, Saukerson concluded that income elasticity was less than one. No elasticity coefficient was computed. The major conclusion reached by Saukerson was the need for increased sales tax revenue. This was based on the differences found in the growth of personal income and taxable retail sales. Saukerson believed the disparity between the two would lead to a crucial revenue situation and proposed the adoption of a state income tax as a method of supplementing state revenue.

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[2]Clyde Saukerson, <u>South Dakota Retail Sales Tax</u> (Pierre, South Dakota, Office of the Budget, August 1971).

Dr. James A. Papke briefly discussed the sales tax in a 1968 study of alternative tax policies available for increasing revenue in South Dakota.[3] The primary concern of the discussion centered on the regressivity of the sales tax and the use of a tax credit as a means of reducing the tax burden on low-income individuals. Papke measured the effective tax rate for the South Dakota sales tax and estimated it to range from 3.5 percent for income levels of less than $2,000 to 1.1 percent for incomes of $15,000 and over. No explanation of the method used to estimate the effective tax rate was given. Papke proposed two tax rebate systems, one using a uniform $12 per capita rebate and another using a variable rebate ranging from $15 for the lowest income individuals to a zero rebate for families with incomes above $15,000. The estimated costs of the programs were $7 million for the uniform rebate program and $5.4 million for the variable rebate program. Both programs would, by Papke's estimate, substantially reduce the regressivity of the sales tax. The effective tax rate for individuals with incomes of less than $2,000 would be 1.9 percent under the uniform rebate program and 1.5 percent under the variable rebate program. The already broad sales tax base employed by South Dakota led Papke to conclude that significant increases in sales tax revenue would be limited to rate rather than base changes.

[3]Dr. James A. Papke, Tax Policy Alternatives for the State of South Dakota (Pierre, South Dakota: Report of the Tax Consultant, September 1968), pp. 30-31.

A sales tax study conducted in 1959 by William M. Griffin presented a very broad descriptive analysis of the South Dakota sales tax.[4] The variety of subjects covered does not allow a discussion of the entire study. A major part of the study compared the South Dakota sales tax base with that of neighboring states. From the analysis, Griffin concluded that the base of the South Dakota tax was narrower than many of the neighboring states. Griffin went on to estimate the amount of revenue that would be generated by broadening the tax base. Proposed changes included the taxation of motor fuels, cigarettes, liquor and beer and services. Griffin estimated that an additional $3.5 million would have been generated in 1958 if these items had been subject to the sales tax. Griffin also proposed the use of sales tax revenue to supplement the local personal property tax. He estimated that an increase of 1 percent in the sales tax rate and the above mentioned base changes would reduce personal property tax levies an average of 13 percent. Griffin presented no final conclusions but proposed that the study be used as a basis of factual data on which the State Legislature could draw.

A study by R. L. Beatty in 1954 examined the pattern of sales and use tax collections in South Dakota.[5] Retail sales and use tax

[4]William M. Griffin, The Retail Sales Tax in South Dakota (Vermillion, South Dakota: Governmental Research Bureau, State University of South Dakota, August 1959).

[5]R. L. Beatty, Sales and Use Tax Collections in South Dakota (Vermillion, South Dakota: Business Research Bureau, University of South Dakota, Bulletin Number Thirty-Seven, December 1954).

collections by county were presented and the overall growth in revenue was analyzed. Beatty concluded that the increase in sales and use tax revenue over the period 1936 to 1954 was due to price inflation and the increasing economic activity in the state. The study was merely a compilation of revenue and income data and a description of trends in the data.

PLAN OF THESIS

Chapter II examines the overall tax and expenditure structure of the State of South Dakota to provide some perspective on the sales tax and to present a picture of the adequacy of the tax structure. Chapter III presents the historical development of the sales tax and examines the base of the tax. Legislative base and rate changes in the sales and use tax are compiled and the tax is compared to that of other states. Chapter IV examines the regressivity of the sales tax in a theoretical context. Methods of reducing the regressive nature are discussed and the South Dakota Sales Tax Relief Program is explained and analyzed in terms of equity. Chapter V estimates the income elasticity of the sales and use tax. The tax revenue adjustment method is explained and the elasticity coefficient is analyzed as a measure of tax adequacy. Chapter VI projects revenue on the basis of the elasticity equation developed in Chapter V and by the use of trend line regression analysis. Chapter VII presents the conclusions of the study and makes recommendations for improving the tax structure of South Dakota.

CHAPTER II

REVENUE AND EXPENDITURE CONSIDERATIONS
FOR SOUTH DAKOTA

INTRODUCTION

The primary purpose of the study is to analyze the retail sales
tax. The sales tax is the most important tax levied by the State of
South Dakota. An examination of the revenue and expenditure patterns is
provided in this chapter to give the reader some perspective as to the
way the sales tax fits into the revenue-expenditure structure of the
state.

A major part of the study is concerned with tax adequacy. For
purposes of this study, tax adequacy is defined as the ability of a tax
structure to automatically yield increasing amounts of revenues that
are sufficient to meet expanding expenditure needs. Adequacy is consid-
ered in more detail later in the chapter.

The chapter is designed to familiarize the reader with the
expenditure and revenue patterns of the state. State expenditure pro-
grams are examined first to highlight any changing trends in public
wants. Next the various taxes of the state are examined in an effort
to present the reader with a picture of the state tax structure. The
revenue patterns of each tax are examined over the past several years
to demonstrate the relative importance of the various taxes.

STATE EXPENDITURES

The demand for both public and private goods and services has
been increasing over the years. The demand for increased government

expenditures is generally attributed to increasing population and increasing personal income. Over time one can expect not only the demand for the quantity of public goods and services to increase but also the quality and the composition of goods and services to change.

Unlike many other states and the nation as a whole, South Dakota has not experienced population gains in recent years. As seen in Table 2-A, population of the state has increased relatively little over the past 50 years. During the last decade, the population of South Dakota declined by 2.2 percent while the population of the United States increased by 13.3 percent. Neighboring states, with the exception of Minnesota, have similarly experienced very slow or declining rates of population growth in the last decade.

Personal income in South Dakota, on the other hand, has been steadily increasing over the past 20 years. Table 2-B gives total and per capita personal income figures for the United States, South Dakota and neighboring states for selected years 1950-1973. South Dakota and neighboring states have experienced substantial increases in both total and per capita personal income. Per capita personal income nearly quadrupled in South Dakota during the 24-year period. The dramatic increase in both total and per capita income that occurred during the period 1970-1973 can be attributed to an important degree to the rapid increases in agricultural prices and thus agricultural income. The continuing increases in both total and per capita personal income would be expected to increase the demand for both public and private goods and services.

TABLE 2-A

TOTAL POPULATION OF THE UNITED STATES AND SELECTED STATES AND PERCENTAGE
INCREASE OR DECREASE BY DECADE, 1920-1970

State	Population (1,000)						Percentage Change in Population				
	1920	1930	1940	1950	1960	1970	1920-1930	1930-1940	1940-1950	1950-1960	1960-1970
United States	106,022	123,203	132,165	151,326	179,323	203,212	16.2	7.3	14.5	18.5	13.3
South Dakota	637	693	643	653	681	666	8.8	-7.2	1.5	4.3	-2.2
Iowa	2,404	2,471	2,538	2,621	2,758	2,824	2.8	2.7	3.3	5.2	2.4
Minnesota	2,387	2,564	2,792	2,982	3,414	3,805	7.4	8.9	6.8	14.5	11.5
Montana	549	538	559	591	675	694	-2.1	4.1	5.6	14.2	2.9
Nebraska	1,296	1,378	1,316	1,326	1,411	1,483	6.3	-4.5	0.7	6.5	5.1
North Dakota	647	681	642	620	632	618	5.3	-5.7	-3.5	2.1	-2.3
Wyoming	194	226	251	291	330	332	16.0	11.2	15.9	13.6	0.7

SOURCE: U. S. Bureau of the Census, The Statistical Abstract of the United States, 1974 (Washington, D. C.: U. S. Government Printing Office, 1974), pp. 14-15.

TABLE 2-B

TOTAL AND PER CAPITA PERSONAL INCOME FOR SELECTED STATES AND YEARS, 1950-1973

State	Personal Income (billions of dollars)						Per Capita Personal Income (dollars)					
	1950	1960	1965	1970	1972	1973	1950	1960	1965	1970	1972	1973
United States	226.2	399.9	538.7	808.2	947.1	1,057.8	1,496	2,222	2,785	3,966	4,549	5,041
South Dakota	.8	1.2	1.5	2.1	2.6	3.2	1,242	1,792	2,176	3,101	3,766	4,713
Iowa	3.9	5.5	7.6	10.6	12.4	15.3	1,485	1,986	2,757	3,755	4,316	5,273
Minnesota	4.2	7.1	9.5	14.7	16.8	20.0	1,410	2,074	2,634	3,839	4,343	5,137
Montana	.9	1.4	1.7	2.4	2.9	3.4	1,622	2,035	2,441	3,504	4,083	4,682
Nebraska	2.0	3.0	3.8	5.6	6.8	8.1	1,490	2,113	2,617	3,786	4,451	5,271
North Dakota	.8	1.1	1.5	2.0	2.6	3.6	1,263	1,751	2,372	3,191	4,128	5,695
Wyoming	.5	.8	.9	1.3	1.5	1.7	1,668	2,274	2,605	3,816	4,269	4,695

SOURCE: U. S. Bureau of the Census, Survey of Current Business, Volume 54, No. 8 (Washington, D. C.: U. S. Government Printing Office, August 1974), pp. 32-33.

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Table 2-C shows total expenditures and expenditures for various functions for the State of South Dakota for selected years 1951-1972. Total state expenditures more than quadrupled in just a little over twenty years. Expenditures rose from $55 million in fiscal year 1951 to more than $250 million in 1972. Some of the increase was due to inflation but most was represented by an increase in the provision of goods and services.

Education expenditures showed the largest increase, over $70 million. This represents an increase of nearly 665 percent. Nearly all education expenditures at the state level are used to support higher education. Several reasons may explain the dramatic increase in expenditures. First, the national trend has seen greater numbers of students continuing their education beyond the high school level. Second, the baby boom following World War II substantially increased the number of college age persons in recent years. The increasing enrollment in colleges required new capital expenditures for buildings and equipment along with additional staff. As a percentage of total state expenditures, outlays for education have gained increasing importance. Only 19.5 percent of the budget was allocated to education in fiscal year 1951, but by 1972 this figure had risen to 32.4 percent. Education expenditures that year surpassed outlays for highways as the largest element of state outlays.

Highway expenditures have also increased tremendously over the period. Total outlays for highways increased by approximately $55 million, a 304 percent increase. As a percentage of total expenditures,

TABLE 2-C

TOTAL SOUTH DAKOTA STATE GOVERNMENT EXPENDITURES BY FUNCTION AND AS A PERCENTAGE
OF TOTAL EXPENDITURES, FOR SELECTED FISCAL YEARS, 1951 - 1972

| Fiscal Year | Expenditures by Function (Millions of Dollars) | | | | | | Percent of Total Expenditures | | | | | |
	Education	Highways	Public Welfare	Health and Hospitals	All Other	Total Expenditures	Education	Highways	Public Welfare	Health and Hospitals	All Other	Total Expenditures[1]
1951	10.8	17.6	9.1	2.9	14.8	55.2	19.5	31.8	16.4	5.2	27.1	100.0
1955	13.8	29.0	10.3	4.5	17.5	75.1	18.3	38.6	13.7	5.9	23.5	100.0
1960	26.5	50.1	13.3	4.7	20.4	115.0	23.0	43.5	11.5	4.0	18.0	100.0
1965	31.3	74.8	15.6	6.4	25.9	154.0	20.3	48.5	10.1	4.1	17.0	100.0
1966	36.4	64.2	17.6	6.8	26.9	151.9	23.9	42.2	11.5	4.4	18.0	100.0
1967	46.1	63.7	19.6	7.7	29.5	166.6	27.6	38.2	11.7	4.6	17.9	100.0
1968	53.8	68.1	21.3	9.3	30.8	183.3	29.3	37.1	11.6	5.0	17.0	100.0
1969	59.3	65.1	24.3	9.1	34.6	192.4	30.8	33.8	12.6	4.7	18.1	100.0
1970	61.6	66.2	27.2	9.9	37.2	202.1	30.4	32.7	13.4	4.8	18.7	100.0
1971	74.7	75.2	36.9	12.0	42.4	241.2	30.9	31.1	15.2	4.9	17.9	100.0
1972	82.5	71.1	39.0	13.4	48.5	254.5	32.4	27.9	15.3	5.2	19.2	100.0

SOURCE: U. S. Bureau of the Census, Governmental Finances (Washington, D. C.: U. S. Government Printing Office, 1952-73), various pages.

[1]Rows may not total to 100 percent due to rounding.

the relative size of highway expenditures has been slowly decreasing since 1965. In that year nearly half, 48.5 percent, of the total budget was devoted to highway expenditures. By fiscal year 1972 the proportion had decreased to 27.9 percent.

The two remaining specific functions of government, public welfare and health and hospitals, have shown steady increases in outlays in both absolute and relative terms. These functions represented about 20 percent of state outlays in fiscal year 1972 as compared to 14 percent in 1965. Their growth has not been as dramatic as the growth in education expenditures since for fiscal years 1951 and 1955 these functions together received a greater share of total expenditures than did education. The funds received by all other functions of government have also increased in absolute terms for the years shown but have increased little in relative terms since fiscal year 1965.

COMPONENTS OF THE STATE TAX STRUCTURE

At present eight taxes account for nearly all the tax revenue generated by the State of South Dakota. A number of miscellaneous taxes, user charges and federal grants provide the remainder of total state revenue. For the purpose of analysis, the taxes will be classified as income, wealth or consumption taxes and reviewed in this manner. The classification facilitates a general discussion of tax equity principles and allows a simplified analysis of the overall tax structure.

Income Taxes

Presently the only taxes employed by the State of South Dakota that relate the base to income are the Bank Franchise and the Insurance

Company Tax. A Gross Income Tax was employed for two years beginning in 1933 and was replaced in 1935 with the sales tax and a net income tax, the latter of the two being repealed in 1942.

The use of income taxes, both individual and corporate, is widespread throughout the nation. In 1973, 44 states imposed an individual income tax and 45 states employed a corporate income tax.[1] Income taxes are frequently justified as they attempt to provide for tax equity based on the ability-to-pay principle. The principle is concerned with the amount of "sacrifice" made in the payment of a tax. The amount of sacrifice for an individual or corporation can be guided by two concepts in tax equity. Horizontal equity suggests that equals should be treated equally: those with equal amounts of taxpaying ability should pay equal amounts of taxes. Vertical equity suggests the treatment of unequals in an unequal manner: those with different taxpaying abilities should pay different amounts of taxes. Individual or corporate income can be used as a measure of one's taxpaying ability.

The "sacrifice" on the part of the individual or corporation in the ability-to-pay principle is viewed in terms of alternative or foregone uses of the money. If income can be associated with the principle of diminishing marginal utility, that is, additional amounts of income are valued less than prior amounts, an individual with a high income should pay relatively greater dollar amounts of income in taxes than a low-income person to more closely equalize the tax burden. Such is the

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[1]Bureau of the Census, The Statistical Abstract of the United States, 1974 (Washington, D. C.: U. S. Government Printing Office, 1974), p. 260.

rationale for progressive income taxation. Choosing income as a measure
of ability to pay, however, still leaves the difficult problem of defin-
ing net income.

The Bank Franchise Tax. The Bank Franchise Tax was imposed under
Ch. 263, Laws of 1939, effective January 1, 1939.[2] Technically the tax
is a privilege tax and is measured by net income. All banks, financial
corporations and savings and loan institutions (domestic and foreign)
doing business within the State of South Dakota are subject to the tax.
The law was amended in 1953 to include installment loan companies and
businesses that finance purchases on a repayment plan. Only the income
derived from the financing of purchases is taxable.

The current rate of taxation is a flat 5.5 percent of net income
with a minimum payment of $24 yearly. The rates are not graduated like
those of the Federal Individual Income Tax thus violating the interpre-
tation of vertical equity outlined just above. Returns are filed yearly
and are due within 90 days after the end of the fiscal year.

The Bank Franchise Tax is fairly insignificant when compared to
total tax revenue. Table 2-D shows total tax revenue, revenue generated
by type of tax and the percentage of tax revenue by type of tax for
selected years 1950-1974. Revenue derived from the Bank Franchise Tax
in 1974 totaled approximately $1.7 million which was approximately
1.1 percent of total tax receipts. Receipts from this tax have steadily

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[2]South Dakota State Tax Reporter (Chicago: Commerce Clearing
House, Inc., Looseleaf and Current), p. 1075.

TABLE 2-D

TOTAL SOUTH DAKOTA TAX REVENUE BY SOURCE FOR SELECTED YEARS, 1950-1974

Tax	Tax Revenue by Type of Tax (Thousands of Dollars)												
	1950	1955	1960	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Sales and Use	10,083	12,751	15,750	18,232	26,897	30,906	32,744	34,692	47,738	53,202	57,710	64,418	75,518
Inheritance	375	508	927	1,305	1,459	1,819	1,531	1,581	1,953	2,618	2,722	3,314	3,803
Cigarette[1]	1,788	1,766	3,280	4,023	5,437	5,223	5,211	5,275	7,015	7,469	8,100	8,185	8,599
Auto Registration	1,391	1,893	2,005	2,363	3,368	3,993	4,374	4,568	4,844	4,640	5,987	7,329	8,637
Motor Fuel	9,344	15,994	20,288	23,056	24,047	24,667	25,417	26,007	30,214	32,138	33,274	35,968	36,086
Alcoholic Beverage[2]	2,547	2,264	2,365	4,229	4,238	4,470	4,738	4,997	5,284	5,610	5,611	6,889	6,737
Bank Franchise	143	173	395	562	586	583	586	606	731	965	1,219	1,354	1,702
Insurance Company Tax	992	1,349	1,942	2,795	2,889	3,040	3,197	3,424	3,715	4,021	4,600	4,969	5,452
Miscellaneous	784	1,033	1,127	868	872	877	903	821	787	638	113	107	115
Total	27,447	37,731	48,079	57,433	70,293	75,587	76,701	81,971	101,731	111,301	119,336	132,533	146,624

Percent of Total Tax Revenue

Tax	1950	1955	1960	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Sales and Use	36.7	33.8	32.7	31.7	38.3	40.9	41.6	42.3	46.9	47.8	48.3	48.6	51.5
Inheritance	1.4	1.3	1.9	2.3	2.1	2.4	2.0	1.9	1.9	2.3	2.3	2.5	2.6
Cigarette	6.5	4.7	6.8	7.0	7.7	6.9	6.6	6.4	6.9	6.7	6.8	6.2	5.9
Auto Registration	5.1	5.0	4.2	4.1	5.5	5.3	5.5	5.6	4.8	4.2	5.0	5.5	5.9
Motor Fuel	34.0	42.4	42.2	40.1	34.2	32.6	32.3	31.7	29.7	28.9	27.9	27.1	24.6
Alcoholic Beverage	9.3	6.0	4.9	7.4	6.0	5.9	6.0	6.1	5.2	5.0	4.7	5.2	4.6
Bank Franchise	.5	.4	.8	1.0	.8	.8	.7	.7	.8	.9	1.0	1.0	1.2
Insurance Company Tax	3.6	3.6	4.0	4.9	4.1	4.0	4.1	4.2	3.6	3.6	3.8	3.7	3.7
Miscellaneous	2.8	2.7	2.3	1.6	1.2	1.2	1.1	1.1	.8	.6	.1	.1	.1
Total[3]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCES: South Dakota Department of Revenue, Annual Statistical Report (Pierre, S. D.: 1971-74), various pages.

South Dakota Department of Revenue, Annual Report of the Department of Revenue (Pierre, S. D.: 1956-70), various pages.

[1]Amounts shown include revenue derived from the sales of cigarette licenses.

[2]Amounts shown include revenue derived from the sales of liquor and beer licenses.

[3]Columns may not add to 100 percent because of rounding.

increased in absolute terms for the period shown but have remained fairly stable in relative terms since 1960.

The Insurance Company Tax.   The Insurance Company Tax is also a business privilege tax imposed upon foreign and domestic companies doing business in the state.   Only the premiums received upon property or risks located in South Dakota are taxable.

Domestic companies are taxed at the rate of one-half of 1 percent on the premium received and one-half of 1 percent on the considerations received for annuity contracts.   Foreign companies are taxed at the rate of 2.5 percent on premiums and 1.25 percent on considerations for annuity contracts.   Insurers not licensed or authorized to do business in the state are taxed at the rate of 4 percent on premiums or one and one-half times the amount payable by foreign insurers, whichever is greater.   Insurance companies doing fire insurance business are subject to an additional one-half of 1 percent rate on receipts derived from fire insurance premiums.[3]

Revenues from the tax, as seen in Table 2-D, have exhibited a steadily increasing trend.   Revenues in 1974 amounted to nearly $5.5 million, an increase of nearly 100 percent in ten years.   In relative terms, the insurance company tax has maintained a fairly stable proportion of revenue.   Revenues for all the years shown constituted between 3.6 and 4.9 percent of total tax revenue.

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[3]Ibid., pp. 8825-8826.

Wealth Taxes

Wealth can also be used as a measure of ability to pay. The measurement of wealth presents serious difficulty. Wealth may take the form of human capital such as education or training or physical capital such as property and trust capital savings. It is difficult to put a monetary value on human wealth, but physical wealth may be easily hidden if it is in the form of bank deposits. The forms of wealth taxation used extensively in the United States are property taxes, death duties and gift taxes. Property taxes are generally used at the local levels of government while death duties (inheritance and estate taxes) and gift taxes are employed at the state and federal levels.

Death and gift taxes are generally used to reach taxpaying ability not accounted for in the base of an income tax. Wealth accumulated through inheritance, estates and gifts may also result in concentrations of wealth which are considered undesirable for social, economic and political reasons.

South Dakota imposes only the inheritance tax. The difference between an estate tax and an inheritance tax is the measure of the base. An estate tax uses the net value of the decedent's property as the base while an inheritance tax measures the base as the value of property transferred to the beneficiary. The rates of the South Dakota Inheritance Tax are as follows:[4]

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[4]Topical Law Reports, State Tax Guide (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), p. 8990.

Value of Share		Class 1		Class 2	
		Tax on Column 1	Rate on Excess	Tax on Column 1	Rate on Excess
(1)	(2)				
$ 0 -	$ 3,000	$ 0	0	$ 0	0
3,000 -	10,000	0	0	0	3%
10,000 -	15,000	0	1.5%	210	3%
15,000 -	50,000	75	3.0%	460	6%
50,000 -	100,000	1,125	4.5%	2,560	9%
100,000 -	. . . .	3,375	6.0%	7,060	12%

Value of Share		Class 3		Class 4	
		Tax on Column 1	Rate on Excess	Tax on Column 1	Rate on Excess
(1)	(2)				
$ 0 -	$ 100	$ 0	0	$ 0	0
100 -	200	0	0	0	5%
200 -	500	0	0	0	5%
500 -	3,000	0	4%	15	5%
3,000 -	10,000	100	4%	140	5%
10,000 -	15,000	380	4%	490	5%
15,000 -	50,000	580	8%	740	10%
50,000 -	100,000	3,380	12%	4,240	15%
100,000 -	. . . .	9,380	16%	11,740	20%

Value of Share		Class 5	
		Tax on Column 1	Rate on Excess
(1)	(2)		
$ 0 -	$ 100	$ 0	0
100 -	200	0	6%
200 -	500	6	6%
500 -	3,000	24	6%
3,000 -	10,000	174	6%
10,000 -	15,000	594	6%
15,000 -	50,000	894	6%
50,000 -	100,000	5,094	18%
100,000 -	. . . .	14,094	24%

Class 1 applies to husband, wife and children. Exemptions in this class are the first $60,000 for a husband or wife and the first

$10,000 for their children. Class 2 applies to lineal ancestors with an exemption of the first $3,000. Class 3 applies to the descendants of a brother or sister, the wife of a son or the husband of a daughter. The first $500 is exempted for this class. Class 4 applies to the brother or sister of a father or mother and to their descendants. The first $200 is exempted in this class. The fifth class applies to all other situations and the first $100 is exempted.

The rate structure, like that of the Federal Individual Income Tax, is progressive in nature. A wife inheriting $150,000 from her husband would pay tax on $90,000 (the first $60,000 being exempt). The payment would be equal to $1,125 on the first $50,000 plus 4.5% on the remaining $40,000 ($1,800) for a total tax payment of $2,925. A son or daughter inheriting the same amount from a father or mother would pay tax on $140,000 equal to $3,375 plus $2,400 ($40,000 x 6%) for a total payment of $5,775.

Revenues derived from the inheritance tax do not constitute a significant part of total tax revenue in South Dakota. As seen in Table 2-D, revenues have increased over most of the 1950 to 1974 period but have accounted for only 2 to 3 percent of total tax revenue since 1960.

Consumption Taxes

Consumption taxes use retail expenditures as a measure of the base. The base may be defined either as the monetary value of the goods or services purchased or as a single item or group of items. Sales

taxes are the most common type of consumption tax which measures the base in monetary terms. Motor fuel, cigarette and alcohol taxes are common types of specific taxes where the base is defined in terms of the number of units purchased and are generally referred to as excise taxes.

