DOCUMENT RESUME

ED 147 994 EA 010 192

TITLE Growth and Stability Characteristics of Selected Revenue Sources in Florida. Florida School Finance Study. Draft.

INSTITUTION Florida State Dept. of Education, Tallahassee.

PUB DATE 11 Mar 77

NOTE 41p.; For a related document, see EA 010 191; Not available in paper copy due to light print of original document

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.

DESCRIPTORS *Finance Reform; Government Role; Income; Population Growth; Prediction; *State Government; Statistical Analysis; *Tables (Data); *Taxes; *Trend Analysis

IDENTIFIERS *Florida

ABSTRACT

This study assesses the adequacy of Florida's tax structure to meet future demands for government services through an analysis of Florida's major revenue sources (sales tax, gasoline tax, beverage tax and licenses, motor vehicle licenses, racing tax, and cigarette tax) to determine their stability and growth characteristics. The analysis involved measurement of changes in revenue collections and their relationship to changes in income, changes in population, and changes in prices. More specifically, the analysis involved: measurement of the selected changes over time to determine their long-run average effect on revenues; estimates of the short-run response of revenues to the selected changes; and an analysis of growth and predictability of each revenue source. Findings of the study indicate a major part of Florida's revenues are structurally inadequate to deal with the present and future needs of the state. If population growth or inflation continues, as is commonly assumed, the state will be faced periodically with revenue shortages. Even if price stability is achieved and economic population growth are slower than expected, these sources cannot be expected to provide stable revenues. (Author/JG)

Draft: March 11, 1977

FLORIDA SCHOOL FINANCE STUDY

Growth and Stability Characteristics of Selected Revenue Sources In Florida

State of Florida
Department of Education
Tallahassee, Florida
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PART I: OVERVIEW

Introduction

A critical problem facing state governments in recent years has been the inability of state revenue structures to provide the necessary resources to expand state funded programs during periods of growth and maintain revenue levels during periods of inflation and contraction. In most cases the failure of state revenue structures to respond adequately to state economic conditions has produced requirements for additional taxes, increases in tax rates, and expansion of established tax bases. Associated with this method of adjusting revenues is the fact that these decisions must be made in a political context, and in many cases lead to changes which reflect the interest of particular groups with limited consideration for their economic consequences.

One of the major reasons for the present fiscal crisis faced by several states is the recent change in population migration patterns. Traditionally, agricultural states, particularly those located in the South, have experienced slow growth. This has been due in part to population migration from these areas to the industrialized regions of the country. In recent years, however, there has been a reversal in the population migration patterns. Those states which have traditionally had a slow rate of growth or even lost population are presently experiencing rapid growth in population at the expense of the industrialized regions, and are also undergoing rapid economic development.

For those states which have traditionally experienced slow growth, it has been desirable in the past to implement tax policies designed to provide stable revenues, since the need to expand state programs has been minimal. Consequently, most of these states have attempted to

establish and maintain tax structures capable of supporting relatively fixed volumes and quality of government services. In recent times, however, rapid population and economic growth have been accompanied by substantial increases in the demand for government services. This situation, in turn, has produced pressure to raise revenues which in many cases exceed the revenue generating capabilities of the existing tax systems.

The desire to establish and maintain stable tax structures by slow growing states in the past has also been justified by the fact that states have not been expected to use fiscal policy as a means of regulating the economy. Since the 1930's the function of regulating the economy through fiscal policy, has been relegated almost exclusively to the federal government. Therefore, states have commonly viewed their tax systems as mechanisms for collecting revenues without much concern for the distributive, stabilizing and stimulating effects which taxes have on economic activity.

The passive regulatory role assumed by the states in the past has changed recently. The relative economic stability experienced by the country in the decades immediately after the 1940's has been disrupted in recent years by pronounced fluctuations which have produced unprecedented conditions of high unemployment accompanied by high rates of inflation. The tendency of the federal government to assign greater priority to price stability has reduced the compatibility of state and national economic goals. Faced with high levels of unemployment, some states have been gradually assuming the responsibility for solving this problem. This has been particularly true in those states where the rate of unemployment exceeds the national average.

Those states that are facing rapid growth and those that are attempting to use fiscal policy to stabilize their economy require tax structures capable of responding vigorously to changes in the economy. Furthermore, fast growing states require tax systems which can benefit from population growth while at the same time maintaining a stable relationship with respect to price changes.

Purpose and Scope of the Study

The purpose of the study was to assess the adequacy of Florida's tax structure to meet future demands for government services. This was undertaken through an analysis of Florida's major revenue sources to determine their stability and growth characteristics. These revenue sources, which account for 74 percent of all state revenues, are the sales tax, gasoline tax, beverage tax and licenses, motor vehicle licenses, racing tax, and cigarette tax. The recently enacted corporation income tax is not included because its short history allows only limited data for analysis.

The analysis focuses on the years from 1960 through 1975, a period of both contraction and expansion, of both price stability and rapid inflation. These diverse economic conditions contribute to the analysis by providing a fair test of the performance of the revenue sources.