Consumption can also be viewed as a measure of ability to pay. The traditional argument for this measure has been that persons should be taxed on what they draw out of the economic system (consume) as opposed to what they contribute to the economic system (save and invest through income).[5] Taxation in this manner could apply to consumption out of current income, past income (consumption out of savings) and future income (consumption through borrowing). For higher income persons, consumption taxes would exclude savings from the tax base or at least postpone it until a later date. Application of consumption taxes violates both horizontal and vertical equity. Horizontal equity would be violated through differences in the consumption habits and circumstances of persons of equal incomes and vertical equity would be violated both by differences in consumption habits and by rate structures. The application of a flat tax rate on sales as with a sales tax or a fixed amount per unit as with an excise tax may result in low-income taxpayers paying a larger proportion of their income in taxes. High income persons tend to allocate a greater part of their income to savings and consume greater amounts of nontaxable items than do low-income persons thus resulting in a lower overall tax rate on income.

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[5]Musgrave, Peggy B. and Musgrave, Richard A., Public Finance in Theory and Practice (New York: McGraw-Hill Book Company, 1973), p. 205.

Referring once again to Table 2-D, it is apparent that nearly all of the South Dakota tax revenue is derived from consumption taxes. The table may be somewhat misleading as license fees are included in the cigarette, alcoholic beverage and miscellaneous categories, but their contributions toward revenue are not highly significant. Over 90 percent of the revenues generated in 1974 came from consumption taxes. This figure is also representative for all of the years shown in the table. The following discussion characterizes the component consumption taxes used in South Dakota.

The Sales and Use Tax. Sales and use taxes are used extensively by many state and local entities in the financing of government. Like most states, the South Dakota retail sales tax is imposed at the retail level on the sale of tangible personal property and is supplemented by a use tax. The use tax serves to place a tax liability on tangible personal property not originally purchased in South Dakota but brought into the state for consumption or use. The base and rate of these taxes are nearly identical and are explained in greater detail in Chapter III.

Table 2-D indicates the growing importance of the sales tax as a generator of state tax revenue. Total sales and use tax collections have increased nearly 650 percent since 1950. In fiscal year 1974 the sales and use tax accounted for over 50 percent of total state tax collections. In 1966, the sales and use tax exceeded the motor fuel tax as the most important source of state tax revenue in both absolute and relative terms and has held that position ever since. The noticeable

changes in revenue for the years 1966 and 1970 coincide with legisla-
tive base and rate changes in the previous year. In 1965, the sales
and use tax rate was increased from 2 to 3 percent and the base was
expanded to include intangible services. In 1969, the rate was again
increased to its present level of 4 percent. Base and rate changes
generally do not go into effect until July 1 which is the beginning of
the new fiscal year. Thus the impact of base and rate changes on revenue
in the calendar year is not felt until the next fiscal year.

The sales tax, although not the most equitable of taxes, has
several advantages for the financing of state governments. First, the
sales tax is capable of generating large amounts of revenue at a fairly
low administrative cost. Second, tax payments by the individual are
dispersed over time and depend upon how frequently taxable items are
purchased. The benefit of this characteristic may be mostly psychologi-
cal to many individuals as the total tax payment is the same whether it
is paid in a lump sum or spread over a period of time. From the govern-
ment's standpoint, this may make legislative rate and base changes
somewhat easier as public sentiment against the changes is likely to
be less vocal if the tax increase is only felt in small increments by
the taxpayer. The sales tax also spreads the cost of government among
all the citizens of the taxing jurisdiction. It has the further advant-
age of exporting some of the tax to nonresidents when purchases are made
by tourists or visitors. These factors, coupled with the slow pace of
the political system, have made and kept the sales tax as one of the most
popular taxes for state governments.

The Auto Registration Tax. The auto registration tax amounts to a special sales tax on motor vehicles as they are not included in the sales tax base. The tax is placed upon the original registration of a vehicle at a 3 percent rate on the purchase price or the "fair market value" of the motor vehicle, whichever is greater. The fair market value of a new vehicle is defined as the manufacturer's suggested dealer list price and the NADA book value is applied to used vehicles.[6] Included as motor vehicles are cars, trucks, buses, house cars, house trailers and trailer coaches.

As seen in Table 2-D, revenues from the auto registration tax have increased in absolute terms over the entire 1950 to 1974 period. Auto registration tax revenue accounted for 4.2 percent of total tax revenue in 1960, increased to 5.6 percent in 1969, fell once again to 4.2 percent in 1971 and reached a high of 5.9 percent in 1974.

The Motor Fuel Taxes. South Dakota employs several taxes on motor fuels. The motor fuel tax was initiated in 1923 and placed a per gallon tax on all products commonly or commercially known as gasoline. Licensed dealers are required to collect 8 cents per gallon on gasoline and 4 cents per gallon on aviation fuel. The tractor fuel tax, passed in 1939, imposed a tax on tractor fuels consumed on the highways of the state. Tractor fuels are not subject to the motor fuel tax and are currently taxed at the rate of 4 cents per gallon. The use fuel tax

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[6] South Dakota State Tax Reporter (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), p. 5051.

of 1941 imposed a tax on all combustible gases and liquids used to propel motor vehicles on the public highways of the state. The current rate is 8 cents per gallon with the exception of liquified petroleum gases which are taxed at 6 cents per gallon. The tax is paid by the user and collected by the dealer. The interstate fuel tax, passed in 1965, provided a method of collecting fuel taxes on interstate motor vehicle operators where fuel is consumed but not purchased in the state. The rate is the same as that applied to the use fuel tax. Interstate operators are allowed to bring 40 gallons of fuel into the state without a tax liability.

The motor fuel tax is used in all fifty states and in the District of Columbia. The rates of taxation, as of July 1, 1974, varied from a low of 5 cents per gallon in Hawaii and Texas to a high of 10 cents per gallon in Connecticut. Two states levy rates of 6 to 7 cents, twenty states have rates of 7 to 8 cents, thirteen states and the District of Columbia employ rates of 8 to 9 cents and twelve states use a rate of 9 to 10 cents per gallon.[7] Most states employ a like rate on the use fuel tax.

The relative fiscal importance of motor fuel taxes for the state has been declining over the past decade. As seen in Table 2-D, motor fuel taxes were the most important source of tax revenue from 1955 through 1965. During this period, the revenue accounted for over 40 percent of South Dakota tax revenue. By 1974, revenues from motor

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[7]_State Tax Review_, Vol. 35, No. 40 (Chicago: Commerce Clearing House, Inc., October 1, 1974), p. 1.

fuel taxes accounted for approximately 25 percent of total tax revenue. Their importance is still considerable, however, since the yield of such taxes is second only to the sales and use tax.

In absolute terms, revenues increased for the entire 1950 to 1974 period. Several factors may account for this growth: (1) increases in the tax rate, (2) increases in the number of motor vehicles in the state, (3) increases in the number of miles traveled and (4) decreases in the efficiency of fuel used in motor vehicles.

Assuming that revenues derived from motor fuel taxes are used for highway maintenance and construction, such taxes conform closely to the benefit principle of taxation. This principle relates the revenue and expenditure sides of the budget to one another. According to the principle, the benefits received by the individual should correspond to the amount of tax paid. The fuel taxes follow this principle to some degree. The greater the distance one wishes to travel, or the more frequently one travels, the greater the amount of fuel used and, other things equal, the greater the amount of fuel taxes paid. In this sense, the financing of public goods is similar to the financing of private goods where individuals commit more of their income to gain access to more economic goods.

From the standpoint of the state, revenues from the motor fuel taxes may serve as an indicator to increase or decrease production. If tax revenues rose continuously over a given period and other things remained equal, this would signal an increasing use of public highways. The increasing demand would suggest that more or better facilities should be provided by the state.

The question arises, however, as to whether these taxes serve as a good barometer of highway demand. If, for instance, there was a dramatic shift to smaller, more efficient automobiles, motor fuel tax revenues might decline while actual highway use increased. A better indicator of the demand for highways would be provided by a system of toll gates at highway entrances where the payment for road use would be made on a per mile basis. Such systems, however, are not feasible in South Dakota because of the sparse traffic on many state highways.

The Cigarette Tax. The cigarette tax revenues in Table 2-D are derived from an excise tax on cigarettes and a license fee on distributors and wholesalers. The license fee of $150 is renewable yearly and does not apply to retailers. The excise tax is based on the volume of cigarettes sold in the state. The rates of taxation are as follows: Class A cigarettes -- weighing not more than 3 pounds per 1000 cigarettes -- 6 mills and Class B cigarettes -- weighing more than 3 pounds per 1000 cigarettes -- 9 3/8 mills. A mill is equal to one-tenth of 1 cent. For a package of twenty Class A cigarettes the tax payment is equal to 12 cents. For cigars the tax amounts to approximately 1 cent each. The taxes are paid by the distributor affixing stamps to the packages. The distributor receives a 3.5 percent discount on the stamps.

Although revenues have been increasing in absolute terms, as seen in Table 2-D, they have become relatively less important in terms of total tax revenue in recent years. In 1966, cigarette tax revenues accounted for 7.7 percent of total tax revenues, by 1974 the percentage had decreased to 5.9. The large increase in revenue between 1969 and

1970 was the result of increasing the rates on Class A and Class B cigarettes from 4 to 6 mills and from 6 1/4 to 9 3/8 mills, respectively.

All states impose a tax on cigarettes. The rates vary greatly between states ranging from a low of 2 cents per package in North Carolina to a high of 21 cents per package in New Jersey. Hawaii and New Hampshire tax cigarettes as a percentage of the retail price, at 40 and 42 percent, respectively. The breakdown on tax rates as of July 1, 1974 is as follows:[8]

Tax per package (20 cigarettes)	No. of States
2 - 3 cents	2
3 - 4 cents	1
6 - 7 cents	4*
8 - 9 cents	3
9 - 10 cents	3
10 - 11 cents	3
11 - 12 cents	5
12 - 13 cents	8
13 - 14 cents	6
14 - 15 cents	1
15 - 16 cents	2
16 - 17 cents	4
17 - 18 cents	2
18 - 19 cents	3
19 - 20 cents	1
21 - 22 cents	1

* Includes the District of Columbia

The lowest cigarette taxes are imposed by the tobacco producing states. The highest tax rates tend to be in the heavily populated East Coast states. Many states presumably tax cigarettes at a high rate

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[8]State Tax Review, Vol. 35, No. 27 (Chicago: Commerce Clearing House, Inc., July 2, 1974), pp. 3-4.

because there are few, if any, substitutes for this good and high tax rates do not substantially reduce cigarette consumption. A problem may occur if bordering states impose substantially different tax rates causing consumers living near the lower rate states to purchase their cigarettes there. Only two of the states bordering South Dakota impose a lower tax rate on cigarettes, North Dakota at 11 cents and Wyoming at 8 cents.

The Alcoholic Beverage Tax. The State of South Dakota presently uses per gallon excise taxes on alcoholic beverages and requires licensing by manufacturers, distributors and retailers of alcoholic beverages. Prior to 1971, a 10 percent tax on gross receipts from wholesale sales was employed along with a gallonage tax. Extensive revisions of the alcoholic beverage tax in 1971 repealed the 10 percent gross receipts tax and instituted new gallonage rates which were expected to generate the same amount of revenue. The rates of taxation on alcoholic beverages are as follows:[9]

Subject of Tax	Rate
High-point beer (3.2% to 6%)	$8.30 per 31-gallon barrel
Light wines and diluted beverages (except sparkling wines) from 3.2% to 14%	.30 per gallon
Wines and diluted beverages: from 14% to 20% (except sparkling wines)	.95 per gallon
from 20% to 24% (including natural and artificial sparkling wines containing alcohol)	1.40 per gallon

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[9] South Dakota State Tax Reporter (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), p. 3592.

Subject of Tax	Rate
Low-point beer	$4.00 per 31-gallon barrel
Other liquors	3.05 per gallon

The annual license fees are as follows:[10]

Type of License		Annual Fee
Distillers		$4,000
Additional warehouse		1,000
Out-of-state shipping permit		100
Wholesalers (other than low-point beer)		5,000
Package Dealers		
In 1st class municipalities	not to exceed	500
In 2nd class municipalities	not to exceed	400
In 3rd class municipalities	not to exceed	300
On-sale dealers		
In 1st class municipalities	not to exceed	1,500
In 2nd class municipalities	not to exceed	1,200
In 3rd class municipalities	not to exceed	900
Off-sale licenses issued to municipalities under local option		250
Solicitors		25
Carriers		100
Transportation Companies		25
Dispensers		10
On-sale dealers at publicly operated airports		250
On-sale licenses issued outside municipalities Not to exceed the maximum that the municipality to which the applicant is nearest could charge for a like license in that municipality		

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[10]Ibid., p. 3603. A 1st class municipality is defined as one with a population above 5,000, a 2nd class municipality as one with a population of 500 to 5,000, and a 3rd class municipality as one with a population of 0 to 500.

Type of License	Annual Fee
Low-point beer	
Manufacturers	$ 500
Wholesalers	400
Package dealers	75
Retailers, both package dealers and on-sale dealers	100

Like cigarettes, alcoholic beverages have no close legal substitutes and thus are taxed at relatively high rates. Also, the use of alcoholic beverages is perceived by some as socially undesirable which may also account for the high rates of taxation and the extensive licensing system.[11]

Revenues from the alcoholic beverage tax, as seen in Table 2-D, have, with minor exceptions, been consistently rising over the years. In relative terms, the general trend is one of decreasing importance. In 1974, alcoholic beverage revenues accounted for only 4.6 percent of total tax revenue, the lowest percentage of all the years shown. Revenue collections are affected not only by the tax rates but by the legal drinking age. Reducing the legal drinking age from 21 to 18 years in South Dakota might result in significant increases in revenue.

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[11]The argument can also be made in a technical sense, not withstanding the moral argument made in the text. In a technical sense what is involved is an attempt by society to recover the (social) costs to society by persons consuming alcoholic beverages. To the degree that the members of society must pay higher automobile insurance premiums, pay to operate alcoholic rehabilitation clinics and fund larger police patrols, the tax can be considered a recovery of part of the social costs attributable to the consumption of alcoholic beverages. The argument could be extended to find justification for the alcoholic beverage tax under the benefit principle of taxation. To the degree that cigarette smoking causes cancer and pushes medical and other costs onto society, the same argument can apply to the cigarette tax.

Miscellaneous Taxes

Miscellaneous taxes in 1974 comprised taxes on private car lines at 6 percent of gross receipts and on railway express at 6 percent of gross receipts. Also included were fees for trading stamp licenses at $50 per year, coin laundry licenses at $5 and $6 per machine per year and antifreeze and contractors' licenses at $20 yearly. The decreasing amount of revenues from this category of taxes, as seen in Table 2-D, was due to the repeal of two taxes. A butter-substitute tax was repealed in July of 1971 and an ore tax was repealed in 1970. Tax collections from miscellaneous taxes now account for less than one-tenth of 1 percent of total tax revenue.

STATE REVENUES

Total revenues of the state are comprised of a number of sources besides taxes. Federal grants, local government transfers, charges for goods and services and trust revenues are all important sources of state revenue. Table 2-E lists total state revenue by source and each source as a percent of total revenue for the fiscal years 1965 to 1972.[12] For the eight-year period total revenues increased by nearly 85 percent.

The relative importance of the various sources of revenue is illuminating. Despite the great amount of attention tax legislation receives, state revenue generated by taxes accounts for less than half

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[12]Figures on total tax revenue are not consistent between Tables 2-D and 2-E. Figures for Table 2-D were compiled from state data while those in Table 2-E were compiled from national data. Total tax revenue in Table 2-D does not include vehicle license fees and minor taxes not administered by the Department of Revenue. These exclusions would apparently account for the discrepancies between the figures.

TABLE 2-E

SOUTH DAKOTA GENERAL REVENUE BY SOURCE FOR FISCAL YEARS, 1965 - 1972

Year	Source of Revenue (Millions of Dollars)					Percentage of Total Revenue				
	Federal Government	Local Governments	Taxes	Charges and Miscellaneous General Revenue	Total Revenue	Federal Government	Local Governments	Taxes	Charges and Miscellaneous General Revenue	Total Revenue[1]
1965	67.3	3.5	64.2	29.3	164.3	41.0	2.1	39.1	17.8	100.0
1966	61.1	3.6	77.6	29.8	172.0	35.5	2.1	45.1	17.3	100.0
1967	68.1	3.0	83.6	36.1	190.9	35.7	1.6	43.8	18.9	100.0
1968	79.7	1.4	88.0	37.1	206.1	38.7	.7	42.7	18.0	100.0
1969	83.0	1.3	91.9	42.8	219.0	37.8	.6	42.0	19.5	100.0
1970	86.5	1.4	112.7	46.2	246.8	35.0	.6	45.7	18.7	100.0
1971	97.3	1.4	121.7	56.2	276.6	35.2	.5	44.0	20.3	100.0
1972	101.2	1.5	133.3	66.4	302.4	33.5	.5	44.1	22.0	100.0

SOURCE: U. S. Bureau of the Census, Governmental Finances (Washington, D. C.: U. S. Government Printing Office, 1966-73), various pages.

[1] Rows may not add to 100 percent due to rounding.

of total state revenue. Surprisingly federal aid, which includes revenue sharing funds, federal grants-in-aid and matching grants, accounts for over one-third of this revenue. The importance of federal aid does, however, appear to be slowly decreasing. User charges, and miscellaneous revenue on the other hand, have gained an increasingly important role in relation to total revenue. Their share of total revenue increased from 17.8 percent in fiscal year 1965 to 22.0 percent in fiscal year 1972.

Table 2-F compares South Dakota's revenue structure to the six neighboring states and the nation as a whole. Nationally over 60 percent of state general revenues were derived from taxes in fiscal year 1972. South Dakota is well below the national level in this respect with only about 44 percent of revenue generated by taxes. Of the neighboring states, only Wyoming has a tax structure which contributes relatively less to its total revenue through taxes. Minnesota and Iowa are the only neighboring states having tax structures which generate revenues comparable to the national average.

South Dakota is well above the national average with respect to aid derived from the federal government. Nationally, 27 percent of state general revenue is received from federal contributions compared to South Dakota's 33 percent. Wyoming and Montana receive nearly 40 percent of their general revenue from the federal government. South Dakota, North Dakota, Montana and Wyoming which receive a relatively large proportion of their revenue from federal aid also have had historically low per capita incomes. This might explain some of the tendency

TABLE 2-F

GENERAL REVENUE SOURCES FOR SOUTH DAKOTA AND NEIGHBORING STATES, FISCAL YEAR 1972

State	Source of Revenue (Millions of Dollars)					Percentage of Total Revenue				
	Federal Govern-ment	Local Govern-ments	Taxes	Charges and Miscellaneous General Revenue	Total Revenue	Federal Govern-ment	Local Govern-ments	Taxes	Charges and Miscellaneous General Revenue	Total Revenue[1]
So. Dakota	101.2	1.5	133.3	66.4	302.4	33.5	.5	44.1	22.0	100.0
Iowa	276.2	39.8	759.4	145.3	1,220.9	22.6	3.3	62.2	11.9	100.0
Minnesota	513.6	34.2	1,324.4	282.0	2,154.2	23.8	1.6	61.5	13.1	100.0
Montana	154.6	5.2	182.8	45.0	387.6	39.9	1.3	47.2	11.6	100.0
Nebraska	152.7	17.7	319.5	89.4	579.3	26.4	3.1	55.2	15.4	100.0
No. Dakota	101.0	7.2	157.8	72.9	338.8	29.8	2.1	46.6	21.5	100.0
Wyoming	92.8	3.8	97.1	39.7	233.3	39.8	1.6	41.6	17.0	100.0
All States Total	26,790.5	1,190.8	59,870.4	10,780.4	98,632.0	27.2	1.2	60.7	10.9	100.0

SOURCE: U. S. Bureau of the Census, Governmental Finances In 1971-72 (Washington, D. C.: U. S. Government Printing Office, 1973), pp. 31-33.

[1] Rows may not add to 100 percent due to rounding.

for a relatively large amount of their revenue being determined by federal government transfers.

South Dakota also differs to a great degree from the national average with respect to revenues derived from charges and miscellaneous general revenue. This category consists mainly of amounts received from the sale of publicly produced goods and services. Financing government in this manner is considered desirable since it closely resembles private market operations where price acts as the allocating mechanism and also serves as a signal to expand or reduce production. The government is thus able to provide such goods and services without worrying about additional tax legislation. Nearly one-fourth (22 percent) of South Dakota's general revenue was derived in this manner as compared to the national average of approximately 11 percent. Of the states listed in Table 2-F, South Dakota ranked first in using this means of finance.

REVENUE ADEQUACY

Any unit of government must be concerned that revenues will be sufficient to meet expenditures. Looking into the future, the concern is whether the growth in revenues will be sufficient to meet increased expenditures brought about by changes in population and economic growth. When applied to a tax structure, adequacy requires that tax revenues grow automatically such that they will be sufficient to meet additional expenditures at a given point in time and also through time without

continuous changes in the tax structure.[13] This is especially important for South Dakota as the State Constitution prohibits the aggregate debt of the state to exceed $100,000.[14]

Of the three major sources of revenue for the state -- federal transfers, taxes and user charges -- taxes are the most important revenue generator. Increases in tax revenue are also more easily influenced through state legislative changes than other revenue sources. Federal aid distribution is determined at the national level while user charges are primarily dependent upon the level of demand for the goods. Tax revenue, on the other hand, can change in one of three ways: (1) changing economic conditions in the state, (2) changes in the rate or base of the present tax structure and (3) implementation of a new tax.

An estimate of revenue adequacy can be made by comparing the growth in revenues and expenditures. If expenditures exceed revenues for a given year, a revenue gap exists. If the rate of growth in expenditures exceeds the rate of growth in revenues the relative size of the gap would be increasing. Since revenues are determined largely through taxes, the comparison of the rates of growth of tax revenues and expenditures also indicates some measure of the adequacy of the tax system.

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[13] The concept of adequacy can be considered in terms of both negative and positive changes in fiscal relationships. A revenue system could be considered inadequate or less adequate if the rate of decline (growth) in revenues exceeded (fell short of) the rate of decline (growth) in expenditures. An adequate revenue system implies that the rate of growth (decline) of revenue equals or exceeds (falls short of) the rate of growth (decline) in expenditures. Because growth rates in economic variables are unlikely to be negative over an extended period of time, adequacy in this study considers only positive growth aspects.

[14] South Dakota Constitution, art. VIII, §2.

A method of making this comparison is to plot the expenditure data from Table 2-C and tax revenue data from Table 2-E on a semilog scale. Using a semilog scale makes the slope of a line the rate of increase in the variable. The slopes of the three variables (total revenues, total expenditures and tax revenues) are thus comparable. If the slope of the revenue line is equal to or greater than the slope of the expenditure line, and lies above it, then the revenue system is adequate since revenues are increasing as fast as or faster than expenditures. If the slope of the expenditure line were greater than the slope of the revenue line, the revenue system would be becoming less adequate and would be inadequate if the revenue line were below the expenditure line. If the slope of the tax revenue line were equal to or greater than the slope of the expenditure line, tax adequacy would be implied. Tax adequacy however requires the automatic growth of tax revenue. The greater slope of the tax revenue line could be due to legislative changes and not the automatic growth in revenue.

Figure 2-1 shows that revenues are significantly above expenditures for all years shown and that tax revenues are well below expenditures. What is important here are the slopes of the lines. With the exception of the years 1967-1968 and 1970-1971, the rate of growth in revenues exceeded the rate of growth in expenditures implying an adequate revenue system over the years. The rate of increase in tax revenues as compared to both total revenue and expenditures is, for most years, greater than the rate of increase for either total revenues or total expenditures. This would imply adequacy on the part of the tax system, but could be due to legislative changes in the tax structure.

It is also assume ... the revenue adequacy in terms
of the perception ... Between 1965 and 1972 gen-
eral revenue rose ... 290.9 million. This was an

Millions of
Dollars
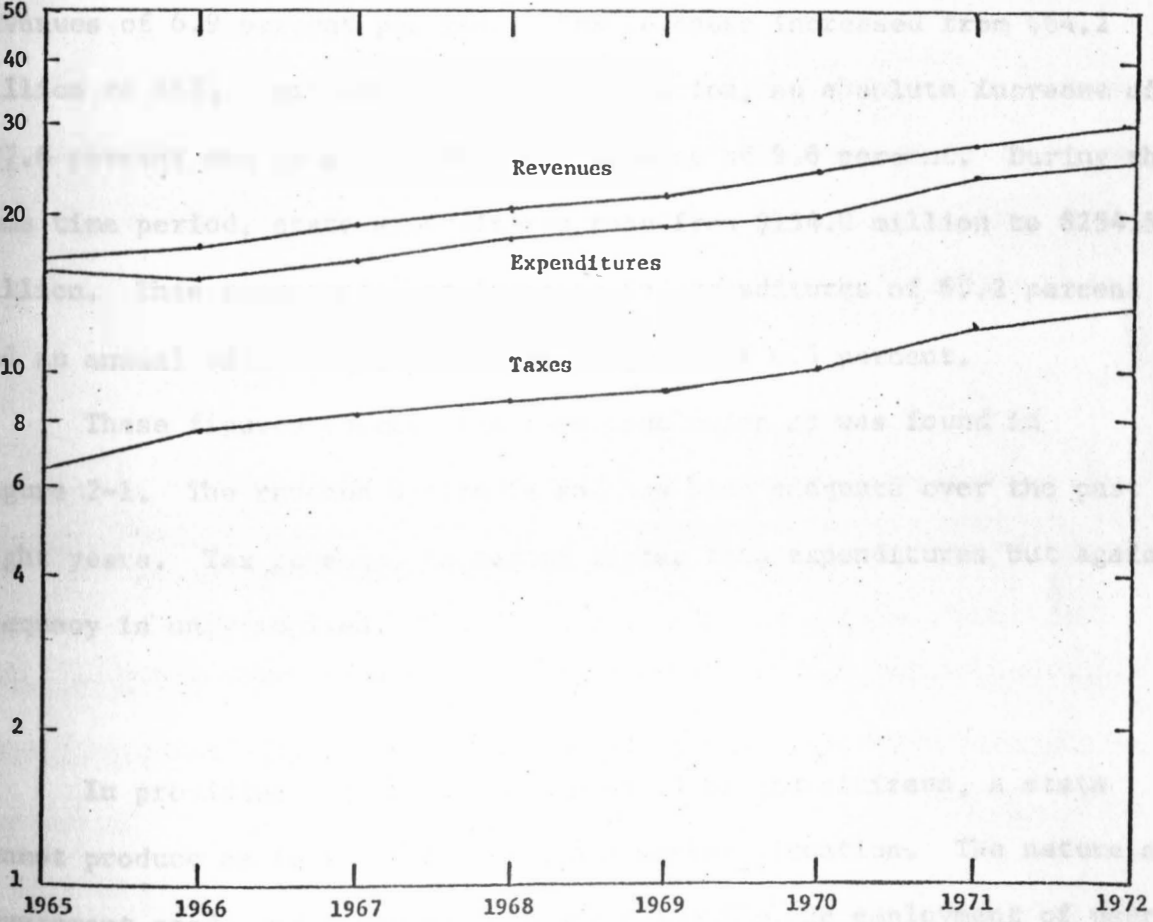
FIGURE 2-1

SOUTH DAKOTA REVENUE, EXPENDITURES AND TAX REVENUE, 1965-1972

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It is also possible to look at tax and revenue adequacy in terms
of the percentage change in the variables. Between 1965 and 1972 gen-
eral revenue rose from $164.3 million to $302.4 million.[15] This was an
increase of 84 percent and an annual rate of increase in general
revenues of 6.9 percent per year. Tax revenues increased from $64.2
million to $133.3 million over the same period, an absolute increase of
107.6 percent and an annual rate of increase of 9.6 percent. During this
same time period, state expenditures rose from $154.0 million to $254.5
million. This represented an increase in expenditures of 65.2 percent
and an annual rate of growth in expenditures of 6.5 percent.

These figures suggest the same conclusion as was found in
Figure 2-1. The revenue system is and has been adequate over the past
eight years. Tax revenues increased faster than expenditures but again
adequacy is only implied.

SUMMARY

In providing for the needs and wants of its citizens, a state
cannot produce as if it is in a private market situation. The nature of
government goods and services does not allow for the employment of user
charges as a means of totally financing government. To provide for the
continually increasing demand for government expenditures, tax revenues
must be generated in sufficient amounts to insure that government is
able to meet the needs of its citizens.

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[15]General revenue, tax revenue and expenditure totals are taken
from Tables 2-B and 2-C.

Expenditures of the state have risen dramatically over the period 1965 to 1972, increasing by $100 million. The composition of expenditures has also changed a great deal during this period. Highway expenditures constituted the largest category of expenditures until 1972 in both absolute and relative terms but their relative importance has been steadily decreasing. Education expenditures, on the other hand, have steadily increased over the same eight-year period to the point where they now constitute the largest category of state expenditures. Expenditures for other government functions such as public welfare and health have also increased in both absolute and relative terms.

During this same time period, general revenue increased by an even greater amount. Total general revenues rose from $164.3 million to $302.4 million, a $138 million increase. Total general revenues are derived primarily from three sources: federal transfers, taxes and user charges. The relative importance of federal transfers has been diminishing over this period while the relative importance of taxes has increased. Tax revenues, the primary source of revenue, accounted for nearly 45 percent of general revenue in 1972.

Tax adequacy, as was defined earlier in the chapter, requires automatic increases in tax revenue to insure that expenditures will be met at a point in time and also through time. Tax revenues for South Dakota over the past few years have increased faster than expenditures. The question that arises is whether the tax revenues were increasing because of legislative response or because of a tax system that was responsive to changing economic conditions.

The sales tax is responsible for over 50 percent of the tax gener-
ated revenues. Revenues from the sales tax have exhibited increasing
importance both absolutely and relatively. Legislative changes in the
base and rate of the sales tax have also been occurring throughout
this time as has economic activity.

The tax system is the source of revenue which can, through state
legislative action, be made sensitive to changing economic conditions in
the state. There may be trade-offs involved, however, between adequacy
and equity in making the tax system more responsive to changing economic
conditions. The remaining chapters of this study deal with this problem
as applied to the most important part of the state tax system, the
retail sales tax.

CHAPTER III

CHARACTERISTICS OF THE SOUTH DAKOTA
RETAIL SALES TAX

INTRODUCTION

The enactment of the present retail sales tax was due, for the

most part, to the depressed economic condition in the State of South

Dakota and the nation as a whole in the depression years of the 1930's.

Many states at this time, including South Dakota, relied heavily on pro-

perty taxes as a means of financing state government expenditures. With

the depression came the erosion of the property tax base and the turn

towards consumption taxes on the part of many states. South Dakota

joined this movement with the passage of a Gross Income Tax Law in 1933.

THE GROSS INCOME TAX LAW OF 1933

Legislative approval of the Gross Income Tax Law[1] provided South

Dakota with a multistage, broad-based sales tax.[2] The law was enacted

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[1]The discussion of the Gross Income Tax Law draws from: South
Dakota Director of Taxation, Rules and Regulations, The Gross Income Tax
Law of South Dakota, Bulletin No. 20 (Pierre, S. D., June 1933), pp. 2-10.

[2]Bernard P. Herber, Modern Public Finance: The Study of Public
Sector Economics (Homewood, Illinois: Richard D. Irwin, Inc., 1971),
p. 197, distinguishes between the various types of sales taxes. A sales
tax can be placed at one or more of the stages of production or distri-
bution of a good, namely at the manufacturing, wholesale or retail level
of transactions. When applied at only one of these stages, the tax is
referred to as a single-stage tax. When applied at two or more of the
stages, the tax is designated a multistage tax. Sales taxes may also be
differentiated according to the scope of the base. When applied to only
one or a few commodities, the tax is considered narrow-based. As more
commodities are included in the base, the tax becomes broad-based. A
further means of classification of sales taxes is in terms of the

on July 1, 1933 and remained in effect until July 1, 1935. Provisions

in the law specified that 55 percent of the revenue collected was to be

credited to the General Fund of the state. Of this 55 percent, 90 per-

cent was used to supplement personal and real property tax revenues for

meeting constitutional operating expenses. The other 10 percent was set

aside in a special fund to assist school districts that were unable to

provide a sufficient level of elementary education. The remaining 45

percent of the tax revenue was credited to the Interest and Income

Common School Fund to be apportioned among the various school districts

to reduce their reliance upon real and personal property tax revenues.

The Gross Income Tax represented a tax on the privilege of doing

business within the State of South Dakota. Gross receipts of transac-

tions comprised the base of the tax. These gross receipts were defined

as the amount of cash or money equivalent received from the sale or

transfer of possession of any tangible or intangible property. The tax

applied to all individuals and businesses in South Dakota. The receipts

included those from services, rents, interest, fees, wages and salaries.

The gross receipts derived by nonresident firms from sales in South

Dakota were also taxable. Major exclusions from the tax included compen-

sation received through accident, health and life insurance policies,

from the value of property acquired through inheritance or gift or

bequest and interest received from obligations of the United States or

definition of the base. When imposed upon the monetary value of the
base, the tax is considered ad valorem in nature as it measures value.
When imposed at a "per unit" rate measuring quantity, the tax is consid-
ered specific in nature.

from securities specifically exempt under state and federal laws. Also exempt were wages, salaries, compensation and pensions received from the federal government and the premiums of insurance companies which were already included under a gross premiums tax.

Rates of taxation differed by type of business. A rate of one-fourth of 1 percent was prescribed for businesses engaged in manufacturing, jobbing and wholesaling. A rate of 1 percent was assessed on retailing businesses, public utilities, financial institutions, transportation companies, mining companies and all others. Personal services, including wages and salaries, were taxed at the rate of 1 percent to 2 percent depending upon monthly income.

The constitutionality of the scope of the Gross Income Tax Law was tested by the State Supreme Court of South Dakota in December of 1933. In an opinion filed by Justice Campbell,[3] the Court held that the classification and exemption procedures were not unreasonable or arbitrary. To the extent that the tax was on the privilege of engaging in a business or an occupation in the state, it was found to be a valid exercise of legislative power. However, the Court struck down those parts of the law where an attempt was made to tax the gross receipts of owners derived from the private use of their own property. Only those receipts accruing through the exercise of the privilege of engaging in business were held taxable. Receipts derived from the sale or rental

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[3]South Dakota Supreme Court, Decision of the Supreme Court of South Dakota on the Gross Income Tax Law as to Constitutionality, Opinion written by Judge Campbell, Filed Dec. 1, 1933. Reprint. The reader is also referred to 61 S.D. 593 or 251 N.W. 189 (1933).

of private property that were not connected with the business or occupation of an individual were thus excluded from the tax. The Court also ruled that receipts from transactions involving interstate commerce were not taxable.

As specified in the original law, the Gross Income Tax Law expired on July 1, 1935. A large source of revenue was lost to the state while the still depressed economy provided insufficient property tax revenue to meet the growing demand for state goods and services. New tax legislation had to be formulated to generate additional revenue. The framework for the Property Relief Act was provided by the earlier discussed decision of the State Supreme Court.

THE PROPERTY RELIEF ACT OF 1935

The Property Relief Act[4] was designed to provide a more equitable means of generating revenue for the state. The Act provided for two new sources of revenue, a net income tax and a retail occupational sales tax. The net income tax was similar to the federal income tax with graduated rates ranging from 1 to 8 percent of net income. This tax was not collected after December 31, 1942.

The Retail Occupational Sales Tax still exists today. It was defined as a tax upon the privilege of engaging in business as a retailer within the State of South Dakota. Each retail merchant was required to apply to the Director of Taxation for a sales tax permit to legally

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[4]The section draws from: South Dakota Division of Taxation, Senate Bill No. 36 of the 1935 Legislative Session, The Property Relief Act of South Dakota, Bulletin No. 23 (Pierre, S.D., March 1935), pp. 23-30.

operate the business. Though the retailer was responsible for the tax liability, he was allowed to add the tax to the purchase price of the merchandise. All revenues generated from the tax were placed in the General Fund Account to meet operating expenses of the state.

The Act specified a tax rate of 2 percent upon the gross receipts from the sale of tangible personal property. Tangible personal property was defined to consist of all goods, wares and merchandise sold at the retail level in the State of South Dakota for consumption or use. The tax also applied, at the same rate, to the gross receipts of gas, electric, water and communications services. A 2 percent rate was also imposed upon the gross receipts from sales of tickets or admissions to athletic events and places of amusement.

Major exemptions from the base of the tax included gross receipts from the provision of transportation services and the sale of gasoline, beer, liquor, malt, butter substitutes and cigarettes. Also excluded were sales to the federal government, to the State of South Dakota, to municipal and public corporations in the state and to relief agencies. Ticket sales of state, county and local fairs were exempted as were the activities of religious and charitable organizations where the proceeds were used for "nonprofit" purposes.

THE USE TAX

The 1939 State Legislature approved passage of a use tax to supplement the state sales tax.[5] The purpose of the use tax was to deter

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[5]South Dakota State Tax Reporter (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), p. 6075-3.

residents along the border areas of the state from purchasing tangible property in states that did not employ a sales tax or that imposed a sales tax with a lower rate. Nonresident retailers can be required to collect the use tax while they cannot be required to collect the sales tax. If a nonresident retailer is not licensed to collect the use tax, the purchaser of the merchandise is responsible for payment of the tax.

The use tax is imposed upon the privilege of the use, storage or consumption of tangible personal property not originally purchased in the state but brought into the state for use, storage or consumption. The base and rate of the use tax are essentially the same as that of the sales tax. In practice, enforcement of the use tax would be quite difficult since many out-of-state retailers are not licensed to collect the tax. Traditionally enforcement has been concentrated on major sales such as automobiles, farm machinery, fuel, furniture and the like.

BASE AND RATE CHANGES: SALES AND USE TAX

As seen in Table 3-A, the original sales tax has undergone extensive revision. In its present form the South Dakota retail sales tax can be characterized as a single-stage, broad-based, ad valorem retail sales tax. The table describes the legislative changes that have occurred in the sales tax, the date the law became effective and the session laws under which the changes were codified. The table considers only those changes which, in the opinion of the author, were likely to have had a notable effect on revenue or equity. The following analysis

TABLE 3-A

BASE AND RATE CHANGES IN THE SOUTH DAKOTA RETAIL SALES TAX, 1949-1974

Effective Date	Session Law	Legal Rate and Base Changes	
		Rate	Base
July 1, 1935	Ch. 205, Laws of 1935 (The Original Legislation)	2%	Gross receipts from the sale of all tangible personal property at the retail level including gas, electric, water and communications services and the gross receipts from admissions to athletic events and places of amusement.
October 1, 1949	Ch. 158, Laws of 1949	Rate increased to 3% for the purpose of retiring bonds issued to finance bonuses to World War II veterans.	
July 1, 1951	Ch. 457, Laws of 1951		Motor fuels, including kerosene, tractor liquified petroleum, gas, diesel fuels and distillates excluded from the tax when used for agricultural purposes. The exclusion did not apply to fuels used for heating farm residences.
October 1, 1951	Ch. 219, Laws of 1951	Rate reduced to 2% as World War II bonus fund bonds were retired.	
July 1, 1953	Ch. 467, Laws of 1953		Extended the sales tax to public utilities, admissions and to operators of mechanical devices for amusement.

TABLE 3-A--continued

Effective Date	Session Law	Legal Rate and Base Changes	
		Rate	Base
April 1, 1955	Ch. 399, Laws of 1955	Rate increased to 3% to provide a bonus fund for Korean War veterans.	
January 1, 1956	Ch. 399, Laws of 1955	Rate reduced to 2% as sufficient funds had accumulated to pay bonuses.	
July 1, 1963	Ch. 444, Laws of 1963		Base extended to include gross receipts derived from room rentals to transient guests. Transient guests were defined as persons residing in a lodging establishment less than 28 consecutive days.
July 1, 1964	Ch. 215, Laws of 1964		Commercial fertilizers used for agricultural purposes excluded from the tax when a single sale exceeds 25 pounds.
July 1, 1965	Ch. 288, Laws of 1965	Rate of taxation increased from 2% to 3%.	Sale of farm machinery used for agricultural purposes excluded from the tax.
July 1, 1965	Ch. 296, Laws of 1965		Gross receipts of professional and repair services included as taxable sales.
July 1, 1965	Ch. 289, Laws of 1965		Seed legumes, seed grasses and seed grains used for agricultural purposes were excluded from the sales tax when single sale exceeds 25 pounds.

TABLE 3-A--continued

Effective Date	Session Law	Legal Rate and Base Changes	
		Rate	Base
July 1, 1967	Ch. 328, Laws of 1967		Sale or resale of farm machinery and irrigation equipment used for agricultural purposes were again included as taxable items. A special rate of 2% was applied to these items and only on the cash difference involved in the transaction.
July 1, 1968	Ch. 259, Laws of 1968		Limited the exemption of sales of tickets or admissions to state, county and local fairs or celebrations to those not in operation for more than five days.
July 1, 1969	Ch. 267, Laws of 1969	Tax rate increased from 3% to 4% on all items except farm machinery and irrigation equipment which remained taxable at the 2% rate and on the gross receipts from vending machines and mechanical devices used for amusement where the rate remained at 3%.	Laundromats eliminated from the list of taxable services and a special yearly tax was imposed.
July 1, 1969	Ch. 267, Laws of 1969		Gross receipts from the sale of beer and alcoholic beverages included as taxable sales.

TABLE 3-A--continued

Effective Date	Session Law	Legal Rate and Base Changes	
		Rate	Base
December 24, 1969	Federal Law Amendment (P.L. 91-156)		Purchases of tangible personal property and services by national banks subject to state sales tax.
July 1, 1971	Ch. 74, Laws of 1970		Butter substitutes no longer exempted from the sales tax.
July 1, 1971	Ch. 79, Laws of 1971		Gross receipts from the sale of goods or services used in the fulfillment of a warranty obligation exempted from the sales tax.
January 1, 1972	Ch. 78, Laws of 1971		Insecticides, pesticides, herbicides, rodenticides, and fumigants used for agricultural purposes excluded from sales taxation.
January 1, 1972	Regs. 72-2		Mobile homes are subject to the sales tax when they are permanently attached to realty.
July 1, 1974	Ch. 100, Laws of 1974		Rentals of tangible personal property, with the exception of mobile homes, included as taxable sales.
July 1, 1974	Ch. 100, Laws of 1974		Gross receipts from cable television service subject to the sales tax.

TABLE 3-A--continued

Effective Date	Session Law	Legal Rate and Base Changes	
		Rate	Base
July 1, 1974	Ch. 105, Laws of 1974		Sales to Indians living in areas subject to federal or tribal jurisdiction exempted from the sales tax. Also sales to Indian tribes excluded from sales tax liability.
July 1, 1974	Ch. 96, Laws of 1974		Gross receipts from the sale of cattle semen used in artificial insemination for agricultural purposes exempted from the sales tax.
July 1, 1974	Ch. 98, Laws of 1974		Prescription drugs or medicines administered by a physician or other licensed person or dispensed by a pharmacist excluded from sales taxation.
July 1, 1974	Ch. 99, Laws of 1974	Tax rate on attachment units of farm machinery used for agricultural purposes reduced from 4% to 2%.	
July 1, 1974	Ch. 102, Laws of 1974		Sales of motor fuels used for railroad purposes exempted from the sales tax.

SOURCE: South Dakota State Tax Reporter (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), pp. 6071-6173.

does not refer the reader to specific entries in the table but generally draws from information that can be found therein.

The retail sales tax excludes intermediate goods from liability. An intermediate good can be considered as an input into the production of products to be sold for final use or consumption. Such goods include unprocessed agricultural products such as livestock, poultry and grains, raw materials used in the manufacturing process and containers and labels used in the packaging of manufactured products.

Agricultural related sales have been the source of many of the changes in the sales tax. Many agricultural exclusions, such as sales of fertilizer, seed grains, motor fuels and cattle semen, can be considered sales of intermediate goods. Farm machinery was completely excluded in 1965 and then included once again in 1967. Since that time farm machinery has been taxed at a special 2 percent rate and only on the cash difference involved in the sale or resale. The rate on farm machinery attachments was also lowered to 2 percent in 1974.

Rate increases were used at the end of World War II and the Korean War to finance bonus payments to veterans of these wars. When sufficient funds had accumulated to pay the bonuses the rates were reduced to their previous levels. The rate was increased to 3 percent in 1965 and to 4 percent in 1969. The 1969 increase applied to all items except the gross receipts on vending machines and amusement devices which remained at 3 percent and on farm machinery and irrigation equipment which remained taxable at the 2 percent rate.

A legislative change in 1969 included beer and alcoholic beverages as taxable items. This inclusion marked a departure from the rule of avoiding double taxation. Beer and alcoholic beverages were also subject to a specific tax based on volume. Applying the retail sales tax to these items placed the tax on a tax since the specific tax is included in the retail price of these items. Other items, such as gasoline, motor fuels and cigarettes, which are also subject to special taxes are not taxed under the existing sales tax laws.

Sales to government agencies have traditionally been excluded from the sales tax. The 1974 Legislature extended this exclusion to retail sales made to Indians in areas of federal or tribal jurisdiction. Sales to Indian tribes were also excluded from the tax at this time.

Following the lead of a number of other states, prescription drugs and medicines were excluded effective July 1, 1974. The exclusion involved a number of items other than medicine. An item was exempt as long as it was prescribed by a licensed professional for the purpose of modifying the physical or biological functioning of the body. Such items included prescription lenses and corrective shoes. The exclusion was designed to reduce the burden of the sales tax on senior citizens as these people tend to be the primary consumers of such items. The 1974 Legislature also extended the tax to include the gross receipts derived from the lease or rental of tangible personal property. Room rentals to transient guests became subject to the tax in 1963. The taxing of rental services is becoming a common trait among states imposing the retail sales tax.

The gross receipts from professional and repair services became taxable in 1965. Under this law, the gross receipts from professional, technical or scientific services are taxable with the exception of services in the healing arts. The services of doctors, dentists, optometrists, chiropractors and veterinarians are excluded from the tax. As noted, the gross receipts of repair services are also taxable under this provision.

The guidelines defining taxable services are, at best, vague. The general rule that provides the clearest explanation seems to be the following: all professional services except those connected with the healing arts and services of labor related to repair work are taxable while labor services performed on capital improvements are not taxable. For instance, when an electrician repairs a fixture his labor is taxable. If a new fixture is installed, the sales tax is not applicable to the labor charge. An even more complex example results when a memorial dealer agrees to furnish a memorial and set it for a lump-sum payment. Under such an agreement the sales tax is applicable to the entire gross receipts. If, however, the memorial dealer lists his labor as a separate charge, only the memorial and the materials used in setting the memorial are taxable and the labor is exempt. Likewise, a sign painter who fabricates a sign and offers it for sale must collect the tax on the entire retail price. When the sign painter paints signs on billboards or buildings only the materials used or consumed in the construction of the sign are taxable and the labor is not.

The base and rate of the use tax conform quite closely to the sales tax. A change in the base or rate of the sales tax generally applies to the use tax. A rather small number of changes exclusively concerned the use tax. Table 3-B lists the legislative changes in the use tax. In 1953 the use tax was amended to include tangible property not originally purchased for use in South Dakota but then so used. This would apply to the relocation of the tangible personal property of a business or family into the state. This law was amended in 1971 allowing a credit on the payment of the use tax equal to the sales tax paid in another state. The credit applied only if the sales tax was paid in a state which provided a reciprocal agreement. Other changes have dealt with repair and construction equipment brought into the state, excluding equipment used to repair drilling rigs and including contractors' equipment brought into the state in the performance of a contract.

NATIONAL CHARACTERISTICS OF STATE SALES TAXES

Forty-five states and the District of Columbia levied some type of sales tax in 1974. The legal or legislative title of the taxes are listed in Table 3-C. The title indicates to some degree the breadth of the base. Retail sales taxes apply only to sales of tangible personal property at the retail level. General sales taxes may not be confined to retail sales since both wholesale and retail merchants may be taxed on gross receipts. Gross receipts taxes and gross income taxes extend tax liability to intangible property, namely services. The latter taxes, gross income taxes, would include income from all sources and not only

TABLE 3-B

BASE AND RATE CHANGES IN THE SOUTH DAKOTA USE TAX, 1953-1974

Effective Date	Session Law	Legal Rate and Base Changes	
		Rate	Base
July 1, 1939	Ch. 267, Laws of 1939 (The Original Legislation)	2%	Tangible personal property which is used, stored or consumed in the state but not originally purchased in the state. Items in the base would include essentially the same as those subject to the sales tax. Rate or base changes in the sales tax are generally applicable to the use tax.
July 1, 1953	Ch. 471, Laws of 1953		Base extended to include tangible personal property not originally purchased for use in South Dakota but thereafter so used.
July 1, 1955	Ch. 417, Laws of 1955		The exemption of operating property of interstate telephone systems and railroad companies was repealed.
July 1, 1963	Ch. 447 and Ch. 448, Laws of 1963		Exempted tangible personal property brought into the state to repair interstate carrying equipment and drilling rigs.
July 1, 1965	Ch. 288, Laws of 1965	Tax rate increased from 2% to 3%.	
July 1, 1966	Ch. 256, Laws of 1966		Required contractors using tangible personal property, in performance of a contract, to pay the use tax unless a sales or use tax had been previously paid.

TABLE 3-B—continued

Effective Date	Session Law	Legal Rate and Base Changes	
		Rate	Base
July 1, 1969	Ch. 267, Laws of 1969	Tax rate increased from 3% to 4% except on farm machinery.	
July 1, 1971	Ch. 81, Laws of 1971		Provided a tax credit on payment of the use tax equal to the amount of sales or use tax paid in another state provided that state has a reciprocal law.
January 1, 1972	Regs. 72-2	The tax rate on farm machinery reduced from 3% to 2%.	
February 24, 1973	Ch. 63, Laws of 1973		Farm machinery leased from a licensed dealer for agricultural use without an option to purchase exempted from the use tax. The gross receipts from such leasing are, however, subject to the sales tax.

SOURCE: South Dakota State Tax Reporter (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), pp. 6071-6073.