The method of analysis involved the measurement of changes in revenue collections and their relationships to changes in income (used as an indicator of the state of the economy), changes in population, and changes in prices (as indicated by changes in the consumer price index). The overall analysis involved the following: (1) a measurement of the selected changes over time to determine the long-run average response of

the revenues to the changes; (2) estimates of immediate or short-run responses of the revenues to the changes; and (3) an analysis of growth and predictability of each source. A detailed discussion of the data, underlying assumptions and statistical methods and findings is provided in Part II of this paper.

Summary of Findings

Florida's revenue system, when compared with criteria appropriate for fast growing states, presents several limitations. In order to respond vigorously to changes in the economy, tax revenues must increase when income increases, with the revenue increases at least proportional to the increases in income. Only three of the taxes studied showed a significant relationship to changes in income. These were the sales tax, the gasoline tax, and the beverage tax. In all cases the relationship was proportional, meaning that a one percent increase in income produced an increase in revenue of approximately one percent.

A second criterion appropriate for a fast growing state is that growth in population should produce commensurate growth (proportional or greater) in revenue. Of the taxes studied, only the racing tax showed a significant relationship to population growth. In this case a one percent increase in population yielded an increase in revenue of approximately 1.1 percent.

The third criterion is that the relationship between price changes and revenue changes should be stable. Three of the taxes examined showed a significant relationship between price changes and revenues. These were the sales tax, the gasoline tax, and the beverage tax. In all cases the relationship was negative, meaning that an increase in prices (i.e., inflation) led to a decrease in revenues.

As a result of the relationships described above, real per capita revenues to the state from the sources analyzed have shown a decrease over the past few years. Between 1973 and 1975 tax receipts, measured in 1967 dollars, declined as follows: sales tax $12.3, cigarette tax $2.4, beverage tax and licenses $2.4, motor vehicle licenses $1.6, racing tax $.6, and gasoline tax $6.5. Real per capita collections for the racing tax and the gasoline tax in 1975 were below the levels of 1960.

Conclusions

From the results obtained in this study, it appears that a major portion of state revenues in Florida are structurally inadequate to deal with the present and future needs of the state. If population growth and/or inflation continues, as it is commonly assumed, the state will be faced periodically with revenue shortages. Even if price stability is achieved and economic and population growth are slower than expected, these sources cannot be expected to provide stable revenues.

The practice of reacting to revenue crises by manipulating the rates and bases of the existing revenue sources is both short-sighted and inefficient. New taxes capable of reacting to population growth are badly needed in the system. These taxes would have to be sensitive to changes in the economy in order to benefit from growth and to act as stabilizers. These taxes would also have to be efficient. Finally, they would have to be able to provide some equity to offset a predominantly regressive tax structure. This last issue, which has been neglected in this paper, should provide enough justification for the use of alternative revenue sources.

PART II: TECHNICAL PRESENTATION

The rate of growth in the State of Florida during the last decades has been substantial. In the period 1960 through 1975 the population of the state grew 71.3 percent--from 4.9 million to 8.4 million residents. Personal income, measured in real terms, increased during the same period from $10.9 billion to $28.6 billion--an increase of 160.3 percent.

Between 1953 and 1975 tax revenues in Florida as a percent of personal income increased from 9.2 percent to 9.52 percent, the lowest increase in the nation. In 1953 state revenues as a percent of personal income were 21 percent higher than the average for other states. In 1975 this index was 80.1 percent of the national average. During this period state revenues as a percent of personal income increased 56.9 percent for the entire country, and 30 percent for the Southeast region. Growth in this category for Florida was 3.5 percent. In terms of per capita state and local tax revenues, Florida fell from 101.5 percent of the national average to 77.1 percent.

On the aggregate, the burden of taxation for Florida residents has remained relatively constant over the last two decades, a period marked by substantial increases in state tax burdens for the rest of the nation. In order to maintain this situation, however, the state has been forced repeatedly to increase the rates and expand the bases for most taxes. More recently, new taxes, such as the corporation income tax, have been required. A historical development, for the revenue sources in the study, with particular emphasis on recent changes, is provided below.

Historical Review of Major Revenue Sources

The sales tax (Appendix Table 4), enacted in 1949, is the major source of revenue for the state. It accounted for $1,199 million in state revenues during fiscal year 1974-75. In 1968 the rate was increased from 3 percent to 4 percent on most items, and the tax base was extended to include commercial rentals, parking fees, utility services and several other minor categories. In 1971 the sales tax rate for motor vehicle was increased from 2 percent to 4 percent. For the most part, the sales tax is assumed to be regressive. However, since food and medicines are exempt from taxation the regressivity of the tax is not extreme. It is also commonly assumed that a substantial portion of the tax is paid by non-Floridians, due to the relative importance of the tourist industry in the state.

A sales tax is now collected in most states, with the exception of Alaska, Delaware, Montana, New Hampshire and Oregon. The national average sales tax rate is 3.75 percent. At the present time some consideration is being given in Florida to the possibility of raising the tax rate to 5 percent.

Gasoline taxes were introduced in Florida in 1921 ((Appendix Table 5). A rate of 7 cents per gallon was established in 1931. This rate was in force until 1971 when the rate was changed to 8 cents per gallon. Since 1972 revenues from the gasoline tax have been allocated as follows: 4 cents to the primary roads fund, 2 cents to the State Board of Administration for county road debts, with the balance going to the counties; 1 cent to the counties; and 1 cent to the municipal revenue sharing fund. Counties have the option of raising one additional cent per gallon.

Florida started taxing liquor and issuing licenses for the sale and manufacturing of liquor at the end of prohibition. Rates established in 1949 were in effect until 1968, when the present rates were enacted covering all products except those manufactured in the state. In 1971 the present rates for Florida products were adopted by the legislature.

All states currently derive some revenue from the sale of liquor. State operated liquor stores may be found in 17 states. Florida's present Florida rate on distilled spirits is exceeded by only six other states.

Florida used the same system for distributing liquor licenses from 1935 until 1971. During that period one license could be issued for every 2500 residents, with additional licenses issued to hotels, motels, restaurants and clubs. Since 1971 the quotas have been frozen. During that year the rates for licenses were also increased and the authority to issue licenses was transferred from municipal and county authorities to the state. Presently licenses are administered by the state, and the revenues are shared by the counties and municipalities in which the establishment is located.

Revenues from beverage licenses amounted to $11.4 million in fiscal year 1974-75. During the same period approximately $173 million was collected on liquor and beer sales. Although all fifty states earn revenues on the sale of liquor, beer and wine, by comparison Florida makes very intensive use of this source of revenue. In 1974 Florida's taxes on liquor sales were the highest in the nation. Revenues per capita from the beverage tax and licenses in real terms reached their highest point in Florida in 1972. Revenues per capita declined in real terms in the period from 1973 to 1975 (Appendix Table 6).

As in the case of gasoline, liquor taxes are considered to be highly stable due to the nature of the demand for these products. Increases in revenues from this source are assumed to come largely from population increases. Since these taxes are unit-based, real revenues from this source tend to decline during periods of inflation.

Motor vehicle licensing began in Florida in 1917. In 1963 rates were increased substantially, and licenses were extended for a period roughly coinciding with the fiscal year. In 1970 the licensing period was reduced from 13 months to 12 months.

In 1965 the motor vehicle licensing base was expanded to include mobile homes, house trailers and campers. The present rate structure is based on weight and types of vehicles:

Revenue collections in real terms per capita for this source remained relatively stable for the period 1960 to 1975. However, significant fluctuations occurred during this period, reflecting the rates and base changes previously mentioned. Discounting the effects of rate and base changes, this source of revenue is expected to remain fairly stable, with increases in revenues originating primarily from population growth (Appendix Table 7).

Pari-mutuel betting was legalized in Florida in 1931. In 1963 the original tax, based on a percentage of gambling activities, was replaced by daily license fees. Harness tracks have been permitted in the state since 1963. Quarter horse tracks were introduced in 1969, along with summer racing. Real per capita revenues from this tax remained remarkably constant for the period 1960 through 1975 (Appendix Table 8). It is

commonly assumed that a substantial portion of this tax is paid by tourists since pari-mutuel betting is a major tourist attraction.

The taxation of cigarettes in the State of Florida dates back to 1929. In 1963 the rate was raised from five to eight cents per pack and in 1968 to fifteen cents. An additional two cents per pack was added in 1971, bringing the total tax rate to seventeen cents. An attempt was made in 1973 to expand the base by including little cigars into the category of cigarettes. The industry, however, has been effective in preventing the reclassification of some of these products into taxable categories.

Real revenues per capita from cigarette taxes have increased by approximately 80 percent during the period 1960 to 1975. This growth, however, was accompanied by sharp fluctuations in the amount of real per capita taxes collected (Appendix Table 9).

Methods for Analyzing Relationships to Population, Prices and Personal Income

Several previous studies designed to analyze the stability and growth characteristics of the tax structures of different states, have traditionally used the following equation:

$$(1) \quad \text{Log } R = \text{Log } C + e \text{ Log } Y$$

Where R represents tax revenues, C is a constant, Y is equal to aggregate personal income, and e is an elasticity coefficient which reflects the percentage change in revenue caused by a percentage change in aggregate personal income and is an average estimate for the period under study.

This equation has been used individually for each source of revenue, and a comparison made of the elasticity estimates obtained. From this comparison taxes have then been classified into three categories: (1) revenues highly responsive to changes in income in the case where the value of e is greater than one; (2) revenues which fluctuate proportionately with changes in income where the value of e is approximately one; and (3) taxes which are very unresponsive to changes in income where the value of e is less than one.

One of the major problems with this approach is the fact that it assumes that the tax rate and the tax base remain constant during the period of analysis. This assumption, in the case of Florida, would lead to distortions in the estimates since the rate and base for most taxes have been changing through time due to legislative action. In several cases, including some studies that have been done for the State of Florida, it is common practice to assume when estimating revenues from changes in rates that the effect of changes in rates on revenues is proportional. An example of this approach is to assume that a 10 percent increase in the tax rate leads to a 10 percent increase in revenues. This assumption is only valid in the case where the consumption expenditures for the object being taxed are perfectly inelastic with respect to the tax rate. Since that situation is not typical, the value of the rate elasticity of revenue cannot be expected to be equal to one.

Consumption of taxed goods and services depends also on the level of prices. A general increase in the price level has an obvious income effect. In addition, both commodities subject to a unit tax and those exempt from taxation experience a relative decline in prices when

compared with those commodities subject to taxes based on prices. A fall in the level of prices has the opposite effect.