TABLE 3-C

LEGAL TITLES OF STATE SALES TAXES, AS OF JULY 1, 1974

State	Title of Tax
Alabama	Gross Receipts (Sales) Tax
Arizona	Occupational Gross Income (Transaction Privilege) Tax
Arkansas	Gross Receipts (Sales) Tax
California	Sales Tax
Colorado	Retail Sales Tax
Connecticut	Sales Tax and Admissions Tax
District of Columbia	Sales Tax
Florida	Sales, Rentals, Admissions Taxes
Georgia	Sales, Rentals, Admissions Taxes
Hawaii	General Excise (Gross Income) Tax (Multiple Stage)
Idaho	Sales Tax
Illinois	Occupational Retail Sales Tax and Service Occupation Sales Tax
Indiana	Sales Tax and Gross Income Tax
Iowa	Retail Sales Tax
Kansas	Sales Tax
Kentucky	Sales Tax
Louisiana	Sales Tax
Maine	Sales Tax
Maryland	Admissions Tax and Retail Sales Tax
Massachusetts	Sales Tax
Michigan	Occupational Retail Sales Tax
Minnesota	Sales Tax
Mississippi	Admissions Tax and Occupational Sales Tax (Multiple Stage)
Missouri	Retail Sales Tax
Nebraska	Sales Tax
Nevada	Sales Tax
New Jersey	Sales Tax and Retail Gross Receipts Tax
New Mexico	Gross Receipts Tax
New York	Sales Tax
North Carolina	Sales Tax
North Dakota	Retail Sales Tax
Ohio	Retail Sales Tax
Oklahoma	Retail Sales Tax
Pennsylvania	Sales Tax
Rhode Island	Admissions Tax and Sales Tax
South Carolina	Admissions Tax and Retail Sales Tax
South Dakota	Occupational Retail Sales Tax
Tennessee	Sales Tax
Texas	Admissions Tax and Sales Tax
Utah	Sales Tax

TABLE 3-C--continued

State	Title of Tax
Vermont	Sales Tax
Virginia	Retail Sales Tax
Washington	Retail Sales Tax and Business and Occupation Tax
West Virginia	Retail Sales Tax and Occupational Gross Income Tax
Wisconsin	Sales Tax
Wyoming	Retail Sales Tax

SOURCE: Topical Law Reports, State Tax Guide (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), pp. 6021-6147.

from gross sales. Occupational taxes are also taxes on gross receipts.[6] Because of base changes, the legislative title of the tax may not describe the type of tax actually imposed. The South Dakota sales tax, for example, is entitled a retail occupation sales tax, but in its present form taxes services and rentals and would be more appropriately called a gross receipts tax.

Table 3-D indicates the tax rate applied by each state and the important items exempted by certain states. The following discussion is a brief explanation of the material contained in the table.

The breadth of the exemptions in the various categories of Table 3-D differ among the states. For example, the states which exempt intermediate agricultural products exclude a wide variety of items but all would exclude such products as fertilizers, herbicides, seed grains and motor fuels. Certain states, such as Illinois, exempt services from the retail sales tax but include them under another tax, a service occupation tax in the case of Illinois. The exemption for food does not include prepared meals served in eating establishments or other types of prepared foods. The remaining exemptions, prescription drugs, clothing and air and water pollution control equipment are fairly self-descriptive and do not vary widely in content from state to state.

The rates applied on sales taxes vary from a low of 2 percent in Oklahoma to a high of 6 percent in Connecticut and Pennsylvania. Only two states levy a rate of less than 3 percent. Sixteen states impose a

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[6]*Topical Law Reports, State Tax Guide* (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), pp. 6012-6013.

TABLE 3-D

STATES SALES TAXES: RATES AND SELECTED EXEMPTIONS, AS OF JULY 1, 1974

State	Sales & Use Tax Rate (percent)	Food	Prescription Drugs & Medicines	Repair Services	Clothing	Intermediate Agricultural Products	Air & Water Pollution Control Equipment
Alabama	4		X[1]	X		X	X
Arizona	4		X	X		X	
Arkansas	3					X	
California	4.75	X	X	X		X	
Colorado	3		X	X		X	
Connecticut	6	X	X	X	X[2]	X	X
District of Columbia	5		X				
Florida	4	X	X			X	
Georgia	3			X		X	X
Hawaii	4						
Idaho	3		X	X			
Illinois	4						X
Indiana	4	X	X	X		X	
Iowa	3	X[3]	X	X		X	
Kansas	3						
Kentucky	5	X	X	X		X	X
Louisiana	3	X	X		X		
Maine	5	X	X	X		X	X
Maryland	4	X	X	X		X	
Massachusetts	3	X	X	X	X	X	X
Michigan	4	X	X	X		X	X
Minnesota	4	X	X	X	X	X	
Mississippi	5					X	

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TABLE 3-D—continued

State	Sales & Use Tax Rate (percent)	Food	Prescription Drugs & Medicines	Repair Services	Clothing	Intermediate Agricultural Products	Air & Water Pollution Control Equipment
Missouri	3			X		X	X
Nebraska	2.5		X	X		X	X
Nevada	3		X	X		X	X
New Jersey	5	X	X		X		
New Mexico	4						
New York	4	X	X				
North Carolina	3		X	X		X	
North Dakota	4	X	X	X		X	
Ohio	4	X	X	X			
Oklahoma	2			X		X	
Pennsylvania	6	X	X		X		
Rhode Island	5	X	X	X			X
South Carolina	4			X		X	
South Dakota	4		X			X	
Tennessee	3.5					X	
Texas	4	X	X	X		X	
Utah	4			X		X	X
Vermont	3	X	X	X		X	
Virginia	3		X	X		X	X
Washington	4.5		X				X
West Virginia	3		X				
Wisconsin	4	X	X			X	X
Wyoming	3					X	

TABLE 3-D--continued

*X denotes exemption.

[1]Applies only on the sale of prescription drugs and medicines to persons 5 years of age or older.

[2]Applies only on clothing sold to children 10 years of age or younger.

[3]Applies only on food for human consumption purchased with federal food stamps.

rate of 3 to 4 percent. Twenty states, including South Dakota, apply a rate of 4 to 5 percent. Five states and the District of Columbia tax at the rate of 5 percent and two states levy a 6 percent rate.

Food and prescription drugs are the two major exemptions employed by states to relieve some of the tax burden on the poor. Larger families would also tend to benefit from the exclusion of food as the proportion of their income spent on food is likely to be higher relative to smaller families. Twenty states offer a food exemption but South Dakota is not included in this group. Elderly persons probably benefit the most of any age group where prescription drugs and medicines are exempted. Passage of this exemption of the 1974 South Dakota Legislature brought the number of states offering this exemption to 27. The exemption of clothing provides another means of reducing the tax burden on the poor and on large families. This exclusion is not extensively used and was employed by only five states as of 1974. Exempting pollution control equipment is not important in terms of equity but may indicate an effort on the part of states to increase the use of such equipment to reduce the socially undesirable effects associated with pollution. Sixteen states employ this exemption.

The states bordering South Dakota utilize a wide range of rates and exemptions. Referring to Table 3-D once again, Montana imposes no sales tax while North Dakota levies a 4 percent tax rate and allows no exemptions for food or prescription drugs. Minnesota and Iowa, the states which border the most densely populated area of South Dakota, impose rates of 4 and 3 percent, respectively, and both exempt sales of

food and prescription drugs. Minnesota also exempts the sale of cloth-ing. Nebraska levies the second lowest rate of the 45 states imposing a sales tax, 2.5 percent, and offers no exemption for food, clothing or prescription drugs. With the exception of North Dakota, all border-ing states encourage South Dakota residents to make purchases in their states. The extent to which the use tax regulations are enforced would influence the size and number of purchases in bordering states.

ADMINISTRATION AND COLLECTION OF THE SALES TAX

The Property Relief Act of 1935 empowered the Director of Taxa-tion to administer the sales tax. The sales tax law was amended in 1937 to allow for the adoption of a system of coupons or tokens to aid in the collection of the tax.[7] This system was never implemented, instead additions to the auditing staff were made which purportedly were a less expensive means of supervising the tax. The Department of Revenue was created in 1955 to administer the important state taxes.[8] This act was reorganizational in nature and transferred the powers and duties formerly possessed by the Director of Taxation to the newly created department.

The responsibility for collection of the sales tax falls upon the retailer. The retailer has the option of adding the tax on to the retail price or absorbing the cost of the tax. The only stipulation when the

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[7]South Dakota State Tax Reporter (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), p. 6249.

[8]Ibid., p. 6075.

retailer absorbs the tax is that such practice cannot be advertised.[9]

The schedule for collection of the 4 percent sales tax is as follows:

$ .01	thru	$ .12	None	$1.88	thru	$2.12	$ .08
.13	"	.37	.01	2.13	"	2.37	.09
.38	"	.62	.02	2.38	"	2.62	.10
.63	"	.87	.03	2.63	"	2.87	.11
.88	"	1.12	.04	2.88	"	3.12	.12
1.13	"	1.37	.05	3.13	"	3.37	.13
1.38	"	1.62	.06	3.38	"	3.62	.14
1.63	"	1.87	.07	3.63	"	3.87	.15

The schedule can be used by retailers in determining the amounts due on sales subject to the 4 percent rate. The retailer is required to pay the tax on total gross receipts from taxable sales. Thus a sales tax is not collected on sales less than 13 cents but the retailer must include these sales in computing gross receipts. The retailer may benefit from the collections according to the schedule if many of his sales are on or just over the value where the amount of tax increases. For instance, a restaurant selling coffee at 15 cents per cup and charging tax on the sale would, if all sales were made individually, collect 7 cents on the sale of seven cups of coffee but would be liable for a tax payment of only 4 cents. Sales just below the value where the tax increased could result in part of the tax being absorbed by the retailer. Two individual sales of 37 cents would result in 2 cents of tax collections but a 3 cent tax liability for the retailer. These irregularities would be expected to average out over a large number of sales.

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[9]Ibid., p. 6072.

Every retailer selling taxable merchandise or services must apply to the Department of Revenue for a retail sales tax permit. The permit is required for the business to legally operate. The retailer is not charged for the permit, but if the permit is revoked a $10 fee is required for reinstatement.

All retailers subject to the tax are required to keep records of sales and receipts. The records must show the following: (1) sales of tangible personal property made within the State of South Dakota, irrespective of whether the retailer considers the sales taxable; (2) all deductions allowed by law and claimed in filing the tax; (3) a purchase ledger covering all purchases from wholesalers, jobbers or manufacturers with the names and addresses of such companies when the purchases are for sale or consumption in the State of South Dakota.[10] These records must be preserved for at least three years unless notified in writing by the Department of Revenue that the retailer may do otherwise. The records are subject to the inspection of the 10 field representatives presently conducting auditing services under the supervision of the Department of Revenue. Some states, in an effort to reduce the retailer's cost of collection, allow a percentage of the tax collection to be retained by the retailer. South Dakota does not provide this type of assistance.

Sales tax returns are generally filed on a quarterly basis, with payment due on the 15th day of the second month following the quarter.

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[10]South Dakota State Tax Reporter (Chicago: Commerce Clearing House, Inc., Looseleaf and Current), p. 6249.

Businesses with a low volume of taxable sales or businesses which operate
seasonally may file returns on a semi-annual or annual basis, subject to
the discretion of the field representative. Failure to file a return or
to provide the necessary information can result in a misdemeanor and
revocation of the sales tax permit. Failure to pay the tax on the due
date can also result in the revocation of the sales tax permit.

The Department of Revenue also assumes responsibility for the
enforcement and collection of municipal sales taxes. Fifteen South
Dakota municipalities impose a sales tax. The cities and rates that
applied as of July 1, 1974 were as follows:[11]

City	Rate	City	Rate
Aberdeen	1%	Lennox	1%
Custer	1%	Madison	1%
Deadwood City	1%	Rapid City	2%
Edgemont	1%	Sioux Falls	1%
Hot Springs	1%	Spearfish	1%
Huron	1%	Sturgis	1%
Keystone	2%	Wall	1%
Lead	1%		

The base of the municipal sales taxes is generally similar to
that of the state sales tax. Farm machinery and irrigation equipment
are usually exempt from the city sales taxes. Vending machines are
exempt except in Rapid City. Rapid City also exempts the sale of gro-
ceries from the city sales tax. Sioux Falls taxes the gross receipts
from room rentals to transient guests at a 2 percent rate. All cities
also exempt sales where delivery is made outside the city. It is

[11]Ibid., p. 6171.

interesting to note that eight of these cities are in or near the region of the Black Hills. Sales to tourists in these cities presents a means of shifting the cost of government to nonresidents of the city. Retailers in such cities remit all sales tax collections to the Department of Revenue, which in turn reimburses the cities.

ADMINISTRATIVE COSTS

An important consideration to be given any tax involves the cost of administering the tax. Taxes which generate large amounts of revenue at a small cost can be considered economically efficient from the standpoint of resource allocation. Revenues are generated to be spent in satisfying the demands of the populace for goods and services considered socially desirable but not provided by the private sector of the economy. The larger the proportion of resources that can be allocated to these demands from a given tax or tax system, the greater the efficiency of the tax or tax system.

A sales tax has generally been recognized as a source of revenue that meets this characteristic. Part of the cost of administering the sales tax is shifted onto the retailer leaving the state government with the costs of supervising and processing tax returns. A method of estimating the administrative cost of the South Dakota sales tax is to divide the operating budget of the Sales and Use Tax Division by total sales and use tax receipts for the same fiscal year. This expresses the cost of collection as a percentage of receipts.

The operating budget of the Sales and Use Tax Division of the South Dakota Department of Revenue for fiscal year 1973 was $270,551 and

for fiscal year 1974, $262,280.[12] Sales and use tax collections for those same years were $64,418,224.84 and $75,517,809.98, respectively.[13] Thus, administrative costs amounted to approximately four-tenths of 1 percent in 1973 and in 1974 to thirty-four hundreths of 1 percent. A tax which costs less than 1 percent of revenue to collect is generally considered very efficient.

SUMMARY

The South Dakota retail sales tax has undergone numerous changes since its enactment in 1935. The tax rate has been increased several times to the present level of 4 percent. Base changes have occurred frequently within the last 10 years. As it now stands, the base is one of the broadest of the 45 states imposing sales taxes. The taxation of room rentals, professional and repair services, alcoholic beverages and personal property rentals have made the South Dakota sales tax rather unique in relation to other states.

The already broad base leaves few additional items which could be taxed to increase sales tax revenue. Several items currently not included in the sales tax base but which could generate additional revenue are cigarettes, housing expenditures (rentals) and medical services. Future changes to increase sales tax revenue are thus likely to be rate rather than base changes.

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[12]Don Keyes, Internal Auditor, Department of Revenue, personal letter, February 12, 1975.

[13]South Dakota Department of Revenue, Annual Statistical Report 1973-74 (Pierre, S. D., 1974), p. 3.

The collection of the sales tax is the responsibility of the retailer. Every retail business in the state must be licensed with the Department of Revenue to facilitate the collection. The Department of Revenue administers the sales tax through supervision and auditing practices. The cost of administration is very low and makes the sales tax a very efficient generator of revenue for South Dakota.

CHAPTER IV

SALES TAX EQUITY

INTRODUCTION

Several characteristics of the sales tax have been discussed in
the preceding chapters. The discussion in this chapter focuses on sales
tax equity. The regressive nature of the sales tax with respect to
income is examined. Several methods of reducing sales tax regressivity
are also surveyed along with the problems and issues involved in meas-
uring sales tax regressivity.

SALES TAX REGRESSIVITY

Regressivity Defined

The tax rate indicates the amount of tax applied to a unit of the
tax base. The relationship between the tax base and the tax rate deter-
mines the tax structure. A tax structure may be either progressive, pro-
portional or regressive depending upon what happens to the tax rate
when the tax base rises. Economists consider the tax structure in both
a "technical" and an "equity" sense. In the "technical" sense the tax
base is defined as the legislative measure to which the tax rate is
applied. The measure may be wealth, income, the price of a good or ser-
vice or the number of units of a good. For a progressive tax, the per-
centage of the base (e.g., wealth) paid in taxes would increase as the
base increased. A proportional tax would call for a constant percentage
of the base paid in taxes over the entire range of the base. A regres-
sive tax would result in a decreasing percentage of the base paid in

taxes as the tax base increased. The three structures are illustrated
in Figure 4-1.

a. Progressive Tax   **b. Proportional Tax**   **c. Regressive Tax**

Tax Base
(Base Units)

Tax Base
(Base Units)
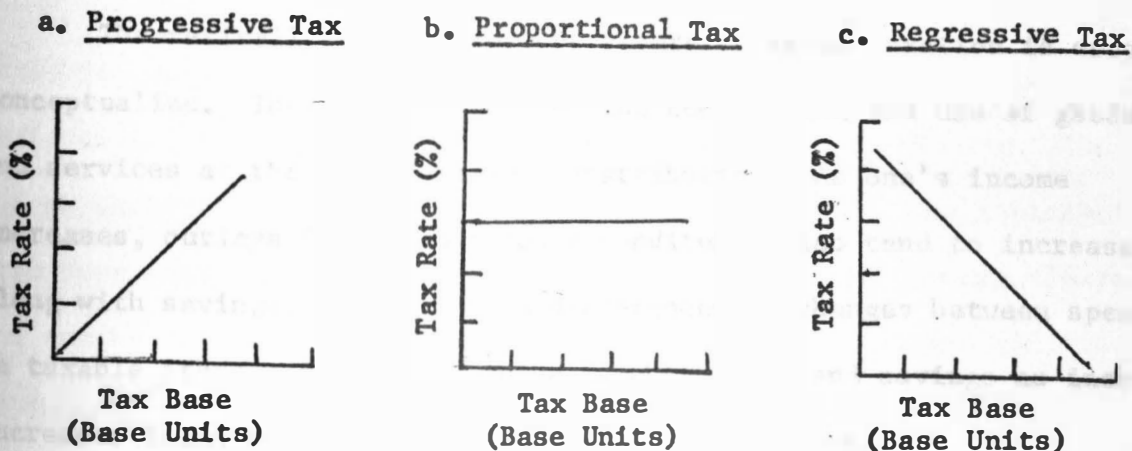
Tax Base
(Base Units)

FIGURE 4-1

THE RELATIONSHIP BETWEEN TAX RATE AND
TAX BASE IN "TECHNICAL TERMS"

The structure of a tax is conceived quite differently in an
"equity" sense. The concern is with the relative ability of taxpayers
in different situations to pay taxes. Income is the standard employed
as the common base to allow comparison of the treatment of taxpayers
under the various legislative base measures. Thus for a tax to be pro-
gressive in the "equity" sense, the percentage of income paid in taxes
must increase as income rises. A constant and a declining percentage of
income would be paid in taxes as income rises, respectively, for a pro-
portional and a regressive tax structure. The illustrations of Figure
4-1 are identical for the "equity" sense if income is substituted as the
tax base on the horizontal axes of the graphs. The remainder of this

chapter and the study is concerned with viewing the sales tax structure from the viewpoint of equity.

The Theory of Sales Tax Regressivity

Theoretically, the regressive nature of sales taxation is easy to conceptualize. The tax is a levy on the consumption and use of goods and services at the final stage of distribution. As one's income increases, outlays for consumption expenditures also tend to increase along with savings. The relative differences in changes between spending on taxable items and spending on nontaxable items and savings as income increases leads to the regressivity of sales taxation.

Assume a family of four moving through different income levels. As the level of family income increases, more tastes and preferences can be satisfied. New tastes also may develop as income increases. The absolute amount of income spent on the necessities of life such as food and clothing is not likely to change a great deal except to satisfy more expensive or changing tastes. The amounts spent on such taxable items decline and the amounts spent on nontaxable items and services increase in relation to income. Some of the purchases may include medical services, recreation and better housing. Many of these items are nontaxable and no further sales tax liabilities would be incurred.

Since the relative amount of income used for taxable items decreases as income increases and because the sales tax is not a levy on all retail consumption, the sales tax is regressive with respect to income. As income increases the amount of sales tax payments increase at a slower rate. Therefore, at higher levels of income, sales tax

payments as a percent of individual or family income decrease. This ratio of sales tax payments to income is known as an effective sales tax rate.

A graphical presentation is provided in Figure 4-2. The vertical axis represents the percent of income used in paying sales taxes (the effective tax rate) and the horizontal axis represents income. The graph shows a declining tax rate as income increases. The portrayal can represent a single family rising through different income classes or can be viewed in the aggregate as representing different individual and family incomes and their effective tax rates.
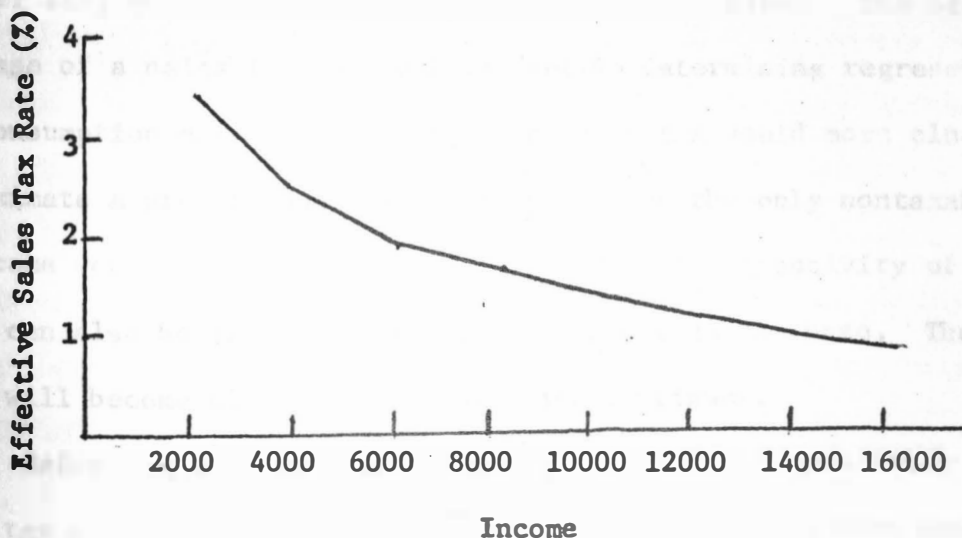
FIGURE 4-2

HYPOTHETICAL EFFECTIVE SALES TAX RATES

Different families with equal incomes may still be required to pay different amounts of sales taxes. Large families tend to allocate a greater proportion of their income to items such as food and clothing .

Since these items are taxable, the larger the family size the greater the sales tax burden.

Even among families of equal size and income class the sales tax burden may be unequally distributed. This characteristic is referred to as capriciousness.[1] Differences in tastes and preferences account for differences in expenditure habits. Since the sales tax does not tax all consumption expenditures, differing spending habits of individuals and families lead to an uneven distribution of the tax burden.

Methods of Reducing Regressivity

The base of the South Dakota sales tax is, as described in Chapter III, quite broad when compared to other states. The breadth of the base of a sales tax can be important in determining regressivity. If all consumption expenditures were taxed, the tax would more clearly approximate a proportional tax structure since the only nontaxable part of income would be savings. Paradoxically, the regressivity of sales taxes can also be reduced by exempting items from the base. The latter point will become clear as the discussion continues.

Referring back to Figure 4-2, the degree of regressivity of the sales tax would be reduced by tilting of the curve to a more horizontal position. The tax would be strictly proportional if the curve were perfectly horizontal. The curve could be made more horizontal by lowering it at lower income levels, by raising it at upper income levels

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[1]Harold M. Groves, Financing Government (6th ed.; New York: Holt, Rinehart and Winston, Inc., 1964), p. 292.

or by a combination of the two factors. The methods which can be used to accomplish this result account for the seeming paradox.

At the lower income levels, most of the budget of an individual or family is allocated for taxable items. The largest item in the budget of a low-income family which would not be taxable is housing expenditures. The part of the budget accounting for the greatest sales tax liability of low-income families is likely to be allocated to food and clothing purchases. Recalling the earlier discussion as to the relatively constant absolute food expenditures at different income levels, the proportion of the budget allocated to food and clothing is likely to decrease as incomes increase. The amount of sales taxes paid for food and clothing when compared to income would decrease as income increased and would probably approach zero for very high incomes.

Exempting food and clothing from the tax base would not lower to a great extent the effective sales tax rate for families at the high end of the income spectrum. The exemption would be expected to have a significant downward effect on the effective sales tax rate for those at the low end of the income spectrum. The effect of exempting food and clothing on the curve in Figure 4-2 would be a downward shift of the entire curve with the portion of the curve at the lower income levels shifting relatively farther downward than the portion of the curve at higher income levels. The entire curve would tend to become more horizontal, resulting in a lower effective tax rate for all income levels, and the degree of regressivity would be lessened.

The main argument against such an exemption would be the loss of large amounts of revenue. As shown in Chapter V, such an exemption would have resulted in the loss of nearly $14 million of sales tax revenue for South Dakota in fiscal year 1974. The revenue loss would have to be made up by the imposition of a new tax or by increasing the rate and/or base of an existing tax. Another argument against the exemption is that it would complicate the base by requiring a definition as to what constitutes food and clothing sales. This creates confusion for both the retailers who must collect the sales tax and for state officials who must administer the tax.

Extending the base of the tax to make the sales tax a truly general levy on all retail sales would reduce the degree of regressivity of the sales tax but in the opposite manner as the preceding discussion. Since most of the expenditures for low-income consumers are already taxable, extending the base would not likely increase the effective tax rate at that income level by a very large amount. Unless the base extension causes shifts to savings at high income levels, which seems highly unlikely, the effective tax rate for high income consumers will increase. The result on the curve in Figure 4-2 would be an upward shift of the entire curve with the upward shift being greatest at the high income levels. The shifting would result in a higher effective tax rate for all income classes but the degree of regressivity would be reduced.