Tax revenues are also affected by population changes. A state may experience substantial increases in aggregate income due almost entirely to an increase in population. If real per capita income grows over time, the composition of the basket of goods purchased by consumers will probably change. If, on the other hand, increases in real income are matched by increases in population, the basket of goods will likely may remain fairly constant through time.

An additional factor that can influence total tax collections is a change in the distribution of income. For the purpose of this paper, due to limitations of measurement the distribution of income was assumed to be constant. In addition, no attempt was made to assess the impact of change in administrative techniques in the enforcement, auditing and actual collection of the revenues.

On the basis of the arguments presented above it is possible to express state tax revenues in the following functional form:

(2) $R = R(Y, N, P, r, b)$

Where

R = Revenues from a given tax source

Y = Personal income

N = Population

P = Price level

r = Tax rate

b = Tax base

In order to determine the effects on revenues from a given tax source from changes in the independent variable, under the assumption of constant elasticities over time, it is possible to use the following explicit form for the total revenue function:

$$(3) \quad R = A(Y)^{e_1}(N)^{e_2}(P)^{e_3}(T)^{e_4}(B)^{e_5}$$

Although Equation 3 provides the means for determining the responsiveness of state tax revenues to changes in the independent variables, the form of the equation is somewhat restrictive, since it implies exact relationships which cannot be supported with the existing data due to errors of estimation and collection. However, since the errors are considered to be random, this equation may be estimated by the least squares method.

The regression equation used to estimate the elasticity is determined by taking the natural logarithms of Equation 3. The equation is rewritten as follows:

$$(4) \quad \ln R = a + e_1 \ln Y + e_2 \ln N + e_3 \ln P + \sum_{i=1}^{n} e_{i+3} T_i + \sum_{k=1}^{n} e_{k+i+3} b_k + U_i$$

Since these variables did not change continuously through the period observed and in most cases changed only once, dummy variables were used to indicate changes in the rates and the tax base. Personal income data were not available by fiscal years; consequently, the income variable was lagged for a period of six months.

Findings Relating to Population, Prices and Personal Income

The results of the equation are shown in Appendix Table 10. Estimated elasticities and other key statistics are included in the table. From the results obtained it appears that the model is adequate in measuring the elasticities of population, prices and personal income. The elasticities can be interpreted as the percent change in the dependent variable, in this case revenues, given a 1 percent change in an independent variable, when all other variables in the equation remain constant. As was mentioned before, the response of the dependent variable to changes in the independent variable can be categorized by indices of greater than one, equal to one or less than one, reflecting high responsiveness, proportionality, and low responsiveness. A negative sign preceeding the regression coefficient for the individual variables indicates that increases in the independent variable produce reductions in revenues. Conversely, decreases in the independent variable produce increases in revenues.

The estimates of the intercept in the regression are negative with the exception of the gasoline and cigarette tax. These results are as expected, since the personal income variable used in the equation is always larger than taxable income.

The value of the coefficients obtained for the population variable were not found to be a significant at the 95 percent level, with the exception of the racing tax, where changes in population indicate proportional changes in revenue collections. Given the lack of significance in the coefficients obtained for population, it appears that this variable does not have a significant impact on revenues. Since for most cases the

hypothesis that population elasticity is equal to zero cannot be rejected, it must be concluded that tax receipts from these sources are not affected by population growth.

The effect of changes in prices on revenue collections was found to be negative and significant for the sales, gasoline, and beverage tax. The response of sales tax collection to consumer price index changes suggests that a 1 percent increase in the consumer price index produces approximately a 2 percent decrease in sales tax collections. This relationship can be explained by the fact that Florida exempts food and medicines from its sale tax. Under the current structure sales tax revenues are derived, to a large extent, from taxes on the sale of consumer durables, which have a high price elasicity of demand. Beverage tax and licenses collections also show high responsiveness to the changes in the price level, while gasoline taxes show only a proportional response. The other three sources, motor vehicle, racing tax and cigarette taxes, can be assumed not to be affected by changes in the general price level.

Both aggregate personal income and per capita personal income were used in this equation with almost identical results. For those taxes where personal income was shown to be significant at the 95 percent level, the effects of changes in this variable on revenue collections were proportional. For the other three taxes, motor vehicle, racing and cigarettes, the effects of changes in income were not found to be significant. It appears from these results that a significant portion of revenues for the State of Florida are not structually designed to capture economic growth and provide the revenues required to meet the increasing demands for government services associated with increases in income.

With the exception of motor vehicle licenses; the coefficients estimated for rate changes were shown to be significant at the 95 percent level. Base changes, on the other hand, were shown to be significant only in the case of sales taxes, and then only at the 90 percent level.

Method for Analyzing Long-Run Stability.

A measure of stability or predictability can be obtained by measuring the degree to which a tax yield adjusts to the growth path of the tax over time. A method for measuring this index is to take the inverse of the standard error of the natural log of tax revenue regressed on time. By this method if a tax has increased each year by the same percentage, all of the observations fall on the same growth path and the standard error approaches zero. In this case the inverse of the standard error approaches infinity at the limit. On the other hand, a tax which fluctuates from year to year deviates from the time path and has a larger standard error. In this case the inverse of the standard error approaches zero at the limit.