Probably the biggest problem that would be encountered in extending the base would be definitional. If the sales tax were to be a true consumption levy, the base would have to be defined to exclude all sales

to businesses. Defining the base to exclude sales of all intermediate products would likely make the base more difficult for retail merchants to apply. The present base of the South Dakota sales tax does exclude a great many intermediate products but would have to exclude even more (for example, fuel used to heat an office building). The extension would also have to tax housing expenditures, particularly rent, which may cause a great deal of public resistance.

It is difficult to judge whether total sales tax revenues would increase with such a base. The revenues gained by taxing all consumer expenditures might be more than offset by the exclusion of all intermediate products. It has been estimated that between 15 and 25 percent of the total sales tax yield for most states is paid by businesses rather than consumers.[2]

It is also difficult to estimate how much regressivity would be reduced by the exemption of the products used by businesses. As just noted, the base of the South Dakota sales tax places liability on several items purchased and used by businesses. The items may not be intermediate goods in the sense that they become part of a product produced by the firm, but are never-the-less used by the business in production, marketing or administration. Two obvious examples of such items which are taxable in South Dakota are farm implements and merchandise display cases. Most sales tax regressivity studies assume that the sales taxes

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[2] Daniel C. Morgan, Jr., Retail Sales Tax, An Appraisal of New Issues (Milwaukee: The University of Wisconsin Press, 1964), p. 27.

paid by businesses are shifted forward in full to consumers and thus all sales tax revenue is ultimately paid by individuals and households.

The assumption of complete forward shifting means that sales taxes paid by businesses are ultimately paid by the consumer in the form of higher retail prices. The exclusion of products purchased by businesses would indirectly reduce the total tax burden of consumers if prices were adjusted downward by the amount, or a fraction of the amount, formerly shifted to consumers. If the tax is totally shifted, and the sales tax on businesses is primarily shifted to products consumed by low income taxpayers, then the exclusion of the products purchased by businesses would reduce the regressivity of the sales tax if all prices were reduced accordingly. If the assumption of total forward shifting is not true and business does absorb part of the sales tax, the exclusion of business purchases may not significantly affect regressivity but would increase the total tax burden on consumers if the tax was also made a true consumption levy.

Another frequently employed method of reducing regressivity involves a system of sales tax credits to low-income persons. The principle is the same as that used in negative income tax proposals. A minimum income level is set for individuals and families and if the respective income level is not attained part of the tax payments is refunded upon receipt of an application. Some states use a graduated system of credits so that as the level of income increases the amount of the tax credit decreases. Other states rebate an absolute dollar amount for each member of the household. The system of credits is most easily

applied in states imposing an income tax. When employed in this manner, the administrative processing is almost negligible as the credit is applied directly on the income tax form. Other states, such as South Dakota, refund only upon direct application by the taxpayer.

The South Dakota tax relief or rebate program was initiated by the 1974 Legislature with refunds beginning January 1, 1975.[3] The program was designed to reduce the sales tax burden of low-income senior citizens and disabled persons. The maximum benefit to an individual amounts to $88 and to a household amounts to $176.

To qualify for the tax refund the following qualifications must be met: (1) the applicant must have been a resident of South Dakota for the entire year, (2) the applicant must have been at least 65 years of age before January 1 of the applicable year or have been disabled for all or part of that year and (3) the income of an individual living alone must not have exceeded $3,700 or the income of a household not have exceeded $5,900. The income figures under (3) are those applicable to 1974. Disabled persons are defined as those who were eligible to receive disability benefits in the year under the Federal Social Security Act. Income of the South Dakota applicants does not include gifts from nongovernmental sources, food stamps or surplus food, other noncash goods received from government agencies, medicare or medicaid benefits, damages received on account of personal injuries, payments received for

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[3]The discussion of the "Tax Relief for Low-Income Senior Citizens and Disabled Persons Program" is drawn from the application form for the refund and from information furnished by the Department of Revenue at Pierre.

working as a volunteer in an Action Program and insurance payments for medical expenses.

The amount of refund is computed on the basis of the applicant's income. For an individual, the refund for 1974 equals $37 plus 3.4 percent of the difference between $3,700 and the income of the applicant. For a household, the refund equals $59 plus 7.8 percent of the difference between $5,900 and the applicant's income.

The refund is obtained by filing with the Department of Revenue at Pierre. The County Treasurers throughout the state are to assist taxpayers in filing and also to provide claim forms. The program was originally intended to be in effect for one year but has been extended for another year.

The Legislature appropriated $5,875,000 to provide funds to all those eligible for assistance. As of May 1, 1975, only approximately $1,600,000 worth of refund claims had been filed.[4] May 1 had been the original filing deadline but the deadline was extended another month because of the small number of applicants. It was originally estimated that 51,000 people would be eligible for the programs but the claims of May 1 indicated that only approximately half that number had filed.[5] This indicates that either the number of people eligible was grossly overestimated or that a number of applicants failed to apply because of lack of information or other reasons.

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[4]Personal telephone conversation with Lyle Wendell of the Department of Revenue, Pierre, South Dakota, May 1, 1975.

[5]Ibid.

The expected result of the South Dakota tax refund program and the programs of other states would be a reduction in the effective tax rate of low-income persons. The major difference between a rebate program and a base exemption program is that only selected groups benefit under the former while all low-income people benefit under the latter. The South Dakota program would reduce regressivity more by extending the refunds to all low-income persons and families.

DEFINITION OF INCOME

A major problem in measuring the regressivity of a sales tax involves the choosing of the proper income base. The important considerations that must be given attention are the varying income definitions and time periods used in measuring income. The choice of income and the time period involved affect regressivity measures by changing the number of people included in the different income classes.

The decision of what income measure to use includes the choice between strict money income and the inclusion of nonmonetary elements of income.[6] The use of the former measure is an indication of the individual's financial position and the latter is an indication of the economic position of the individual or family. Money income would be associated with taxpaying income and nonmonetary income would include such items as the value of home grown food and self-repair jobs. The inclusion of nonmonetary elements provides a much broader income base

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[6]For a more technical discussion the reader is referred to Donald Phares, State-Local Tax Equity (Lexington, Massachusetts: D. C. Heath and Company, 1973), pp. 29-31.

thereby moving some people and families, especially those at the lower spectrum of the income groupings, to a higher income level.

Including nonmonetary elements into the income base creates some serious problems for regressivity measures. First, it is very difficult to quantify nonmonetary benefits. The proper approach would be to value them at the opportunity costs associated with them. Second, it is difficult to determine what elements to include. Should the value of a housewife be considered a part of nonmonetary income? There is no clearly defined logic to determine what elements should be included as nonmonetary income. Third, nonmonetary elements do not accrue to everyone in the same proportion. It is highly probable that individuals and families in rural communities accrue more nonmonetary components than do urban families at the same nominal income level. A way of overcoming this problem would be to estimate tax regressivity for urban and rural families separately. This would affect the regressivity measure a great deal in South Dakota as this state has a large rural population.

The selection of the time period for measuring one's income may also affect the regressivity measure. If income is measured over a long period of time, five years for instance, the regressivity of the tax is likely to be reduced. In many situations, future income is likely to be greater than present income and thus an average of the income earnings over a period of time may be more expressive of an individual's or family's buying power.

Selecting too short a time period for income may include people temporarily at a low level of income. A temporary period of unemployment or a period of extended schooling may place an individual or family at a low income level for a short period of time. If income is measured during this time period for purposes of estimating tax regressivity, the results are likely to be overstated. This problem may again be acute in South Dakota where wide fluctuations in income are experienced in the agricultural sector.

One final note should be made about the problems associated with regressivity measures. Regressivity deals with the incidence of a tax which is the final resting point where the tax cannot be shifted onward. This concept was discussed in relation to sales taxation upon businesses. Tax incidence also has spatial elements associated with it. The spatial incidence of taxation may be thought of in terms of tax importing and tax exporting.

Imported taxes are those taxes paid by residents of one governmental unit (e.g., South Dakota) to other governmental units (e.g., Minnesota). Exported taxes are those paid by residents of the other governmental unit (Minnesota) to the given governmental unit (South Dakota). Sales taxes, because they are consumer levies, are easily exported and imported. For a state such as South Dakota which has a large amount of tourist trade, more sales tax is likely to be exported than imported. The net result would be a smaller tax burden for the population of the state as a whole. The total tax burden would be

reduced as the tax payments by nonresidents would allow lower rates and a smaller base than if part of the tax could not be exported.

The problems which have been discussed point to the difficulty involved in obtaining a good sales tax regressivity measure. Coupling the theoretical problems with the difficulties of obtaining income and consumption data make empirical estimates of sales tax regressivity a very difficult task. The next section illustrates the problems which have been discussed by presenting the results of a regressivity study.

THE PHARES STUDY

One of the most recent studies on tax equity was conducted by Donald Phares of the University of Missouri at St. Louis.[7] The study was an empirical analysis of the tax incidence of all 50 state-local tax systems. The study produced a set of effective tax rates for each type of tax of the 50 states.

The following assumptions and definitions were used in the study. (1) The sales tax was fully shifted forward to the consumer. (2) The method used to allocate consumption by income level was provided by a 1960-61 Bureau of Labor Statistics survey. Total state personal income for 1962 was selected as the income base and consumption was allocated to the income classes from percentages obtained from the survey. (3) Tax receipts were adjusted to take account of importing and exporting.

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[7]Donald Phares, State-Local Tax Equity (Lexington, Massachusetts: D. C. Heath and Company, 1973).

Using these definitions and assumptions, Phares calculated effective tax rates for the taxes of each state. The results for the South Dakota retail sales tax were:[8]

Income Range	$ 0– 1999	2000– 2999	3000– 3999	4000– 4999	5000– 5999	6000– 7499	7500– 9999	10000– 14999	Over 15000
Effective Rate	.01577	.01293	.01129	.01074	.00987	.00925	.00809	.00801	.00577

Transferring the data to graphical form in Figure 4-3, the regressive nature of the sales tax can be easily seen for South Dakota.
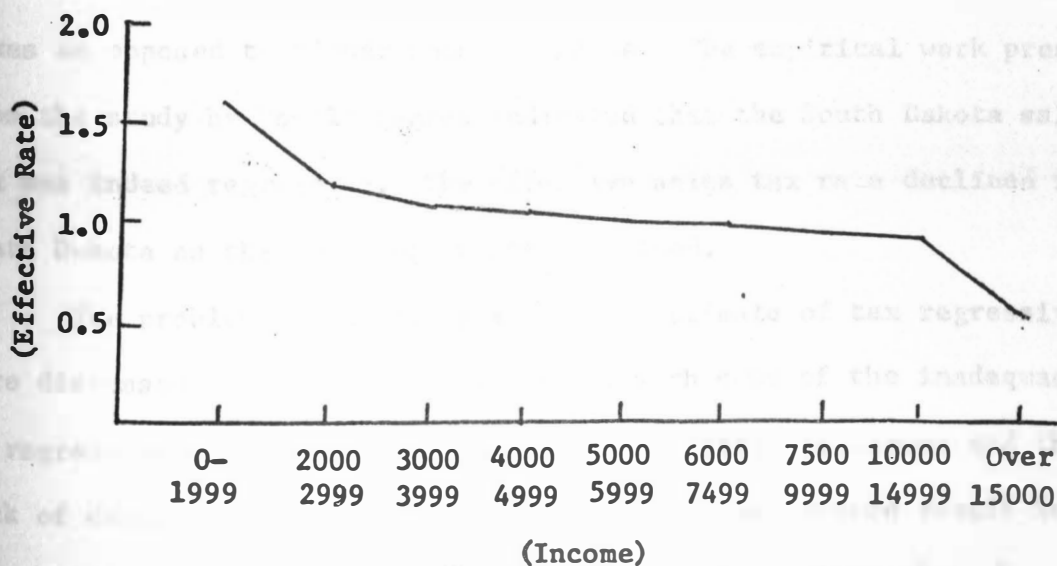
FIGURE 4-3

EFFECTIVE SALES TAX RATES FOR
SOUTH DAKOTA IN 1962

The slope of the curve is negative, it slopes downward and to the right. The negative slope indicates a regressive tax since the effective tax

[8]Ibid., p. 119.

rate is decreasing as income is increasing. Individuals and families at the lowest level of income paid approximately 1.6 percent of their income to the state for sales tax levies. For those at the highest level of income, over $15,000, only .6 percent of their income was used to pay sales taxes. The percentage of income used to pay sales tax levies declined at every income level.

SUMMARY

Sales taxes are regressive with respect to income. People with low levels of income pay a greater proportion of their income in sales taxes as opposed to higher income persons. The empirical work presented from the study by Donald Phares indicated that the South Dakota sales tax was indeed regressive. The effective sales tax rate declined in South Dakota as the level of income increased.

The problems of arriving at a good estimate of tax regressivity were discussed to familiarize the reader with some of the inadequacies of regressivity measures. The varying definitions of income and the lack of data available for estimating taxable consumption result in somewhat less than perfect measures. This does not mean that the studies are of no value but that caution must be used when employing the results for policy decisions.

Finally, the methods of reducing regressivity were discussed in a theoretical context. The most popular method is the exemption of food from the tax base. Another currently used method is the adoption of a tax credit or tax refund system to low-income persons. The latter system could be less costly in terms of revenue loss (depending upon the

rates employed) but the administrative complexities are greater espe-
cially in a state that has no personal income tax. The third method,
would be to increase the base to include all consumer expenditures.
If business purchases were excluded, the change would likely lead to
little revenue loss or quite possibly a revenue gain. Problems of base
definition and lack of citizenry support would likely make this a less
viable alternative.

INCOME ELASTICITY ANALYSIS OF THE SOUTH
DAKOTA SALES AND USE TAX

INTRODUCTION

The purpose of this chapter is to analyze the adequacy of the
retail sales tax. The concept of adequacy was discussed in Chapter II
and need not be explained again at this time. Sales tax adequacy can be
assessed by estimating the income elasticity of the sales tax and com-
paring it to the income elasticity of expenditures. By "hypothetically"
exempting certain items from the base of the tax, such as food and/or
clothing, the effect on adequacy can be ascertained. The analysis of
this chapter can be useful to policymakers in two ways: (1) income
elasticity estimates allow a basis for projecting future revenue from
the sales tax with the present base and rate structure and also for
projecting revenue where major legislative changes have been made in the
base or rate; and (2) the elasticity estimates provide lawmakers with a
framework for formulating a sales tax structure that improves tax ade-
quacy, that is, a sales tax structure with revenues sufficiently respon-
sive to changing economic conditions that there is no need for constant
legislative changes in the base or rate.

INCOME ELASTICITY OF TAXES

The concept of elasticity is used in economics to measure the
degree of responsiveness of one variable to changes in another variable.
Expressed verbally, elasticity is the percentage change in the dependent

variable divided by the percentage change in the independent variable. The mathematical representation of elasticity is:

$$E = \%\Delta Z\ /\ \%\Delta X = \frac{\Delta Z}{Z}\Big/\frac{\Delta X}{X} = \frac{\Delta Z}{\Delta X}\Big/\frac{Z}{X}$$

where the elasticity of Z with respect to X is a measure of the responsiveness of Z to changes in X. The coefficient obtained in the measurement of elasticity is independent of the units used to measure X and Z.

Probably the most familiar elasticity measure is price elasticity of demand. This measure is used to determine the responsiveness of the quantity of a commodity demanded to changes in its price. Quantity demanded is the dependent variable and price is the independent variable. Expressed mathematically the relationship is:

$$E = \left|\frac{\Delta Q}{Q}\Big/\frac{\Delta P}{P}\right|.$$

Price (P) is measured in monetary units and quantity (Q) is measured in units expressing the commodity such as pounds, bushels, or tons. In the numerical calculation, the units of measure cancel out leaving pure numbers which facilitate elasticity comparisons between different commodities.

The numerical measures of elasticity are grouped into three categories to give an idea of the responsiveness of the variables. When the magnitude of the coefficient (E) is less than one, the measure is said to be inelastic. In this case, the percentage change in the dependent variable would be less than the percentage change in the independent variable. Referring to price elasticity of demand, the percentage change in quantity demanded would change by a smaller amount than the percentage change in price. When the magnitude of the coefficient (E) is greater

than one, the measure is elastic. The percentage change in the dependent variable is greater than the percentage change in the independent variable. In terms of price elasticity, the percentage change in quantity demanded would be greater than the percentage change in price. The third category of elasticity is unitary elasticity where the magnitude of the coefficient (E) is equal to one. The percentage change in quantity demanded would be equal to the percentage change in price.

When speaking of the income elasticity of a tax, the concern is with the responsiveness of tax revenues to changes in personal income. Personal income affects sales tax revenue indirectly through consumption spending. Although not all increases in personal income would be spent on taxable items, it is assumed that the relationship between sales tax revenue and personal income is such that an increase in personal income would cause an increase in the consumption of taxable goods and services.

The representation of tax elasticity is:

$$E_t = \frac{\Delta T}{T} \bigg/ \frac{\Delta Y}{Y}$$

where T, tax revenue, is the dependent variable and Y, personal income, is the independent variable. As mentioned previously, the revenues are considered to be functionally related to personal income. If the elasticity of a tax was unitary or equal to one, revenues from the tax would grow at the same rate as personal income. If personal income increased by 10 percent in a given year, revenues from the tax would also increase by 10 percent for that year. If the measure of income elasticity of a tax was less than one (inelastic), tax revenues would increase at a slower rate than personal income. If the elasticity of

The indexing procedure is based on the assumption that changes in the base or rate of the sales and use tax do not reduce the quantity of taxable goods and services sold. Technically this is a price elasticity of zero. Since the change in price of a good or service through sales taxation is likely to be relatively small in most cases, the assumption does not seem to be unrealistic.

Using this assumption, if the tax rate was increased from 2 to 3 percent for the entire fiscal year, tax revenues would increase by a percentage equal to the percentage change in the tax rate (50 percent). Similarly, if the base of the tax was expanded by 10 percent, revenues would be expected to increase by 10 percent. The following example should help to clarify the above explanation.

Time period	Base (B)	Rate (R)	Tax Revenue (T)
t_1	$1000	.02 (2%)	20
t_2	1000	.03 (3%)	30
t_2-t_1		$\Delta R=.01=50\%$	$\Delta T=10=50\%$
t_3	1100	.03 (3%)	33
t_3-t_2	$\Delta B=100=10\%$		$\Delta T=3=10\%$

Using t_1 as the base year, the base and rate indices can be constructed. The rate index increased from 100 to 150 as the rate increased from 2 to 3 percent. The base index increased from 100 to 110 as the base increased from $1,000 to $1,100. The composite base and rate index increased from 100 to 165 as both base and rate were taken into account. An index can also be constructed using t_3 as the base period; however, using t_1 as a base period is more useful and its merits are discussed later in this section.

To keep the various revenue totals from becoming confusing the following abbreviations are used:

T = actual sales and use tax revenue generated for a given fiscal year,

TAR = tax revenue adjusted for a constant rate for a given fiscal year,

TAB = tax revenue adjusted for a constant base for a given fiscal year,

TA = tax revenue adjusted for a constant rate and base for a given fiscal year,

T_{1961} = the base year revenue (1961).

The revenue data used in the study covered fiscal years 1961 through 1974. TAR thus represents the amount of tax revenue which would have been generated in a given year had the rate structure of 1961 existed in that year. TAB represents the amount of tax revenue which would have been generated in a given year had the base structure of 1961 existed in that year. TA represents the amount of tax revenue which would have been generated in a given year had the rate and base structure of 1961 existed in that year .

Using 1961 as our base year, the following relationships will hold between T, TA, TAR and TAB:

1. If no changes occurred in the base or rate, then T = TAR = TAB = TA;

2. If the base remained constant but the rate was increased, then (T = TAB) > (TAR = TA);

3. If the rate remained constant but the base was increased, then (T = TAR) > (TAB = TA);

4. If both the base and rate were increased then T > TAR > TA and T > TAB > TA and depending upon the magnitude of change

between the base and rate T > TAB > TAR > TA if the percentage change in the rate was greater than the percentage change in the base or T > TAR > TAB > TA if the percentage change in the base was greater than the percentage change in the rate.

Using 1961 as the base year, the adjusted revenue series show, for each year, revenues due to tax rate changes, revenues due to legislative base changes and revenues due to changing economic variables. In terms of the abbreviations, the difference in any year between TA and T_{1961} represents the revenues due to changing economic variables. The difference between TAR and TA represents the revenues due to changes in the tax base and the difference between TAB and TA represents the revenues due to rate changes for any given year.

Had 1974 been used as the base year, the adjusted revenue totals would reflect the amount of revenues for a given year had the base and/or rate structure of 1974 been in existence in that year. This method would have yielded the same percentage increase in revenue due to changing economic conditions and thus would have made no difference in the estimation of income elasticity. It would not, however, allow the actual changes in revenues brought about by base or rate changes to be shown.

The Adjustment Process

As previously mentioned, the study period covered fiscal years 1961 through 1974. The revenue series was provided by the South Dakota Department of Revenue at Pierre. The data were composed of quarterly sales and use tax receipts broken down by type of business. There were 12 broad business classification groups: Apparel, Automotive, Food, Furniture, General Merchandise, Lumber and Building, Professional and

Personal Service, Public Utility, Farm and Garden Produce, Manufacturing
and Trading, Unclassified and Unclassified Nonresident Vendors. Each
broad classification was subdivided into the types of stores selling
the items falling under the broad classification. For instance, stores
included under the apparel group were boot and shoe stores, clothing
stores, shoe repair stores and "other" apparel stores. Revenue yields
were also provided for each type of store.

Base and rate changes in the sales and use tax were taken from
Tables 3-A and 3-B of Chapter III. Since the business classifications
are only rough approximations of the taxable items that stores sell,
some base changes, such as the inclusion of butter substitutes into the
base, could not be adequately accounted for in the adjustment procedure.
Other base changes were considered to affect revenues insignificantly.
The following base and rate changes were, in the opinion of the author,
considered significant in terms of revenue and called for revenue
adjustments: (1) Ch. 44, Laws of 1963, the base of the tax was extended
to include receipts from room rentals; (2) Ch. 288, Laws of 1965, the
rate was increased from 2 to 3 percent; (3) Ch. 296, Laws of 1965,
professional and repair services were included in the base; (4) Ch. 267,
Laws of 1969, the rate was increased from 3 to 4 percent except for farm
machinery which remained at 2 percent and vending machines at 3 percent;
and (5) Ch. 267, Laws of 1969, the base of the tax was extended to
include beer and alcoholic beverages.

No base changes in the use tax were considered to have signifi-
cant revenue effects. Although there were significant base changes made

in the sales tax by the 1974 Legislature, their adjustment was not possible as the revenue impact would not be felt until fiscal 1975.

The actual data adjustment is fairly easy once the base and rate indices have been calculated. Letting R represent the rate index, B the base index and R·B the composite index for both base and rate changes, the following relationships hold:

(1) $TAR = \dfrac{T}{R}$ and thus $TAR \cdot R = T$,

(2) $TAB = \dfrac{T}{B}$ and thus $TAB \cdot B = T$,

(3) $TA = \dfrac{T}{R \cdot B}$ and thus $TA \cdot (R \cdot B) = T$.

Thus the process of arriving at adjusted revenue totals involves merely the division of the proper index into the actual sales and use tax revenues (T) received during a given fiscal year.

The indices and the adjusted revenue totals are shown in Table 5-A. The Base Index (B) increased from 100 to 101.22 as the result of the inclusion of receipts from room rentals which were added in fiscal year 1964. The taxation of certain professional and repair services in 1966 increased the index to 103.64. In 1970, beer and alcoholic beverages became taxable items increasing the index to 104.49. The rate index increased to 150 as the result of the 1966 rate change from 2 to 3 percent and to 199.70 in 1970 when the rate was again increased. The rate index does not reach 200 since the rate increase to 4 percent did not apply to all items. The composite base and rate index is derived by multiplying together the individual base and rate indices.

The calculation of the index was where the true adjustment was made. The rate index of the earlier textual example was fairly easy to

TABLE 5-A

BASE AND RATE INDICES AND ADJUSTED REVENUE TOTALS
OF SALES AND USE TAX REVENUE, 1961-1974

Year	T	Base Index (B)	TAB	Rate Index (R)	TAR	Base & Rate Index (RB)	TA
1961	$16,685,381	100	$16,685,381	100	$16,685,381	100	$16,685,381
1962	17,584,173	100	17,584,173	100	17,584,173	100	17,584,173
1963	18,170,942	100	18,170,942	100	18,170,942	100	18,170,942
1964	18,346,150	101.22	18,125,024	100	18,346,150	101.22	18,125,024
1965	18,292,322	101.22	18,071,845	100	18,292,322	101.22	18,071,845
1966	29,727,893	103.64	28,683,380	150	19,818,595	155.46	19,122,535
1967	31,107,196	103.64	30,014,662	150	20,738,131	155.46	20,009,775
1968	33,407,494	103.64	32,234,170	150	22,271,663	155.46	21,489,447
1969	35,840,550	103.64	34,581,773	150	23,893,700	155.46	23,054,516
1970	51,300,921	104.49	49,096,489	199.70	25,688,994	208.66	24,585,891
1971	54,021,810	104.49	51,700,459	199.70	27,051,482	208.66	25,889,873
1972	58,592,995	104.49	56,075,218	199.70	29,340,508	208.66	28,080,607
1973	67,244,099	104.49	64,354,578	199.70	33,672,558	208.66	32,226,636
1974	78,452,770	104.49	75,081,606	199.70	39,285,313	208.66	37,598,375

SOURCE: The calculations were made to revenue data furnished by the South Dakota Department of Revenue.

calculate. For Table 5-A the rate index is simply the percentage increase in the rate using 1961 as the initial condition. The base index is easy to conceptualize theoretically. It was not as easy to calculate as implied in that earlier example. In monetary terms, the base would be the amount of taxable retail sales over a given period of time. The data, as stated previously, were tax revenue. The monetary base could be computed theoretically by dividing the rate into the tax revenue but this adjustment was not found necessary as the percentage changes would not be affected. The base index was instead calculated by estimating the revenues which were due to the specific base change in the year the change took effect. This amount was subtracted out of the actual revenues for that year (T) which left revenues generated by the 1961 base conditions (TAB). The base index was then calculated by dividing the adjusted revenue (TAB) into actual revenues for the year (T). If no base change occurred the following year, the index remained the same. An example of the base adjustment procedure is provided in Appendix A.