There is no absolute scale to measure the computed indices in order to classify these taxes as stable or unstable. However, the different indices obtained for these taxes can be compared with each other in order to establish an ordering of stability.

Mathematically, the stability index can be expressed:

$$(5) \quad V = \frac{1}{S_{\Delta R}}$$

$$S_{\Delta R} = \sqrt{\frac{\Sigma (\widehat{\Delta R} - \Delta R)^2}{n - k}}$$

The growth path is obtained by a regression of the natural logs of revenue on time. In addition, the regression contains a set of dummy variables indicating rate changes and a set of dummy variables indicating base changes. Since both population and the price level have an effect on revenues, the dependent variable used in the equation is real revenues per capita. The form of the equation is:

$$(6) \quad \ln R = a + e_1 T + \sum_{i=1} e_{i+1} r_i + \sum_{k=1} e_{k+n+1} b_k + U_t$$

Where the dependent variable is the natural log of real revenue per capita from a tax source; T is a time trend; r indicates dummy variables for rate changes; b indicates dummy variables for base changes; e are the regression coefficients; and U is the error term.

Findings Relating to Long-Run Stability

The results of running the regressions for revenue collection are contained in Appendix Table 11. These estimates indicate that the strongest compound rate of growth per year, eliminating the influence of price increases, rate increases and base changes, was experienced by the sales tax. This revenue source exhibited a long-run trend of 7.8 percent growth over the period examined. The second fastest growth rate was computed for the beverage tax and licenses, which grew at approximately 5.8 percent per year. The gasoline tax, motor vehicle licenses, and the racing tax experienced rates of growth of 3.2, 3.9, and 3.1 percent, respectively. The growth of revenues through time was not found to be statistically significant for the cigarette tax and, indeed was the lowest for all of the taxes analyzed. Although this revenue source

experienced substantial growth during the period, it also experienced several rate increases that account for almost all the changes in revenues from this source.

The stability index for all taxes indicates that the racing tax was the single most predictable source of revenue. Paradoxically, cigarette taxes appear to be the second most predictable source; the index, however, was substantially below that of the racing tax. The sales tax, gasoline tax, and the beverage tax licenses were found to have a similar index of predictability. Finally, motor vehicle licenses revenues have a standard error of the estimate of approximately 9.3 percent which provides an index of 10.7 which is well below that of the other taxes.

Method for Analyzing Short-Run Stability

Although the previous operation measured the stability of a tax in the long-run, it was also important to determine the short-run stability performance of these taxes. This could have been determined by the use of a logarithmic equation designed to measure the effects of year-to-year changes in income on year-to-year changes in revenues. Since this procedure requires the use of first differences for revenues and income that may assume negative values, it was not possible to use logarithms. This problem, however, was resolved by using a regression equation of the following form:

$$(7)\quad \frac{\Delta R}{R} = a + e_1 \frac{\Delta Y}{Y} + \sum_{i=1}^{n} e_{i+1} r_i + \sum_{k=1}^{n} e_{k+i+1} b_k + U_t$$

Where R the dependent variable, is real per capita revenue from a given tax source; Y indicates real per capita income; r is a set of dummy variables reflecting rate changes; b is a set of dummy variables indicating changes in the base; the e term are the regression coefficients with el representing the short-run income elasticity of revenue, and u is the error term. In Equation 7 both the income elasticity of revenue and the partial coefficient of determination of income are important in understanding the stabilizing effect of the tax.

In order for the tax to be an effective stablizer there must be a strong and reliable change in revenues when income changes. However, a tax which is a good stabilizer is by definition not stable. This is explained by the fact that for a tax considered to be a stabilizer revenues fall proportionately more than income. Conversely, in times of economic expansion revenue collections increase more rapidly than income. A stable tax, on the other hand, increases proportionately less than income in periods of accelerated economic growth and declines proportionately less than income in periods of recession, therefore providing a stable source of revenues. Under these conditions the income elasticity of revenues indicates that a tax is a stabilizer when its value is greater than one; proportional as the value approaches one; and stable, if the value is less than one.

An additional measurement of the stabilizing effect of a tax is to use the partial coefficient of determination between changes in revenues and changes in income, since this measurement is both a function of the slope and the standard error. This coefficient can fluctuate between the value of plus one and minus one. The higher the value of the coefficient, the stronger the stabilizing effect on the tax.

Findings Relating to Short-Run Stability

The results of the regressions using the form specified by Equation 7 are presented in Appendix Table 12. The estimates of short-run stability indicate that at least for three taxes, the sales tax, gasoline tax and beverage tax and licenses, changes in income tend to have a very strong impact on total revenues collected from these sources. In the case of the sales tax, an increase in income of 1 percent produces an increase in revenues from sale taxes of approximately 2.4 percent. For gasoline taxes this effect is 1.4 percent, for beverage taxes, .3 percent. The racing tax was found to be significant, but revenues from this source are less than proportional to changes in income. Cigarette taxes and motor vehicle licenses were found to have no statistical significance.

The partial correlation coefficient between changes in income and changes in revenues was found to be highest for the gasoline tax. Surprisingly, the partial correlation coefficient between changse in income and changes in revenue from the sales tax proved to be relatively low. An extreme case was found between changes in motor vehicle licenses revenues and changes in income, where the partial correlation coefficient was-zero.