The use of indices to calculate the adjusted revenue for subsequent years, where no base or rate change occurred, made the absolute amount of the adjustment higher in those years since actual revenues (T) were increasing. This was desirable as the economic growth associated with the base or rate change was taken out of T leaving only the economic growth associated with the original base and rate conditions of 1961. There are some shortcomings inherent in the base index. When using the procedure the implicit assumption was that the rate of growth

of revenue in the sector where the base change occurred was the same as the rate of growth in revenues as a whole. In actuality the revenues due to the base change may have been increasing at a much slower or faster rate thereby causing the adjusted revenues to understate or overstate actual economic growth. It was felt, however, that the error in using this procedure would not significantly affect the elasticity estimate. This problem did not occur in the calculation of the rate index as the tax base was allowed to change for purposes of computing rate adjusted revenues.

The composite index (RB) is, as previously mentioned, derived by multiplying the base and rate indices together. Total tax revenues for any given year would be found by multiplying the base of the tax by the rate of the tax. If the base of the tax changed, the change in revenue would be equal to the rate times the change in the base. If the tax rate changed, the change in revenue would be equal to the base times the change in the rate. If both the base and rate changed, the change in revenue would be equal to the rate times the change in the base plus the base times the change in the rate plus the change in the rate times the change in the base. Multiplying the indices together takes account of the change in revenue due to both base and rate changes. This is seen quite clearly in the earlier textual example. The base increased from 1000 to 1100 giving a base index of 110 meaning the base is 110 percent of what it was in the initial year. The rate increased from 2 to 3 percent giving a rate index of 150 meaning the rate is 150 percent of the rate of the base year. Indexing the revenue totals would give an index of 150 in time period t_2 and 165 in time period t_3. Multiplying

together the base and rate indices gives for time period t_2, 1.00 x 1.50 = 1.50 or an index of 150 and for time period t_3, 1.10 x 1.50 = 1.65 or an index of 165 which are the same as the index numbers presented in the earlier example.

Figures 5-1 and 5-2 show additions to sales and use tax revenue from the three means discussed earlier in the chapter: base changes, rate changes and economic growth. These amounts are calculated from Table 5-1. Since TA represents revenues which would have been generated in any given year had the base and rate structure of 1961 been in effect in that year, the difference between TA and T_{1961} represent the revenues generated in a given year as a result of economic growth. The difference between T and TAB, in any year, represents revenues due to changes in the tax base. The difference between T and TAR represents revenues due to increases in the tax rate.[2]

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[2]An additional adjustment was required to graphically illustrate the various revenue amounts presented in Figure 5-1. The sum of revenues due to base changes (T-TAB), revenues due to rate changes (T-TAR), revenues due to economic growth (TA-T_{1961}) and the initial base year revenues (T_{1961}) for any given year, does not equal T for that year as might be expected. Stating this in equation form: (T-TAB) + (T-TAR) + (TA-T_{1961}) + T_{1961} ≠ T. This is due to what is included in TAR and TAB. Revenues in any given year are equal to rate times base (T=r·b). When there is both a base and rate change then $\Delta T = \Delta b \cdot r + \Delta r \cdot b + \Delta b \cdot \Delta r$. The multiplication of the individual base and rate indices to arrive at TA subtracts out all of the terms. But when (T-TAB) and (T-TAR) are added together the term ($\Delta b \cdot \Delta r$) is left in the summation. Therefore the equation should read: (T-TAB) + (T-TAR) - ($\Delta r \cdot \Delta b$) + (TA-T_{1961}) + T_{1961} = T. The residual ($\Delta r \cdot \Delta b$) was calculated for each of the years in Figure 5-1 and subtracted out of that part of revenue due to rate changes. The small residual was in both TAR and TAB and since it could not be determined what part of the residual was in TAB and what part was in TAR it was assumed the greater part would be in TAR and thus all of the residual was subtracted out of that part of revenue due to rate changes.

Figure 5-1 gives some insight into the adequacy of the South Dakota tax structure. Had the tax structure been sufficiently adequate to meet increasing expenditures, no base or rate changes in the sales and use tax would have been necessary. It is obvious from Figure 5-1 that large amounts of revenue have been due to base and rate changes. In 1966, for instance, sales and use tax revenue totaled nearly $30 million. Of this $30 million, a rate change accounted for $9.5 million and base changes accounted for approximately $1 million. Economic growth accounted for slightly under $2.5 million. The effect of the 1970 base and rate changes are also quite evident in Figure 5-1. Using 1961 as the initial base and rate conditions, rate changes accounted for approximately $24.5 million of the $51.3 million of revenue generated in 1970. Base changes were responsible for $2.2 million and economic growth for $6.4 million.

Figure 5-2 further illustrates the meaning of each of the adjusted revenue totals in Figure 5-1. T_{1961} represents the revenues which would have been generated in 1974 with the 1961 sales and use tax structure had no base or rate changes occurred and no economic growth taken place during the 14-year time period. TA represents revenue in 1974 had only economic growth occurred. TAR represents revenue in 1974 had only economic growth and base changes occurred. TAB represents 1974 revenue had only rate changes and economic growth occurred. T_{1974} represents actual 1974 tax revenue which includes base changes, rate changes, economic growth and 1961 tax revenue. Figure 5-2 can thus be interpreted as follows: if no base or rate changes had occurred the 1961 sales
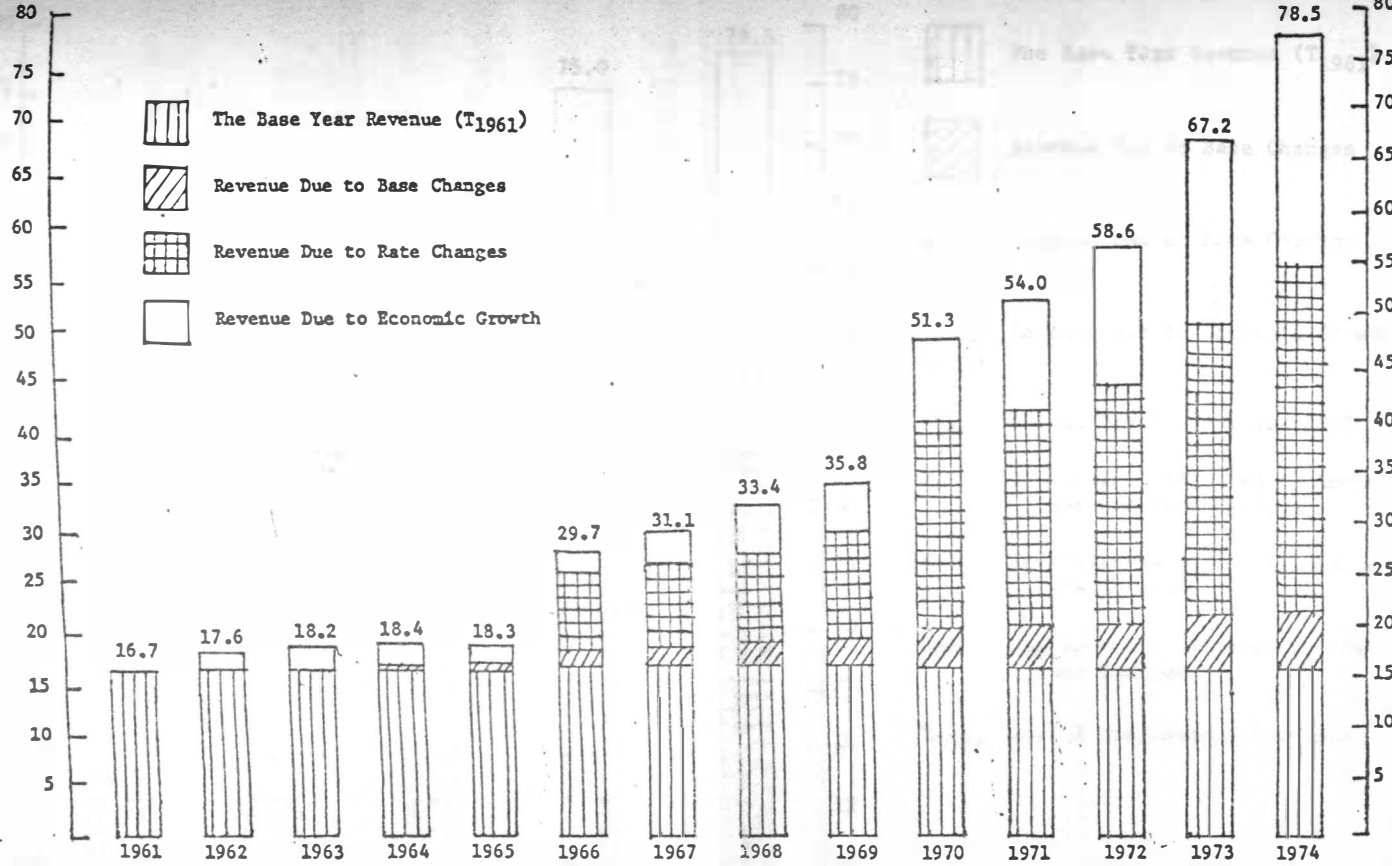
FIGURE 5-1

SOUTH DAKOTA SALES AND USE TAX REVENUE DUE TO BASE CHANGES,
RATE CHANGES AND ECONOMIC GROWTH, 1961-1974
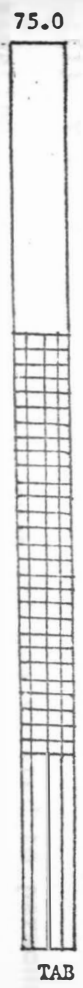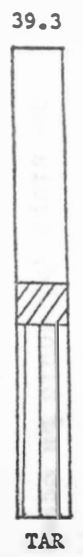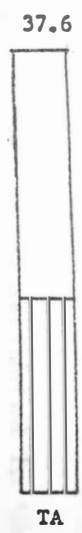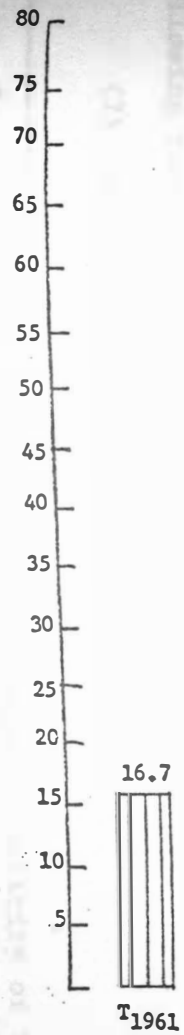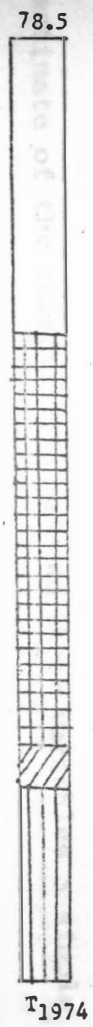
FIGURE 5-2

SOUTH DAKOTA SALES AND USE TAX REVENUES FOR 1974: T, TA, TAB, TAR

and use tax structure would have yielded $37.6 million in 1974 (TA); if

only base changes and economic growth had occurred during this time,

1974 revenues would have equaled $39.3 million (TAR); and if only rate

changes and economic growth had occurred, revenues would have totaled

$75.1 million in 1974 (TAB). The combination of all of the factors

yielded $78.5 million in fiscal year 1974.

THE STATISTICAL PROCEDURE FOR ESTIMATING INCOME ELASTICITY

Method of Calculation[3]

In the discussion of income elasticity, tax revenue (T) was con-

sidered to be functionally related to personal income (Y). To arrive at

an estimate of the relationship between these variables a simple linear

regression model can be used.

(1) $T = a + bY$.

This equation states that tax revenues (T) are related to personal

income (Y) in a linear fashion with (a) the intercept of the function

and (b) the slope of the function. The slope (b) would be equal to $\frac{\Delta T}{\Delta Y}$.

Income elasticity expresses the relationship between tax revenue and per-

sonal income as $\frac{\Delta T}{T} \Big/ \frac{\Delta Y}{Y}$.

The income elasticity relationship can be estimated in the

following regression model..

(2) $\log T = \log d + e \log Y$.

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[3]The method used in calculating the income elasticity of the sales
and use tax is drawn from Robert E. Berney, Tax Structure Variations in
the State of Washington (Pullman, Washington: Washington State Univer-
sity Press, 1970), pp. 85–87.

In equation (2), log d is the intercept and (e) equals $\frac{\Delta \log T}{\Delta \log Y}$. The term $\frac{\Delta \log T}{\Delta \log Y}$ is equal to the elasticity term $\frac{\Delta T}{T} \Big/ \frac{\Delta Y}{Y}$.[4]

Before the values for T and Y were converted to log notation, they were divided by population to express them as per capita time series. Sales and use tax revenue depends upon consumption spending. Per capita income rather than aggregate income is more likely to be the determining factor of revenues. Per capita revenue accounts for the effect of population on revenue.

As seen in Figure 5-1, legislative base and rate changes accounted for large increases in yearly sales and use tax revenue. Since the elasticity measure is concerned only with economic growth, the TA series is the most appropriate tax revenue series to regress against personal income. This series is adjusted for a constant base and rate structure leaving only economic growth as a means of increasing revenue. Thus the revenues adjusted for constant base and rate are a function of personal income. This relationship can be stated as follows:

(3) $TA = t\ (Y^e)$.

---

[4]This can be proven by taking the derivatives of log T and log Y as shown in the following steps:

(1) $\dfrac{d \log T}{dx} = \dfrac{1}{T} \dfrac{dT}{dx} \log_a e$

(2) $\dfrac{d \log Y}{dx} = \dfrac{1}{Y} \dfrac{dY}{dx} \log_a e$

(3) $\dfrac{\frac{d \log T}{dx}}{\frac{d \log Y}{dx}} = \dfrac{\frac{1}{T} \frac{dT}{dx} \log_a e}{\frac{1}{Y} \frac{dy}{dx} \log_a e}$

(4) $\dfrac{d \log T}{d \log Y} = \dfrac{dT/T}{dY/Y} = \dfrac{\Delta T/T}{\Delta Y/Y}$

The regression equation for estimating the income elasticity was:

(4) $\log TA = \log d + e \log Y$,

where $TA = T/RB$.

Elasticity coefficients were also estimated for the other revenue totals, TAB, TAR and T using the same equation form. The equations were:

(5) $\log TAB = \log d + e \log Y$,

where $TAB = T/B$,

(6) $\log TAR = \log d + e \log Y$,

where $TAR = T/R$,

(7) $\log T = \log d + e \log Y$.

These equations can be used as a means of determining the effect of legislative base and/or rate changes. Equation (5) represents the responsiveness of changes in sales and use tax revenues to changes in personal income allowing for both legislative rate changes and economic growth. Equation (6) allows both base changes and economic growth to occur and Equation (7) allows all of the factors affecting sales and use tax revenue to change. The elasticity estimates derived from Equations (5), (6) and (7) have meaning if we assume that legislative changes in the sales and use tax rate and base would occur in the future as they have in the past.

To determine the adequacy of the sales tax, the income elasticity of expenditures was also estimated. The expenditure data was not adjusted since expenditures are determined almost entirely by legislative action. The equation form was the same as that used in estimating the income elasticity of revenue. The equation was:

(8) $\log E = \log d + e \log Y$.

Comparison of the revenue elasticity estimate and the expenditure elasticity estimate yields a measure of tax adequacy but is not as meaningful as would be the case if the income elasticity of the total tax structure had been estimated. Since sales and use tax revenue do, at present, comprise better than 50 percent of total tax revenue however, the comparison yields important information on tax adequacy.

The Results

The regression equation results are summarized in Table A-1 of Appendix A. The table is a compilation of the results obtained from the computer program used in calculating the regression equations. Population data and per capita income data are contained in Table A-2 of Appendix A.

The regression equations giving the income elasticity estimates of the sales and use tax are as follows:

(4) $\log TA = -1.15397 + .77647 \log Y,$ $r^2 = .982,$
       (.04314)

(5) $\log TAB = -3.93635 + 1.63281 \log Y,$ $r^2 = .973,$
       (.11191)

(6) $\log TAR = -1.30919 + .82518 \log Y,$ $r^2 = .985,$
       (.04178)

(7) $\log T = -4.09169 + 1.68155 \log Y,$ $r^2 = .972,$
       (.11759)

(8) $\log E = -1.27617 + 1.07937 \log Y,$ $r^2 = .969.$
       (.11289)

The regression coefficients were tested by means of a t-test to see if the results were significantly different from zero. Theory would lead us to believe that the coefficients of the equations would be

positive and thus a one-tailed test was used with the alternative hypothesis as $e_i > 0$. The computer program calculated a t-value for each of the equations and that value is listed in appendix Table A-1. The test showed the coefficient (e) to be significantly different from zero ($\alpha = .0005$) for all of the equations. The null hypothesis ($e_i = 0$) was rejected in each case and the alternative hypothesis was accepted. The same results were found when using the F-test.

A problem that may arise when using time series data, as in this study, is the presence of autocorrelation.[5] The computer program calculated a Durbin-Watson statistic, shown in Table A-1, to test for the presence of autocorrelation. The data used in this study consisted of only 14 observations and since Durbin-Watson tables require at least 15 observations, the test could not be made using this statistic. A Von Neumann Ratio was instead computed to check for the presence of autocorrelation.[6] The ratios are also presented in Table A-1. The results of this test indicated that at a level of significance of $\alpha = .001$ no significant autocorrelation was present in any of the estimates.

The coefficients of determination (r^2's) were all relatively large. The lowest value was .962 for the expenditure estimate, meaning 96.2

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[5]For a discussion of autocorrelation and the Durbin-Watson test see: Taro Yamane, Statistics, An Introductory Analysis (3rd ed.; New York: Harper and Row, Publishers, 1973), pp. 998-1009.

[6]For an example of this test the reader is referred to: Michael J. Brennan, Preface to Econometrics (3rd ed.; Cincinnati, Ohio: South-Western Publishing Co., 1973), pp. 356-359.

percent of the variation in expenditures was explained by the independent variable, personal income. The r^2 values for all the equations are listed in Table A-1 of Appendix A. The test of significance for the correlation coefficient (r) is the same as the test for the coefficient (e) and thus was not repeated.[7]

The income elasticity of the sales and use tax was estimated as .776; that is, if personal income of the state increases by 10 percent, sales and use tax revenue would increase by 7.76 percent.[8] Assuming that base changes occur in the future as they have in the past, a 10 percent increase in personal income would increase revenue by 8.3 percent (Equation 6). Assuming equivalent future rate changes, a 10 percent increase in personal income would increase revenue by 16.3 percent (Equation 5). Assuming that both base and rate changes occur in the future as they have in the past increases the elasticity estimate to 1.68 (Equation 7).[9]

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[7]William L. Hays and Robert L. Winkler, Statistics: Probability, Inference and Decision, Volume II (New York: Holt, Rinehart and Winston, Inc., 1970), p. 41.

[8]The income elasticity estimate is also operative with a decline in personal income. A 10 percent decline in personal income would lead to a 7.76 percent decrease in sales and use tax revenue. As noted earlier in the text elastic taxes facilitate tax adequacy. An inelastic tax, although less adequate does lead to greater revenue stability since a decline in personal income leads to a smaller percentage decrease in tax revenue. An inelastic tax would thus be favorable in a situation of negative economic growth.

[9]Although the elasticity estimates were calculated using per capita variables, the terms in the text are referred to as tax revenue and personal income instead of per capita tax revenue and per capita personal income. This is done to make the presentation of the analysis more easily understood. If a constant population is assumed, the terms are, in fact, interchangeable.

Equation (8) indicates that a 10 percent increase in personal income would cause state expenditures to increase by approximately 11 percent. The income elasticity of expenditures deserves further interpretation. Since the State Constitution requires an almost yearly balanced budget, the expenditures programs are likely to be tied almost directly to revenues. Since yearly revenues must be estimated, expenditures are most likely tied to the low estimate of revenue in order to avoid a budget deficit. The result of this is that budget surpluses may occur for most years. Also new expenditure programs are likely to be financed through changes in the tax structure, e.g., rate changes, base changes or implementation of a new tax. This may explain part of the difference between the elasticity estimates of Equations (7) and (8).

Since adequacy of a tax implies the automatic growth in revenues, a comparison of the sales and use tax elasticity and expenditure elasticity estimates indicates an inadequate sales and use tax structure. The difference between the elasticity estimates of Equations (4) and (8) indicate that increases in personal income would cause expenditures to increase more than sales and use tax revenue. For a 10 percent increase in personal income, the percentage increase in expenditures would exceed the percentage increase in sales and use tax revenue by approximately 3 percent, given no changes in the tax structure. To avoid this problem, the tax structure could be made income elastic so tax revenue will grow automatically to keep pace with expenditures. The next section of the chapter looks at some hypothetical changes in the base of the sales tax and their effect on the income elasticity of the sales and use tax and thus tax adequacy.

BASE EXEMPTIONS

The base of the South Dakota retail sales tax, as discussed in Chapter III, is quite broad when compared to the bases of other states. Recent legislative discussion has raised the possibility of reducing the sales tax base by exempting food purchases. Supposedly, the exemption of food reduces the regressivity of the sales tax since food is a necessity of life and thus must be purchased by rich and poor alike but requires the use of a larger proportion of the income of the poor. Many states offer such an exemption and some extend the exemption to purchases of clothing in an effort to further reduce the sales tax burden on low-income persons and families. This section of the chapter deals with the potential effects of such changes on the income elasticity of the sales and use tax.

The Procedure

Three changes in the sales and use tax base were selected to examine potential effects on the income elasticity of the sales and use tax. The changes are as follows: (1) the exemption of food from the tax base, (2) the exemption of clothing from the tax base and (3) the exemption of both food and clothing from the tax base. Changes in purchases of these products may be more sensitive or less sensitive to personal income changes than the rest of the items in the tax base thus resulting in a different elasticity estimate. The exemption of these products would also result in a substantial reduction of tax revenue. In fiscal year 1974, sales and use taxation of food accounted for $11.5

million of revenue and the taxation of clothing accounted for $2.4 million of revenue.[10]

The method used in obtaining an elasticity estimate was similar to that described earlier in the chapter. Adjustments made in the revenue totals are shown in Tables 5-B, 5-C and 5-D. The adjustment involved the calculation of revenue due to the exemption for each year and subtracting those revenues out of total tax revenue (T). The adjustments were made to the revenue data by business classification. The process involved the choice of the stores under the broad classifications which would be affected by the base change. The exemption of food is not meant to include prepared foods and thus receipts of tax revenues from restaurants and cafeterias were not included.

The column denoted by T' in Tables 5-B, 5-C and 5-D represents revenue which would have been generated in the corresponding year had the food and/or clothing exemption existed in that year. Using T' as actual revenue, the adjusted revenue totals, TA', TAB' and TAR' were computed with the indices developed earlier in the chapter. These revenue totals, T', TA', TAB' and TAR', were then regressed against personal income to estimate the income elasticity with the selected base exemptions. The regression equations are the same as those used in the previous estimate and need not be explained again. The equations are:

(4) $\log TA' = \log d + e \log Y$,

(5) $\log TAB' = \log d + e \log Y$,

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[10]Figures derived from Tables 5-B and 5-C.

TABLE 5-B

ADJUSTED REVENUE TOTALS EXEMPTING FOOD
FROM THE SALES TAX BASE, 1961-1974

Year	T	Food Revenues	T'	Base Index (B)	TAB'	Rate Index (R)	TAR'	Base & Rate Index (RB)	TA'
1961	$16,685,381	$ 2,862,243	$13,823,138	100	$13,823,138	100	$13,823,138	100	$13,823,138
1962	17,584,173	3,032,784	14,551,389	100	14,551,389	100	14,551,389	100	14,551,389
1963	18,170,942	3,142,261	15,028,681	100	15,028,681	100	15,028,681	100	15,028,681
1964	18,346,150	3,217,615	15,128,535	101.22	14,941,191	100	15,128,535	101.22	14,946,191
1965	18,292,322	3,236,764	15,055,558	101.22	14,874,094	100	15,055,558	101.22	14,874,094
1966	29,727,893	5,099,913	24,627,980	103.64	23,763,007	150	16,418,653	155.46	15,842,004
1967	31,107,196	5,028,592	26,078,604	103.64	25,162,682	150	17,385,736	155.46	16,775,122
1968	33,407,494	5,241,330	28,166,164	103.64	27,176,924	150	18,777,443	155.46	18,117,949
1969	35,840,550	5,503,934	30,336,616	103.64	29,271,146	150	20,224,411	155.46	19,514,098
1970	51,300,921	8,094,537	43,206,384	104.49	41,349,779	199.70	21,635,645	208.66	20,706,596
1971	54,021,810	8,483,960	45,537,850	104.49	43,581,060	199.70	22,803,130	208.66	21,823,948
1972	58,592,995	9,171,709	49,421,286	104.49	47,297,623	199.70	24,747,765	208.66	23,685,079
1973	67,244,099	10,068,637	57,175,462	104.49	54,718,597	199.70	28,630,677	208.66	27,401,257
1974	78,452,770	11,579,617	66,873,153	104.49	63,995,572	199.70	33,486,807	208.66	32,048,861

SOURCE: The calculations were made to revenue data furnished by the South Dakota Department of Revenue.