PART III: APPENDIX

TABLE 1
POPULATION AND INCOME DATA FOR FLORIDA
1960 - 1975

YEAR	POPULATION (Thousands) [1]	CPI [1,2]	PERSONAL INCOME (Millions) [1]	PER CAPITA INCOME	REAL PERSONAL INCOME (Millions)	REAL PER CAPITA INCOME	% CHANGE IN REAL PER CAPITA INCOME
1960	4,951	.887	$ 9,746	$ 1,968.5	$ 10,987.6	$ 2,219	
1961	5,200	.896	10,276	1,976.2	11,468.8	2,206	-.62
1962	5,399	.906	11,101	2,056.1	12,252.8	2,269	2.90
1963	5,594	.917	11,912	2,129.4	12,990.2	2,322	2.33
1964	5,786	.929	13,054	2,256.1	14,051.7	2,429	4.58
1965	5,962	.945	14,319	2,401.7	15,152.4	2,542	4.65
1966	6,137	.972	15,782	2,571.6	16,236.6	2,646	4.10
1967	6,289	1.000	17,586	2,796.3	17,586.0	2,796	5.70
1968	6,492	1.042	20,073	3,092.0	19,263.9	2,967	6.12
1969	6,699	1.098	22,877	3,415.0	20,835.2	3,110	4.82
1970	6,854	1.163	25,604	3,735.6	22,015.5	3,212	3.28
1971	7,120	1.213	28,451	3,995.9	23,455.1	3,294	2.56
1972	7,442	1.253	32,694	4,393.2	26,092.6	3,506	6.43
1973	7,845	1.331	37,799	4,818.2	28,398.9	3,620	3.25
1974	8,249	1.477	43,783	5,307.7	29,643.2	3,594	-.73
1975	8,485	1.612	46,105	5,433.7	28,601.1	3,371	-6.20

[1] Source: Florida Statistical Abstract

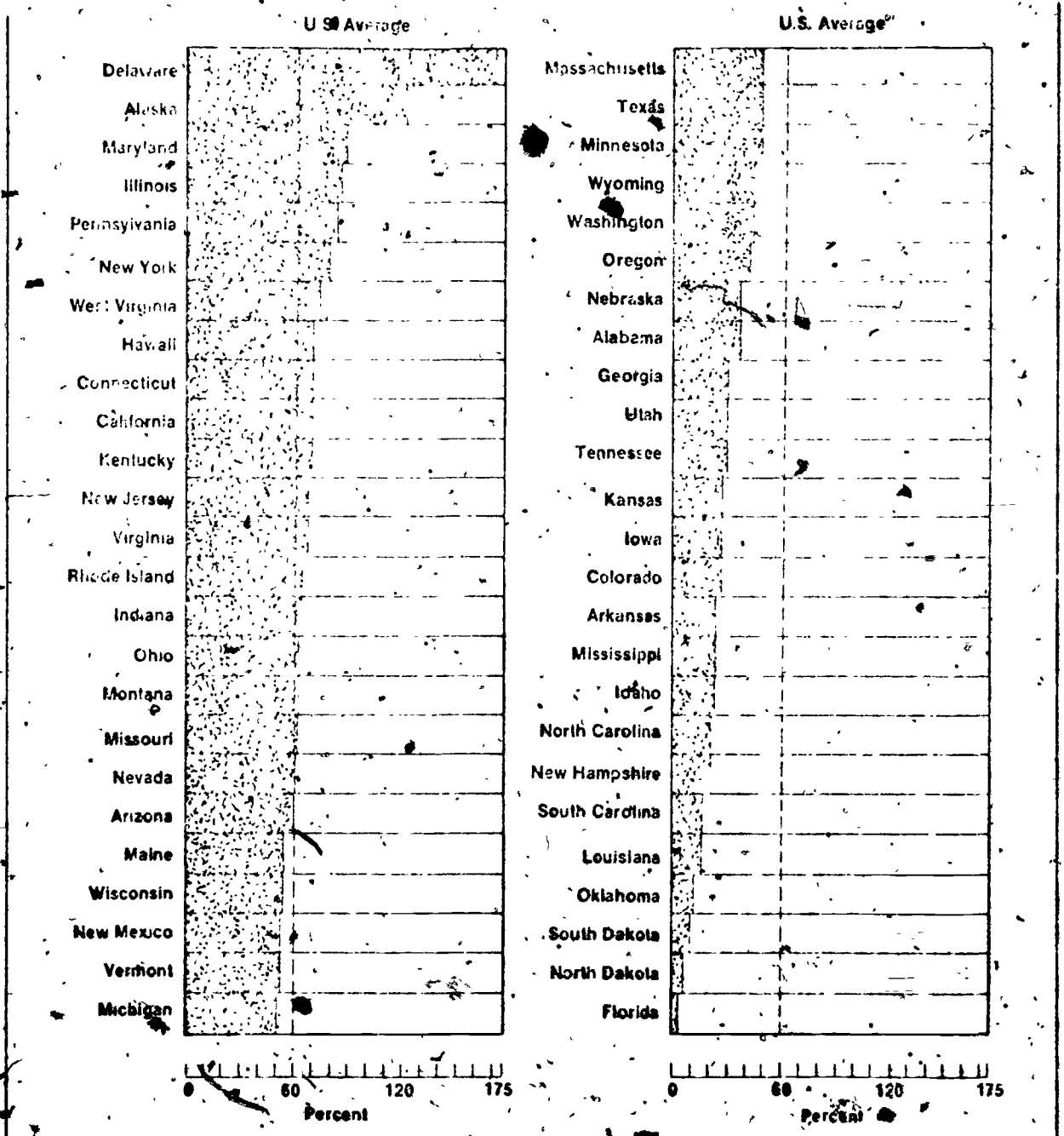
[2] Consumer Price Index

TABLE 2
STATE-LOCAL TAX BURDENS
1953 and 1975

State and Region	Tax Revenue as a Percent of Personal Income			State Percent Related to U.S. Average (U.S. = 100.0)		
	1975[1]	1953	Percent Increase	1975	1953	Percent Increase or Decrease (—)
UNITED STATES[2]	11.89	7.58	56.9	100.0	100.0	—
NEW ENGLAND	12.11	7.90	53.3	101.9	104.2	-2.2
Connecticut	10 30	6 06	70 0	86 6	79 9	8 4
Maine	13 70	8 95	53 1	115 2	118 1	-2 5
Massachusetts	13 12	8 77	49 6	110.3	115 7	-4 7
New Hampshire	10 01	8 28	20 9	84 2	109 2	-22 9[4]
Rhode Island	11 55	7 02	64 5	97 1	92 6	4.9
Vermont	14 65	9 62	52 3	123 2	126.9	-2 9
MIDEAST	13.30	7.46	78.3	111.9	98 4	13.7
Delaware	11 41	4 21	171 0	96 0	55 5	73 0[3]
Maryland	11 95	6 33	88 8	100 5	83 5	20 4[3]
New Jersey	11 08	6 59	68 1	93 2	86 9	7 2
New York	15 72	8 79	78 8	132 2	116 0	14 0
Pennsylvania	11 29	6 17	83 0	95 0	81 4	16 7[3]
GREAT LAKES	11 21	6.78	65.3	94.3	89.4	5.5
Illinois	11 84	6 37	85.9	99 6	84 0	18 6[3]
Indiana	11 64	7 08	64 4	97 9	93 4	4 8
Michigan	10 97	7 31	50 1	92 3	96 4	-4.3
Ohio	9 51	5 87	62 0	80 0	77 4	3 4
Wisconsin	13 62	8 91	52 9	114 6	117 5	-2.5
PLAINS	11.57	8 25	40.2	97.3	108.8	-10.6
Iowa	11 70	9 22	26.9	98 4	121 6	-19 1[4]
Kansas	11 08	8 71	27 2	93 2	114 9	-18 9[4]
Minnesota	13 96	9 38	48 8	117 4	123 7	-5 1
Missouri	9 91	6 14	61.4	83 3	81.0	2 8
Nebraska	10 55	7 69	37 2	88 7	101 5	-12 6
North Dakota	12 03	11 27	6 7	101 2	148.7	-31 9[4]
South Dakota	11 96	10 79	10.8	100 6	142.3	-29 3[4]
SOUTHEAST	10.22	7.86	30.0	86.0	103.7	-17.1
Alabama	9 59	7 00	37 0	80.7	92 3	-12 6
Arkansas	9 87	7 92	24 6	83 0	104 5	-20 6[4]
Florida	9 52	9 20	3 5	80 1	121 4	-34 0[4]
Georgia	10 02	7 67	30 6	84 3	101 2	-16.7[4]
Kentucky	10 95	6 47	69 2	92 1	85 4	7 8
Louisiana	12 19	10 43	16 9	102 5	137	-25 5[4]
Mississippi	11 59	9 37	23.7	97.5	12	-21 1[4]
North Carolina	9 98	8.25	21.0	83 9	108	-22.9[4]
South Carolina	10 10	8 61	17 3	84 9	113 6	-25 3[4]
Tennessee	9 51	7.32	29 9	80 0	96 6	-17.2[4]
Virginia	10 81	6 09	67.2	85 6	80 3	6 6
West Virginia	11 81	6 81	73.4	99 3	89 8	10 6

Source: Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, 1976 Edition.

TABLE 2-A
CHANGE IN STATE-LOCAL TAX BURDENS
BETWEEN 1953 AND 1975



'Average' state-local tax burdens rose from 7.6 percent to 11.9 percent of personal income—an increase of 57 percent.