TABLE 5-C

ADJUSTED REVENUE TOTALS EXEMPTING CLOTHING FROM THE SALES TAX BASE, 1961-1974

Year	T	Clothing Revenues	T'	Base Index (B)	TAB'	Rate Index (R)	TAR'	Base & Rate Index (RB)	TA'
1961	$16,685,281	$ 574,294	$16,111,087	100	$16,111,087	100	$16,111,087	100	$16,111,087
1962	17,548,173	603,048	16,945,125	100	16,945,125	100	16,945,125	100	16,945,125
1963	18,170,942	623,178	17,547,764	100	17,547,764	100	17,547,764	100	17,547,764
1964	18,346,150	618,744	17,727,406	101.22	17,513,738	100	17,727,406	101.22	17,513,738
1965	18,292,322	610,234	17,682,088	101.22	17,468,967	100	17,682,088	101.22	17,468,967
1966	29,727,893	989,395	28,738,498	103.64	27,729,157	150	19,158,999	155.46	18,486,104
1967	31,107,196	1,024,738	30,082,458	103.64	29,025,915	150	20,054,972	155.46	19,350,610
1968	33,407,494	1,077,312	32,330,182	103.64	31,194,695	150	21,553,455	155.46	20,796,463
1969	35,840,550	1,139,741	34,700,809	103.64	33,482,062	150	23,133,873	155.46	22,321,375
1970	51,300,921	1,652,334	49,648,587	104.49	47,515,156	199.70	24,861,586	208.66	23,794,013
1971	54,021,810	1,718,570	52,303,240	104.49	50,055,737	199.70	26,190,906	208.66	25,066,251
1972	58,592,995	1,881,425	56,711,570	104.49	54,274,639	199.70	28,398,383	208.66	27,178,937
1973	67,244,099	2,147,173	65,096,926	104.49	62,299,671	199.70	32,597,359	208.66	31,197,607
1974	78,452,770	2,429,824	76,022,946	104.49	72,756,193	199.70	38,068,576	208.66	36,433,886

SOURCE: The calculations were made to revenue data furnished by the South Dakota Department of Revenue.

TABLE 5-D

ADJUSTED REVENUE TOTALS EXEMPTING FOOD AND CLOTHING
FROM THE SALES TAX BASE, 1961-1974

Year	T	Food & Clothing Revenue	T'	Base Index (B)	TAB'	Rate Index (R)	TAR'	Base & Rate Index (RB)	TA'
1961	$16,685,381	$ 3,436,537	$13,248,844	100	$13,248,844	100	$13,248,844	100	$13,248,844
1962	17,548,173	3,635,832	13,912,341	100	13,912,341	100	13,912,341	100	13,912,341
1963	18,170,942	3,765,439	14,405,503	100	14,405,503	100	14,405,503	100	14,405,503
1964	18,346,150	3,836,359	14,509,791	101.22	14,334,905	100	14,509,791	101.22	14,334,905
1965	18,292,322	3,846,998	14,445,324	101.22	14,271,215	100	14,445,324	101.22	14,271,215
1966	29,727,893	6,089,308	23,638,585	103.64	22,808,361	150	15,759,057	155.46	15,205,574
1967	31,107,196	6,053,330	25,053,866	103.64	24,073,935	150	16,702,577	155.46	16,115,957
1968	33,407,494	6,318,642	27,088,852	103.64	26,137,449	150	18,059,235	155.46	17,424,966
1969	35,840,550	6,643,675	29,196,875	103.64	28,171,435	150	19,464,583	155.46	18,780,957
1970	51,300,921	9,746,871	41,554,047	104.49	39,768,444	199.70	20,808,236	208.66	19,914,716
1971	54,021,810	10,202,530	43,819,280	104.49	41,936,338	199.70	21,942,554	208.66	21,000,326
1972	58,592,995	11,053,134	47,539,861	104.49	45,497,044	199.70	23,805,639	208.66	22,783,409
1973	67,244,099	12,215,810	55,028,289	104.49	52,663,689	199.70	27,555,478	208.66	26,372,227
1974	78,452,770	14,009,441	64,443,329	104.49	61,674,159	199.70	32,270,070	208.66	30,884,371

SOURCE: The calculations were made to revenue data furnished by the South Dakota Department of Revenue.

(6) log TAR' = log d + e log Y,

(7) log T' = log d + e log Y.

The Results

The results of the regression equations are summarized in Table A-1 of Appendix A. The regression coefficient (e) was tested and found to be significantly different from zero (α = .0005) for all the equations. No significant autocorrelation existed in any of the estimates (α = .001). The elasticity estimates of the equations are summarized in Table 5-E.

TABLE 5-E

INCOME ELASTICITY ESTIMATES INCORPORATING CLOTHING, FOOD AND FOOD AND CLOTHING EXEMPTIONS

Dependent Variable	Elasticity Estimate			
	Original Tax Series	Clothing Exemption	Food Exemption	Food and Clothing Exemption
TA'	.77647	.78063	.81094	.81859
TAB'	.82518	.82927	.85940	.86629
TAR'	1.63281	1.63714	1.66738	1.67237
T'	1.68155	1.68575	1.71587	1.72264

SOURCE: Table A-1 of Appendix A.

The dependent variable, TA', yields the elasticity estimate which shows revenue growth due only to changing economic conditions. The variables, TAB', TAR' and T', estimate elasticity allowing for the effects of economic growth and rate changes, economic growth and base

changes and economic growth and rate and base changes, respectively. The column denoted as the Original Tax Series represents the results of the estimates of income elasticity as presented earlier. It is presented to illustrate the effects of the base changes on income elasticity of the sales and use tax.

The estimate of the TA' series is the primary concern. If no future base or rate changes occur, a 10 percent increase in personal income would lead to a 7.8 percent increase in sales and use tax revenue with a clothing exemption. (The 7.8 percent would be the percentage increase in T' where clothing revenues are not included in total sales and use tax revenue.) With a food exemption, the increase in revenue would be 8.1 percent and with both food and clothing exempted the increase would be approximately 8.2 percent.

It is easily noted from Table 5-E that as these exemptions are incorporated, the sales and use tax becomes less income inelastic. One would expect food and clothing purchases to be income inelastic as these are necessities of life. Therefore, purchases of these products would tend to vary little with income. Removing them from the tax base leaves products which are more likely to be sensitive to income changes. This would explain, at least in part, the tendency for the sales and use tax to become less income inelastic as food and clothing are excluded from the base.

SUMMARY

The income elasticity of a tax can be used as an indication of the adequacy of a tax. Since both state tax revenues and state

expenditures are considered to be related to personal income, the income elasticity estimate of taxes and expenditures serves to show the responsiveness of these variables to changes in personal income. The legislative process is often quite slow, and if demands for state expenditure programs increase with increases in personal income, the tax system ideally would automatically provide the necessary increase in revenue to finance the increased demand for expenditures without waiting for legislative change. The condition that must be met for the tax system to be judged adequate would be that the automatic growth in tax revenue equal the growth of state expenditures. This would imply that the income elasticity of total tax revenue should be at least equal to the income elasticity of state expenditures.

The analysis of this chapter has dealt only with estimating the income elasticity of the South Dakota sales and use tax. As has been mentioned previously, the sales and use tax now accounts for over 50 percent of total South Dakota tax revenue and thus the estimate does give some perspective as to total tax adequacy. The results of the analysis showed a large gap between the elasticity measures of the sales and use tax and state expenditures. An increase in personal income in the state would be expected to bring about a percentage increase in expenditures greater than the percentage increase in sales and use tax revenue. This implies an inadequate tax. The proposed changes in the base of the tax narrowed the elasticity gap but at the expense of large decreases in sales and use tax revenue.

CHAPTER VI

PROJECTION OF SOUTH DAKOTA SALES TAX REVENUES

INTRODUCTION

The purpose of this chapter is to project sales and use tax revenue for the years 1975, 1976 and 1977. The methods used are simple in nature involving the use of trend line analysis and the income elasticity estimates. The projections are designed primarily to isolate the trend of future revenues and not to provide precise revenue figures for any of the years.

THE TREND LINE PROJECTION

Trend line regression simply fits a line to the series of observations.[1] No cause-effect relationship is implied. The regression equation shows the direction and the degree of change in the dependent variable with respect to time.

Time series data contain four components: trend, seasonal variation, business cycle variations and irregular movements. Irregular movements are unsystematic in nature. With respect to sales tax revenues, irregular movements are to an important degree caused by legislative base and rate changes. Seasonal revenue variations are those associated with the time period of measurement. The inherent nature of many time series leads to variations simply due to the season

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[1]For a discussion on the use of time series data the reader is referred to Taro Yamane, _Statistics, An Introductory Analysis_ (3rd ed., New York: Harper and Row, Publishers, Inc., 1973), pp. 345-378 and pp. 1047-1071.

of the year. Wide deviations would thus be evident in sales tax series if monthly or quarterly data were employed. Utilizing an annual sales tax series smooths out these fluctuations. The trend component shows the general tendency of the data. The business cycle component is dependent upon the general level of economic activity. The trend and business cycle components are closely related in the sales tax. Sales and use tax revenue is dependent upon the level of economic activity in the state. The trend of sales tax revenue is thus likely to follow to a large degree the trend of economic activity. For this reason it is not desirable to remove the business cycle component from the data.

The TA revenue series was used as the dependent variable to project the trend of sales tax revenues. It was expected that the use of the annual TA series would lead to a closer fitting regression line as compared to the T data since the former series reduced the effect of irregular movements. Seasonal variations were removed by employing annual revenue totals. Irregular variations were removed to a great degree by adjusting out the sales tax revenue due to legislative changes in the base and rate. The TA series, therefore, reflects the trend-business cycle component of sales tax revenue.

The TA series is contained in Table 5-A of Chapter V. The T and TA revenues are plotted in Figure 6-1 to indicate the shape of the curves. The relatively large upturn of the TA curve in 1970 is quite evident. Several factors may account for this recent upturn: (1) minor portions of the revenue due to base changes were not adjusted out of the series and they have a cumulative effect on revenue; (2) relatively
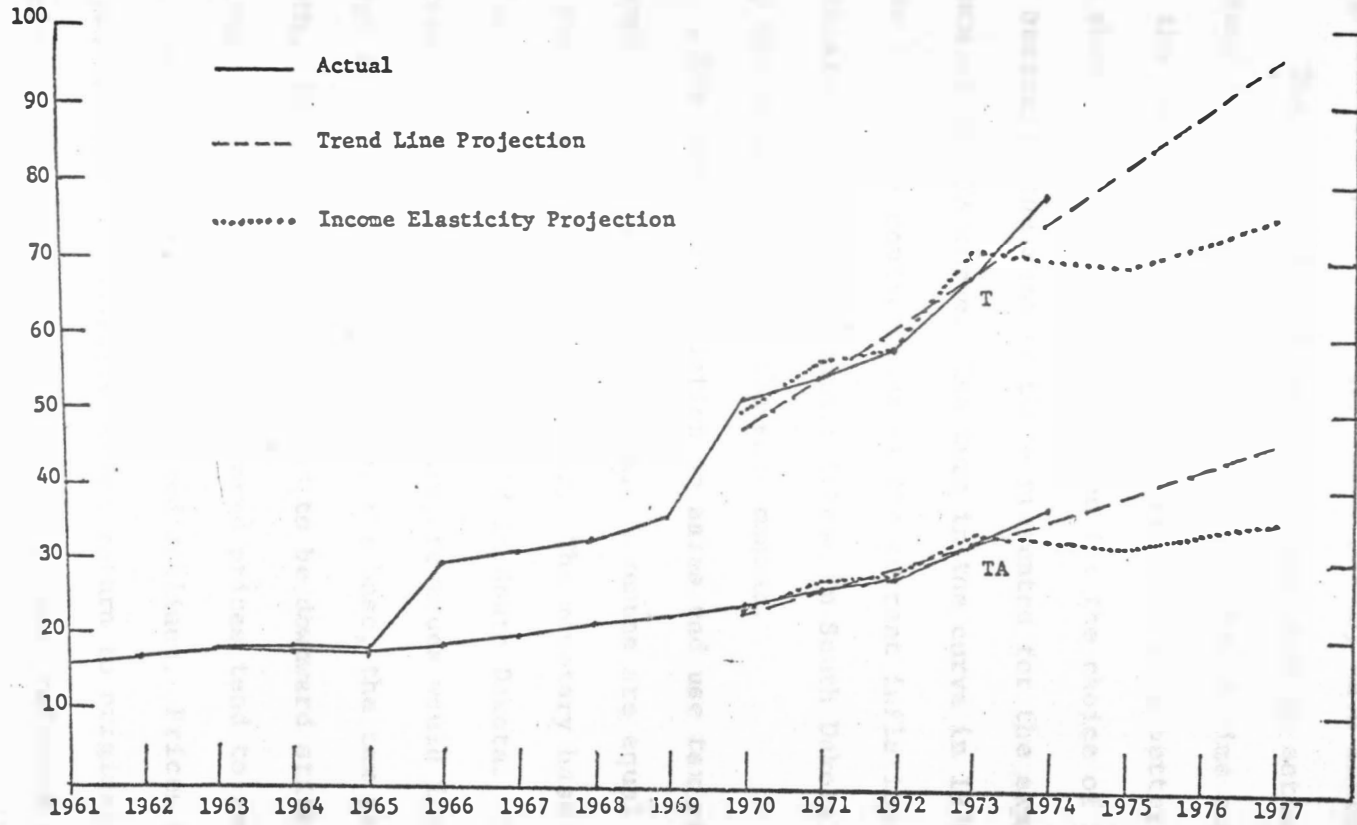
FIGURE 6-1

ACTUAL AND PROJECTED SOUTH DAKOTA SALES AND USE TAX REVENUE, 1961-1977

large increases in per capita personal income have likely brought about large revenue gains; and (3) inflation may have increased tax revenues.

The years 1970 through 1974 were used to estimate the trend line. A trend line was also calculated using the 14 time series observations but the five-year regression was selected as a better approximation of the short-term trend. The reasons for the choice of the five-year trend are basically the same as those presented for the explanation of the upturn of the TA curve. The turn in the curve in 1970 seems to indicate a new trend. A continuation of the current inflationary period and the increasing level of per capita income in South Dakota would tend to keep the trend rising in the same manner.

The impact of inflation on sales and use tax revenues can be likened to that on a price index. Revenues are equal to the base of the tax times the rate of the tax. The monetary base of the tax is the dollar value of taxable items sold in South Dakota. If a general increase in the price level occurs, revenues would increase without any change in the legal definition of the base, the tax rate or economic growth. Historically prices tend to be downward sticky, that is, once a period of inflation is experienced prices tend to remain at the new levels even though aggregate demand declines. Prices may stabilize at the new levels but generally do not return to original levels. The adjustment in the base year of a price index reflects a changed economic structure. New price levels and changed economic conditions may make the old base year period obsolete and it must be changed to reflect a more realistic base for comparison.

The same is true with sales tax revenue. The higher level of per capita income and the inflationary period of late likely promise a new trend in sales and use tax revenue. The five-year time period was chosen because of these considerations. It is realized that five observations is a very small sample, however for short term projections, such as one to three years, the results should be fairly reliable.

The basic equation was of the form $Y = a + bX$ where 'Y' is the dependent variable, 'a' the intercept, 'b' the slope of the trend line and 'X' the independent variable. The regression equation for projecting revenue was thus:

$$TA = a + b(X-1961).$$

TA is the tax revenue series adjusted for constant base and rate and (X-1961) is the time element. The year 1961 was set equal to zero meaning the origin of the curve was shifted to 1961 thus accounting for the term (X-1961). The tax revenues were expressed in millions of dollars, for instance, tax revenues in 1970 of $51,300,921 were fed into the computer as 51.3009. Revenues of the original tax series, the food exemption series, the clothing exemption series and the food and clothing exemption series were all regressed in the manner as shown above. The revenue data were taken from Tables 5-A, 5-B, 5-C, and 5-D of Chapter V. The regression equation projected the TA revenue series. Multiplying TA by the R·B index for the respective year gave the total tax revenue (T) for that year.

The calculated regression equations are as follows:

(1) Original Tax Series: $TA = -5.9207 + 3.2361(X-1961)$, $r^2 = .9345$,

(2) Clothing Exemption: TA = -5.8190 + 3.1412(X-1961), r^2 = .9339,

(3) Food Exemption: TA = -5.9539 + 2.8261(X-1961), r^2 = .9328,

(4) Food and Clothing Exemption: TA = -5.8502 + 2.7310(X-1961),
r^2 = .9322.

Because 1961 was set equal to zero and only the five-year period 1970 through 1974 was used for observations, all of the intercepts are negative. The correlation coefficient (r^2) indicates the closeness of fit of the regression equation to the observations. The computed revenue values determined by the regression equations and the actual revenue values for the respective years are presented in Table 6-A.

The table presents the revenue projections for the 1975, 1976 and 1977 fiscal years. For 1975, sales and use tax revenue, with the base and rate structure of 1974, would approximate $82 million. This would be an increase of approximately $4 million over the previous year. If the trend continues, revenues would total over $95 million by 1977.

An interesting aspect of the projections are the differences in revenue when hypothetical exemptions are applied to the regression model. Revenue losses from a clothing exemption would approximate $3 million ($95.7 million - $92.7 million) in 1977. Revenue loss from a food exemption would be nearly $14 million in 1977 and nearly $17 million if both food and clothing were exempted.

The data projected from the original tax series from Table 6-A is plotted as a dashed line in Figure 6-1. The figure shows the projected revenue curve substantially below the actual revenue curve in 1974. If revenue followed the trend of the past three years, the

TABLE 6-A

ACTUAL AND COMPUTED SOUTH DAKOTA SALES AND USE TAX
REVENUE BY TREND LINE ANALYSIS, 1970-1977

Year	TA		T	
	Computed	Actual	Computed	Actual
		Original Tax Series		
1970	$23,222,200	$24,585,891	$48,455,443	$51,300,921
1971	26,440,300	25,889,873	55,170,330	54,021,810
1972	29,674,400	28,080,607	61,918,603	58,592,995
1973	32,912,500	32,226,636	68,675,223	67,244,099
1974	36,148,600	37,598,375	75,427,669	78,452,770
1975	39,384,700		82,180,115	
1976	42,620,800		88,932,561	
1977	45,856,900		95,685,007	
		Clothing Exemption		
1970	22,451,800	23,794,013	46,847,926	49,648,587
1971	25,593,000	25,066,251	53,402,354	52,303,240
1972	28,734,200	27,178,937	59,956,782	56,711,570
1973	31,875,400	31,197,607	66,511,210	65,096,926
1974	35,016,600	36,433,886	73,065,638	76,022,946
1975	38,157,800		79,620,065	
1976	41,299,000		86,174,493	
1977	44,440,200		92,728,921	
		Food Exemption		
1970	19,481,000	20,706,596	40,649,055	43,206,384
1971	22,307,100	21,823,948	46,545,995	45,537,850
1972	25,133,200	23,685,079	52,442,935	49,421,286
1973	27,959,300	27,401,257	58,339,875	57,175,462
1974	30,785,400	32,048,861	64,236,816	66,873,153
1975	33,611,500		70,133,756	
1976	36,437,600		76,030,696	
1977	39,263,700		81,927,636	
		Food and Clothing Exemption		
1970	18,728,800	19,914,716	39,079,514	41,554,047
1971	21,459,800	21,000,326	44,778,019	43,819,280
1972	24,190,800	22,783,409	50,476,523	47,539,861
1973	26,921,800	26,372,227	56,175,503	55,028,289
1974	29,652,800	30,884,371	61,873,532	64,443,329
1975	32,383,800		67,572,037	
1976	35,114,800		73,270,542	
1977	37,845,800		78,969,046	

SOURCE: Calculations derived from Tables 5-A, 5-B, 5-C and 5-D.

estimates in Table 6-A would understate revenue for the next three years. It is likely, however, that the five-year trend would be more indicative of future revenue than the three-year trend. One reason for this is the recently observed slowing of the rate of inflation. A second reason is that per capita income in South Dakota seems to be stabilizing and actually declined between 1973 and 1974. The actual and projected revenues were also computed for the hypothetical exemption series of Table 6-A but were not shown in Figure 6-1 as the overall trend was much the same.

Trend line projection generally yields fairly reliable results over a short time period. The highly unstable economic situation which South Dakota and the United States have experienced recently limits the reliability of the projections of this chapter over any extended period of time. The factors affecting sales tax revenues such as population, inflation and economic growth are likely to change a great deal over long periods of time. For the short time period projected, the estimated trend should be a reasonable approximation of the true trend.

THE INCOME ELASTICITY PROJECTION

The analysis in Chapter V assumed the adjusted sales tax revenue series, TA, was functionally related to personal income. The income elasticity coefficient was estimated using the equation, $\log TA = \log d + e \log Y$. Given estimates of personal income and population, adjusted sales tax revenue can be projected using the equation coefficients obtained in Chapter V. Total sales and use tax revenue (T) would be

computed by multiplying the projected TA revenue by the R·B index for the respective year.

The major problem involved in the projection of revenue using this method is the difficulty in obtaining reliable estimates of future per capita income and population. Since the variables must be estimated, the revenue projections will reflect the reliability of the income and population projections. Also the application of the income elasticity estimate obtained in Chapter V implies a constant elasticity over both time and income levels. In fact, the income elasticity of the sales and use tax may change as both time and income change.

Estimates of population and per capita personal income were obtained through the use of trend line regression analysis. The method is the same as that explained earlier in the chapter and need not be repeated. The results of the analysis are presented in Table B-1 of Appendix B. The projections of per capita income and population are, at best, rough approximations. The correlation coefficients (r^2) of .88 and .82, respectively, do not indicate a very close fit of the regression line to the observations. The relatively large increases in per capita income after 1972 are not well explained by the regression line. It also seems unlikely that population will reach the almost 700 thousand level projected for 1977. However, for lack of better estimates the projections were used.

The regression equations used for projecting sales and use tax revenue, through the use of income elasticity, were developed in Chapter V. They are as follows:

(5) Original Tax Series: log TA = -1.15397 + .77647 log Y,

(6) Clothing Exemption: log TA' = -1.18289 + .78063 log Y,

(7) Food Exemption: log TA' = -1.34972 + .81094 log Y,

(8) Food and Clothing Exemption: log TA' = -1.39344 + .81859 log Y.

The actual population and per capita income figures were used in the equations for the years 1970-1974. Projected figures were used for the years 1975-1977. Converting per capita income to log figures and substituting into the equation provides a log TA. Taking the antilog of TA and multiplying by population for the year gives the tax revenue adjusted for constant base and rate. Multiplying by the R•B index provides the calculated tax revenue (T).

The results of the projections for the four tax series are shown in Table 6-B. Also, the original tax series projections (from Equation 5) are plotted in Figure 6-1. The graphic illustrations provides a quick picture of the results. For the first four years, the path of projected revenue conforms rather well to the path of actual revenue. The projections for the last four years appear to be rather low and are much lower than the time series projections. This may be due in large part to the poor projections of per capita income and population. Given better income and population estimates the projection of revenue for the latter years might appear more reliable.

The elasticity method projections of the hypothetical exemption series follow much the same path for the first four years, the calculated revenues are fairly close to actual revenues but for the later years the projections appear to underestimate revenue. Using this

TABLE 6-B

ACTUAL AND COMPUTED SOUTH DAKOTA SALES AND USE TAX REVENUE
BY INCOME ELASTICITY ANALYSIS, 1970-1977

Year	TA		T	
	Computed	Actual	Computed	Actual
	Original Tax Series			
1970	$24,031,890	$24,585,891	$50,144,942	$51,300,921
1971	27,539,640	25,889,873	57,464,213	54,021,810
1972	28,519,200	28,080,607	59,508,163	58,592,995
1973	34,133,550	32,226,636	71,223,065	67,244,099
1974	33,922,680	37,598,375	70,783,064	78,452,770
1975	33,230,470		69,338,699	
1976	34,641,520		72,282,996	
1977	36,150,240		75,431,090	
	Clothing Exemption			
1970	23,252,369	23,794,013	48,518,394	49,648,587
1971	24,580,780	25,066,251	51,290,256	52,203,240
1972	27,608,000	27,178,937	57,606,853	56,711,570
1973	33,085,500	31,197,607	69,036,204	65,096,926
1974	32,872,400	36,433,886	68,591,550	76,022,946
1975	32,196,970		67,182,198	
1976	33,575,840		70,059,348	
1977	35,036,640		73,107,453	
	Food Exemption			
1970	20,200,912	20,706,596	42,151,223	43,206,384
1971	23,279,960	21,823,948	48,575,965	45,537,850
1972	24,140,000	23,685,079	50,370,524	49,421,286
1973	29,112,500	27,401,257	60,746,142	57,175,462
1974	28,916,800	32,048,861	60,337,795	66,873,153
1975	28,366,130		59,188,767	
1976	29,548,400		61,655,691	
1977	30,951,120		64,582,607	
	Food and Clothing Exemption			
1970	19,488,017	19,914,716	40,663,697	41,554,047
1971	20,590,700	21,000,326	42,964,555	43,819,280
1972	23,242,400	22,783,409	48,497,592	47,539,861
1973	28,763,150	26,372,227	60,017,189	55,028,289
1974	27,893,800	30,884,371	58,203,203	64,443,329
1975	27,284,400		56,931,629	
1976	28,510,400		59,489,800	
1977	29,809,680		62,200,878	

SOURCE: Calculations derived from Tables 5-A, 5-B, 5-C, 5-D and
Table B-1 of Appendix B.

method, the elasticity coefficient represents the slope of the log equation and the slope increased as the exemptions were added. The higher elasticity coefficient means that the remaining items in the tax base are responsive to income changes. Thus even though a smaller number of items in the tax base yield smaller <u>absolute</u> amounts of revenue, the greater sensitivity (elasticity) of the tax base yields <u>relatively</u> larger increases in revenue associated with the smaller tax base.

SUMMARY

The contents of this chapter have focused on the projections of sales and use tax revenue. The methods used were very simplistic in nature and were meant to give an indication of the trend of future revenue rather than to provide a specific revenue figure for policy considerations. The problems associated with the methods of revenue projection point to the need for more reliable models of revenue estimation.

Theoretically, projection by the use of the elasticity estimate should give fairly reliable results if the elasticity coefficient does not change a great deal over a short span of time. The problem of obtaining reliable estimates of population and income data made the projections by this method appear unreasonably low. Both methods indicated an increasing trend in sales and use tax revenue over the period of the next three years. The rate of increase will likely decline as the large increases in per capita income and the price level are not expected to continue a number of years into the future.

Projection on the basis of the TA revenue series for both the time series and income elasticity methods facilitates an easy method of dealing with base and rate changes. If changes do occur, the regression equation need not be adjusted rather the adjustment can be made in the R•B index. This may prove very useful in longer term projections of revenue where base and rate changes are likely to occur.

CHAPTER VII

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The objective of this study has been to present an intensive analysis of the South Dakota retail sales tax. In line with this objective, major concerns were the position of the South Dakota retail sales tax in the total revenue-expenditure structure, the adequacy of the sales tax and the equitable treatment of taxpayers under the sales tax. This chapter deals with these concerns and suggests alternatives that can be employed to improve the South Dakota tax structure.

THE REVENUE AND EXPENDITURE STRUCTURE
OF SOUTH DAKOTA

The South Dakota tax structure is based almost exclusively on consumption taxes. Throughout the last ten years over 90 percent of the tax revenue generated in the state was from consumption taxes. The sales (and use) tax and motor fuel taxes have accounted for nearly 75 percent of total tax revenue since 1965. In 1966, the sales tax surpassed the motor fuel taxes as the leading source of state tax revenue. The heavy reliance on consumption taxes and the already broad base of the sales tax is likely to require that any additional revenue generated through legislative change be either through increasing the rates of existing taxes or by the implementation of a new tax. Available sales tax base expansions are limited in number.

South Dakota has had no visible problems meeting its revenue needs. Revenue growth has continually outpaced the growth in

expenditures. This situation is likely due to a combination of three factors: (1) legislative restraint with regards to spending, (2) legislative response to tax increases and (3) heavy reliance on user charges and federal aid. In this sense the total revenue structure of South Dakota has been adequate. Revenues have grown sufficiently through time to meet expenditures.

Comparing the relative importance of the major sources of South Dakota revenue to the national average is illuminating. The reliance on user charges has been nearly twice that of the national average. South Dakota also has been much more dependent than other states on federal aid in meeting expenditures. Due to the foregoing factors, in fiscal year 1972 only 44.1 percent of total revenues were generated by taxes. The national average for that year was nearly 61 percent.

In addition, South Dakota has not relied heavily upon taxes for a number of years. In the eight-year period 1965-1972, the relative importance of taxes to the South Dakota revenue structure has been fairly constant at about 45 percent of total tax revenue. The relative importance of federal transfers during this same period has somewhat decreased while the relative importance of user charges has increased.

Total state expenditures increased by $100 million between 1965 and 1972. The composition of expenditures also changed during this time. For a number of years highway expenditures constituted the largest proportion of the South Dakota budget. Education outlays now account for the greatest proportion of state expenditures followed closely by expenditures on highways and then by public health and welfare.

SALES TAX ADEQUACY AND EQUITY

South Dakota has become heavily dependent on the sales (and use) tax for generating tax revenue. Sales tax revenue totaled $15 million in 1960 and accounted for only 33 percent of total tax revenue. By 1974 such revenues had reached $75 million and accounted for over 50 percent of tax revenue. The base and rate structure of the sales tax remained almost unchanged for nearly 25 years. Within the last 15 years the sales tax structure has undergone extensive change. Legislative changes in the sales tax base and rate have been important in explaining the dramatic increase in such revenue.

Tax adequacy as used in the study requires that tax revenues grow automatically such that they will be sufficient to meet additional expenditures at a given point in time and also through time without continuous changes in the tax structure. That sales tax revenues did not automatically grow at a sufficient rate is explained by the estimated value of the income elasticity coefficient of sales tax revenues.

To estimate the income elasticity of the sales tax, sales tax revenue was assumed to be functionally related to personal income, where personal income was used as a proxy for economic growth. To gain a revenue series which reflected only economic growth, it was necessary to remove revenues due to changes in the legally defined base and rate structure of the tax. Indices were developed which reflected changes in the sales tax base and rate relative to the base and rate structure that had existed in 1961.

The indices allowed the division of sales tax revenue for any year into the following factors: (1) revenue due to legislative base changes, (2) revenue due to legislative rate changes, (3) revenue due to economic growth and (4) revenue of the 1961 base year. The base year revenue reflected revenue that would have been yielded by the sales tax structure in subsequent years had no base changes, rate changes or economic growth occurred.

The study dealt with sales tax revenues generated during the fourteen-year period 1961 through 1974. During this time a total of $528.8 million in sales (and use) tax revenue was collected. Base changes occurring during the period accounted for $18.2 million and rate changes for $189.9 million of this revenue. Revenues of $87.1 million were contributed through economic growth. Base year revenue totaled $233.6 million for the fourteen years.

The preceding statistics show that nearly half, 48.3 percent, of the revenue generated in the fourteen-year period was the direct result of legislative changes in the sales tax structure. Economic growth, the factor which is indicative of tax adequacy, accounted for only 16.5 percent of the revenues generated over the period.

The estimated income elasticity coefficient of the South Dakota sales tax was .776. The estimate can be interpreted as follows: a 10 percent increase in South Dakota personal income will lead to a 7.76 percent increase in sales tax revenue other things remaining constant. The elasticity coefficient is less than one indicating that the sales tax is an inelastic source of tax revenue. Changes in personal income

will lead to relatively smaller changes in sales tax revenue. Tax adequacy is generally implied with an elastic coefficient (greater than one). Elastic taxes will show relatively greater changes in revenue when personal income changes.

Further verification as to the inadequacy of the sales tax is shown by comparing the income elasticities of the state sales tax and state expenditures. Expenditure elasticity, similar to its tax revenue elasticity counterpart, estimates the responsiveness of state expenditures to changes in personal income. More specifically, expenditure elasticity measures the responsiveness of the South Dakota Legislature to the increased demands for public goods and services arising from expanding levels of personal income. The estimated coefficient for expenditures was 1.079 meaning that a 10 percent increase in South Dakota personal income will lead to a 10.79 percent increase in expenditures other things remaining constant.

Increases in personal income in South Dakota have led to relatively larger increases in expenditures than in sales tax revenue. According to the criteria set forth on tax adequacy, the South Dakota sales tax was inadequate without legislative assistance to meet growing expenditure needs. The estimated elasticity coefficients of sales tax revenue and expenditures suggest revenue shortages will occur in the future unless legislative changes in the tax structure occur.

Since the State Constitution of South Dakota requires an almost yearly balanced budget, the expenditure programs are likely to be tied almost directly to revenues. Yearly revenues must be estimated so that

expenditures are most likely tied to the low estimate of revenue in order to avoid a budget deficit. Thus new expenditure programs are likely to be financed through changes in the rates or bases of the tax structure. The result of this is that budget surpluses may occur for most years due to the importance of some of the revenue sources besides taxes.

The South Dakota retail sales tax is an inequitable source of revenue in the sense that low-income individuals and families must allocate a relatively larger proportion of their income towards sales tax payments as compared to higher income individuals and families. The broad base of this tax contributes to the degree of regressivity. Inclusion of virtually all the necessities of life places both a large relative and absolute burden on the poor.

RECOMMENDATIONS FOR IMPROVING THE SOUTH DAKOTA TAX STRUCTURE

The sales tax, although an inadequate and inequitable source of tax revenue, has had several characteristics which made it a good source of tax revenue for South Dakota. The sales tax was capable of generating a substantial amount of revenue at a low administrative cost and also spread the cost of government among all the citizens of the state. Because of the large amount of tourist trade in South Dakota, the sales tax also exported some of the cost of government to nonresidents. The sales tax should not be removed entirely from the tax structure. Rather, the reliance on this revenue generator might be reduced to a smaller role.

The State of South Dakota has several alternatives available to improve the adequacy and equity of the sales tax and thus the total tax structure. Some of the alternatives can be used to improve both adequacy and equity, others only improve one or the other.

Extending the South Dakota sales tax base to include only and all final consumption goods and services could be used as a means of making the sales tax more equitable. Not taxing all goods and services purchased at the retail level and not reaching the savings portion of income intensifies sales tax regressivity. Taxing all final consumption would likely increase the effective tax rate of all taxpayers but the largest increase would be at the higher income levels. Sales tax regressivity would thereby be reduced. Such a base change would likely involve greater administrative cost, base definitional problems and public resistance.

South Dakota presently employs a limited tax credit program to reduce the degree of regressivity of the sales tax for the elderly and handicapped. Extending the program to include all low-income individuals and families in South Dakota would reduce the regressivity of the sales tax for all low-income groups in the state. Broadening the coverage would, however, result in greater cost due to the increased number of applications for refunds.

An alternative which could be employed to improve both the adequacy and equity of the sales tax would be the adoption of a food and/or clothing exemption from the sales tax base. Regressivity would be lessened as these exemptions would substantially reduce the effective

tax rate for low-income persons relative to high-income persons. The exemptions would also reduce the inelasticity of the sales tax thereby improving adequacy. The estimated income elasticity coefficients with a clothing exemption, a food exemption and a food and clothing exemption were .781, .811 and .819, respectively. Adoption of the exemptions would not substantially increase administrative costs but would result in the loss of large amounts of revenue ($14 million in 1974).

To supplement the revenue loss from tax relief to low-income groups, the existing tax structure would have to be changed to allow for the same level of expenditures. The only other taxes in the South Dakota tax structure that would be capable of generating such large amounts of revenue are the motor fuel taxes. Another possibility would be to spread the needed tax increase throughout the entire tax structure. This would involve mainly rate changes as the tax structure, with the exception of the sales tax, is composed primarily of specific consumption taxes.

Another potential alternative to restore the revenue losses due to either the extension of the tax credit program or the adoption of a food and clothing exemption would be the incorporation of a state personal income tax. State personal income taxes are both income elastic and have progressive tax structures thereby contributing to overall tax adequacy and tax equity. Adoption of a food and clothing exemption and a personal income tax would improve overall tax adequacy by making the sales tax less inelastic and adding an elastic source of revenue to the total tax revenue structure. At the same time overall tax equity would

be improved by the adoption of a progressive tax and by reducing the degree of regressivity of the sales tax. Adoption of an income tax could also facilitate greater efficiency in the handling of an extended South Dakota tax credit program by applying the credit directly to the income tax form.

Two suggestions for further research follow directly from the above discussions. First, elasticity estimates should be calculated for each of the taxes and the tax structure of South Dakota as a whole employing the method of this study. Secondly, the heavy reliance on federal aid in South Dakota implies a shifting of political power from the state to the federal level of government. This should be weighed against the possibility of increasing state tax revenue to lessen the influence of the federal government in South Dakota. Also the large amount of federal aid received by South Dakota should be analyzed in terms of the cash flows to and from the federal government to determine whether more or less money is returned to the state in the form of federal aid than is withdrawn in the form of federal taxes.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books and Periodicals

Berney, Robert E. _Tax Structure Variations in the State of Washington._ Pullman, Washington: Washington State University Press, 1970.

Brennan, Michael J. _Preface to Econometrics._ 3rd ed. Cincinnati, Ohio: South-Western Publishing Co., 1973.

Groves, Harold M. _Financing Government._ 6th ed. New York: Holt, Rinehart and Winston, Inc., 1964.

Hays, William L., and Robert L. Winkler. _Statistics: Probability, Inference and Decision._ Vol. II. New York: Holt, Rinehart and Winston, Inc., 1970.

Herber, Bernard P. _Modern Public Finance: The Study of Public Sector Economics._ Homewood, Illinois: Richard D. Irwin, Inc., 1971.

Morgan, Daniel C. _Retail Sales Tax, An Appraisal of New Issues._ Milwaukee: The University of Wisconsin Press, 1964.

Musgrave, Richard A., and Peggy B. Musgrave. _Public Finance in Theory and Practice._ New York: McGraw-Hill Book Company, 1973.

Phares, Donald. _State-Local Tax Equity._ Lexington, Massachusetts: D. C. Heath and Company, 1973.

Wasylenko, Michael. "Estimating the Elasticity of Personal Income Taxes," _National Tax Journal._ XXVIII, No. 1 (March, 1975) pp. 139-142.

Yamane, Taro. _Statistics, An Introductory Analysis._ 3rd ed. New York: Harper and Row, Publishers, 1973.

Government Documents

Report of South Dakota Citizens Tax Study Committee. Everett E. Creaser. Chairman. Pierre, South Dakota, December 1959.

South Dakota Constitution. Article VIII, §2.

South Dakota Department of Health. _South Dakota Vital Statistics Annual Report 1973._ Pierre, South Dakota, 1974.

South Dakota Department of Revenue. _Annual Report of the Department of Revenue._ Pierre, South Dakota, 1956-1970.

South Dakota Department of Revenue. Annual Statistical Report. Pierre, South Dakota, 1971-1974.

_____. "Retail Sales and Use Tax Collections by Business Classification." Pierre, South Dakota, 1961-1974. (Mimeographed).

_____. South Dakota Sales and Use Tax Regulations. Regulations 72-2. Pierre, South Dakota, July 1, 1973.

_____. "1974 Tax Relief for Low-Income Senior Citizens and Disabled Persons, Applications and Instructions." Pierre, South Dakota, 1974.

South Dakota Director of Taxation. The Gross Income Tax Law of South Dakota. Bulletin No. 20. Pierre, South Dakota, June 1933.

South Dakota Division of Taxation. The Property Relief Act of South Dakota. Senate Bill No. 36 of the 1935 Legislative Session, Bulletin No. 23. Pierre, South Dakota, March 1935.

South Dakota Supreme Court. Decision of the Supreme Court of South Dakota on the Gross Income Tax Law as to Constitutionality. Opinion written by Judge Campbell. Filed Dec. 1, 1933. Reprint.

W. C. Botkin v. W. C. Welch. 251 N. W. 189 (1933).

_____. 61 S. D. 593.

U. S. Bureau of the Census. Governmental Finances. Washington, D. C.: U. S. Government Printing Office, 1952-1973.

_____. The Statistical Abstract of the United States, 1974. Washington, D. C.: U. S. Government Printing Office, 1974.

_____. Survey of Current Business. Washington, D. C.: U. S. Government Printing Office, Selected Issues.

Other Sources

Beatty, R. L. Sales and Use Tax Collections in South Dakota. Business Research Bureau, University of South Dakota, Bulletin Number Thirty-Seven, Vermillion, South Dakota, December 1954.

Griffin, William M. The Retail Sales Tax in South Dakota. Governmental Research Bureau, State University of South Dakota. Vermillion, South Dakota, August 1959.

Papke, Dr. James A. Tax Policy Alternatives for the State of South Dakota. Report of the Tax Consultant. Pierre, South Dakota, September 1968.

Personal letter from Don Keyes, Internal Auditor, Department of Revenue, Pierre, South Dakota to Gordon V. Karels, February 12, 1975.

Personal telephone conversation with Lyle Wendell, Director, Department of Revenue, Pierre, South Dakota, May 1, 1975.

Saukerson, Clyde. South Dakota Retail Sales Tax. Prepared for the Office of the Budget. Pierre, South Dakota, August 1971.

South Dakota State Tax Reporter. Chicago: Commerce Clearing House, Inc., Looseleaf and Current.

State Tax Review. Vol. 35, No. 1. Chicago: Commerce Clearing House, Inc., January 2, 1974.

_____. Volume 35, No. 27. Chicago: Commerce Clearing House, Inc., July 2, 1974.

_____. Vol. 35, No. 40. Chicago: Commerce Clearing House, Inc., October 1, 1974.

Topical Law Reports, State Tax Guide. Chicago: Commerce Clearing House, Inc., Looseleaf and Current.

APPENDIX A

THE REVENUE ADJUSTMENT PROCEDURE: AN EXAMPLE

The procedure used to adjust for base changes involved estimating revenues due only to the base changes. To help in understanding the procedure that was employed the base change of Ch. 267, Laws of 1969, which placed the sales tax on beer and alcoholic beverages, is used as an example.

Since the sales taxation of beer and alcoholic beverages became effective on July 1, 1969, sales tax revenues were not affected until fiscal year 1970. The first task was to determine which businesses were influenced by the base change. The task was easy for this base change as a specific subdivision of "Beer Parlors - Liquor Stores" was listed under the broad "food" group. Revenue increases for this base change occurred entirely within this subdivision.

Not all sales by beer parlors and liquor stores were composed of alcoholic beverages. Revenues would also include taxable sales of food, nonalcoholic beverages and sundry items. Since economic growth may have caused revenues from beer parlors and liquor stores to increase without the base change, this was given consideration when making the adjustment so as not to take out the revenue resulting from economic growth.

The data reflecting sales tax revenues from beer parlors and liquor stores was as follows:

Fiscal Year	Revenues
1967	$ 78,377
1968	89,295
1969	98,497
1970	1,691,891 x .75 = $1,268,918

. Since the rate also increased in 1970 from 3 to 4 percent, the revenues
for 1970 were adjusted to take out the increase in revenue due to the
rate change. The rate increase was 1 percent therefore 25 percent of
the revenues were due to the change in rate. Multiplying by .75 adjusted
the revenue in 1970 to reflect the 3 percent rate of the previous years.

The change in revenue between 1967 and 1968 was $10,918. This
reflected economic growth that occurred in this part of the base between
those two years. Economic growth between 1968 and 1969 was $9,202. The
change between 1969 and 1970 was, at a constant rate of 3 percent, equal
to $1,170,421. Since part of the 1969-1970 revenue involved economic
growth, that part of revenue had to be subtracted out of the total
revenue change to yield the revenue due only to the base change. The
amount of economic growth to be subtracted was taken to be the average of
the economic growth that had occurred in the two previous years. Thus
$10,198 + $9,2202 ÷ 2 = $10,060 was the amount of economic growth sub-
tracted out of the change in revenue between 1969 and 1970 to arrive at
the actual revenue due to the base change, or $1,160,361. This last
amount was taken to be the estimated amount of revenue due to the expan-
sion of the sales tax base to include beer and alcoholic beverages
during the initial year of the base change.

If this had been the only base change that occurred between 1961
and 1974, the 1970 index would have been computed by subtracting the
$1,160,361 from the actual revenue of 1970 and dividing this into the
actual revenue of 1970. Expressed mathematically, $T/(T-A) = B$ where
T is the actual revenue for the year, A is the amount of adjustment and B

is the base index. (Indices are generally expressed using 100 as the base year. The term B is thus multiplied by 100.) Also from the formula it can be seen that $T - A = T/B$ so that future adjusted totals will equal actual revenues for a year divided by B, the base index.

Since base changes previous to 1969 had occurred in the sales tax, they had to be taken into account when the adjustment figures were subtracted. The other base changes occurred in 1964 and 1966 and the adjustment for 1970 amounted to $1,044,240. Adding this figure into the beer and liquor adjustment of $1,160,361 the total adjustment became $2,204,601. Using the above formula yielded $51,300,921/(51,300,921 - 2,204,601) \times 100 = 104.49$. The other base changes were computed in the same fashion.

COMPILATION OF THE RESULTS OF THE REGRESSION ANALYSIS

	Equation	Regression Coefficient (e)	Intercept (d)	Standard Error (e)	Computed T-Value (e)	r^2 (adj)	Standard Error of Estimate (adj)	F-Value	Durbin-Watson Statistic	Von-Neumann Ratio
	(Original Tax Series)									
(4)	log TA = log d + e log y	.77647	−1.15397	.04314	17.999	.982	.022	393.954	1.6798	1.8093
(5)	log TAB = log d + e log y	1.63281	−3.93635	.11191	14.591	.973	.057	212.894	1.7555	1.8906
(6)	log TAR = log d + e log y	.82518	−1.30919	.04178	19.748	.985	.021	389.993	1.9583	2.1094
(7)	log T = log d + e log y	1.68155	−4.09169	.11759	14.300	.972	.060	204.484	1.7199	1.8122
(8)	log E = log d + e log y	1.07937	−1.27617	.11289	9.561	.969	.023	91.414	2.4271	2.7965
	(Clothing Exemption)									
(4)	log TA' = log d + e log y	.78063	−1.18289	.04531	17.943	.982	.022	321.946	1.7074	1.8324
(5)	log TAB' = log d + e log y	1.63714	−3.96599	.11310	14.475	.973	.058	209.514	1.7639	1.8996
(6)	log TAR' = log d + e log y	.82927	−1.33791	.04232	19.594	.985	.022	383.911	1.9776	2.1297
(7)	log T' = log d + e log y	1.68575	−4.12081	.11876	14.195	.971	.061	201.491	1.7281	1.8611
	(Food Exemption)									
(4)	log TA' = log d + e log y	.81094	−1.34972	.04462	18.175	.987	.023	330.336	1.7074	1.8388
(5)	log TAB' = log d + e log y	1.66738	−4.13255	.11432	14.586	.973	.058	212.744	1.7404	1.8748
(6)	log TAR' = log d + e log y	.85940	−1.50408	.04347	19.772	.985	.022	390.929	1.9622	2.1133
(7)	log T' = log d + e log y	1.71587	−4.28700	.11993	14.308	.972	.061	204.706	1.7081	1.8394
	(Food and Clothing Exemption)									
(4)	log TA' = log d + e log y	.81859	−1.39343	.04504	18.175	.982	.023	330.334	1.7707	1.8719
(5)	log TAB' = log d + e log y	1.67237	−4.16778	.11370	14.709	.973	.058	216.355	1.7693	1.9055
(6)	log TAR' = log d + e log y	.86629	−1.54535	.04421	19.595	.985	.023	383.932	1.9971	2.2363
(7)	log T' = log d + e log y	1.72264	−4.32785	.12074	14.268	.972	.062	203.565	1.7085	1.8400

TABLE A-2

POPULATION AND PER CAPITA PERSONAL INCOME FOR
SOUTH DAKOTA, 1961-1974

Year	Population	Per Capita Personal Income
1961	693,000	$1,771
1962	705,000	1,996
1963	708,000	1,899
1964	701,000	1,861
1965	692,000	2,176
1966	683,000	2,425
1967	671,000	2,549
1968	669,000	2,785
1969	668,000	2,937
1970	666,257	3,101
1971	674,000	3,283
1972	680,000	3,766
1973	685,000	4,713
1974	682,000*	4,691*

SOURCES: Per Capita Income Data: U. S. Bureau of the Census,
Survey of Current Business (U. S. Government Printing Office), selected
issues.

Population Data: South Dakota Department of Health, South Dakota
Vital Statistics Annual Report 1973 (Pierre, South Dakota, 1974).

*Denotes estimate. Population estimate provided by Robert Wagner,
Associate Professor of Rural Sociology, South Dakota State University.
Per Capita Income estimate provided by the Business Research Bureau,
University of South Dakota.

APPENDIX B

TABLE B-1

POPULATION AND PER CAPITA PERSONAL INCOME
PROJECTIONS FOR SOUTH DAKOTA, 1970-1977

POPULATION

Year	Computed	Actual
1970	670,130	666,257
1971	673,930	674,000
1972	677,730	680,000
1973	681,530	685,000
1974	685,330	682,000
1975	689,130	
1976	692,930	
1977	696,730	

The regression equation used for the projection was
$P = 635.93 + 3.80(t-1961)$, $S_{Y \cdot X} = 2.83$, $r^2 = .82$

PER CAPITA PERSONAL INCOME

Year	Computed	Actual
1970	3409	3101
1971	3631	3283
1972	3853	3766
1973	4075	4713
1974	4297	4691
1975	4519	
1976	4741	
1977	4963	

The regression equation used for the projections was
$PI = 1410.91 + 221.98(t-1961)$, $S_{Y \cdot X} = 299.12$, $r^2 = .88$

SOURCE: Calculations derived from Table A-2 of Appendix A.