Source: Table 1

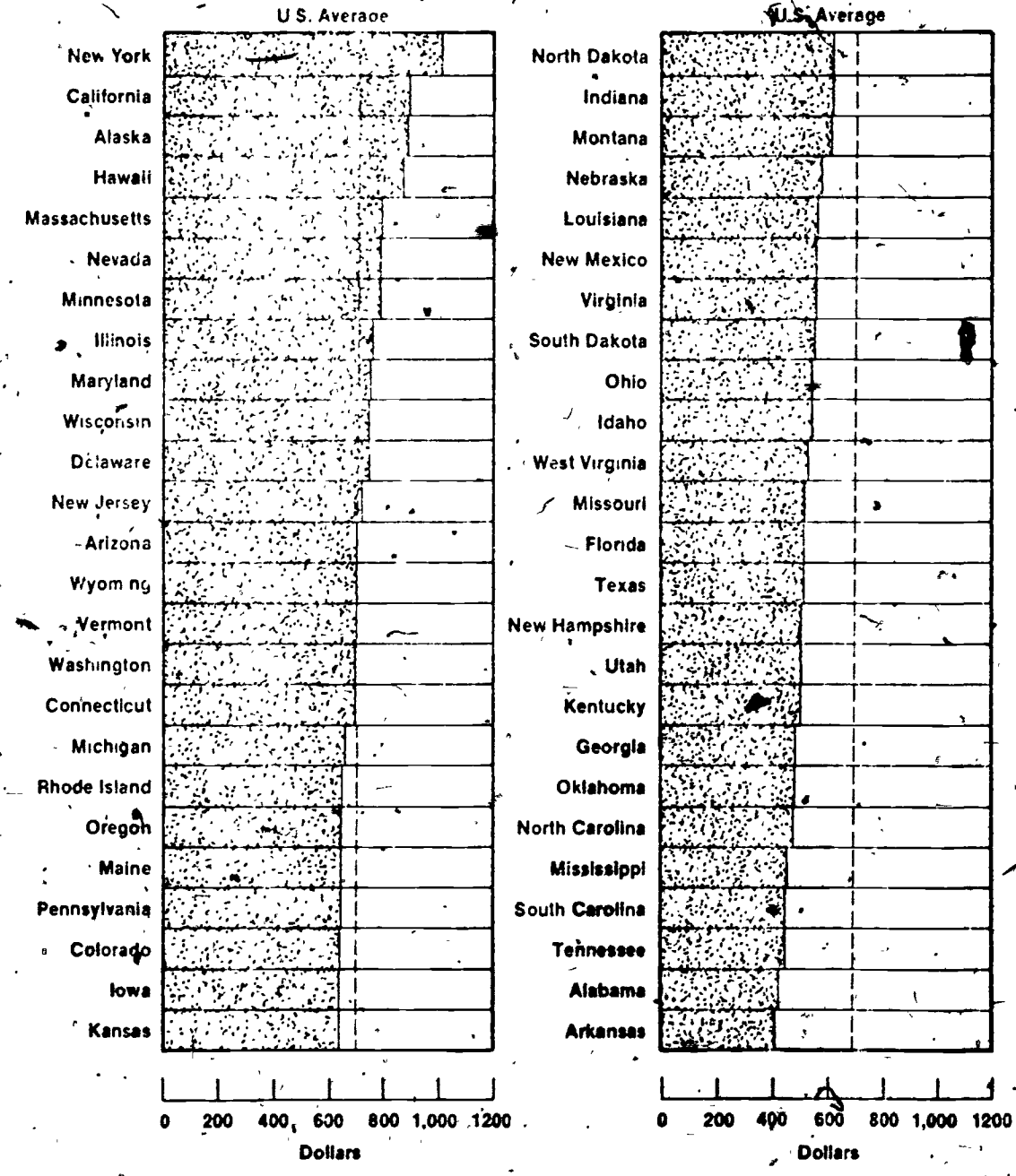
Source: Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, 1976 Edition.

TABLE 3
PER CAPITA STATE-LOCAL TAXES IN 1975

State and Region	Per Capita Tax Revenue			State Percent Related to U.S. Average (U.S. = 100.0)		
	1975[1]	1953	Percent Increase	1975	1953	Percent Increase or Decrease (—)
UNITED STATES[2]	$665 60	$132 07	404.0	100.0	100.0	—
NEW ENGLAND	715.37	151 05	373.6	107.5	114.4	-6.0
Maine	641-36	128 28	400.0	96 4	97 1	-0 7
New Hampshire	503 30	127 67	294 2	75 6	96 7	-21 8
Vermont	688 75	136 90	403 1	103 5	103 7	-0 2
Massachusetts	786 05	167 11	370 4	118 1	126 5	-6 6
Rhode Island	647 90	129 92	398 7	97 3	98 4	-1 1
Connecticut	687 92	141 27	387 0	103 4	107 0	-3 4
MIDEAST	823 46	149 81	449.7	123.7	113 4	9.1
New York	1,008 79	184 52	446.7	151 6	139 7	8 5
New Jersey	714 07	141 60	404 3	107 3	107 2	0 1
Pennsylvania	640 52	113 32	465 3	96 2	85 8	12 1
Delaware	734 54	100 05	634 2	110 4	75 8	45 6
Maryland	739 85	120 91	511-9	111 2	91 5	21 5
GREAT LAKES	657.51	133 46	392 7	98.8	101.1	-2.3
Michigan	656 55	146 04	349 6	98 6	110 6	-10 8
Ohio	541 02	114 01	374 5	81 3	86 3	-5 8
Indiana	621 28	129 82	378 6	93 3	98 3	-5 1
Illinois	755,11	135 27	458.2	113 4	102 4	10 7
Wisconsin	737 14	155 82	373 1	110 7	118 0	-6 2
PLAINS	621.86	131.98	371.2	93,4	99.9	-6 5
Minnesota	767 73	150 62	409 7	115 3	114 0	1 1
Iowa	632 61	145 66	334 3	95 0	110 3	-13 9
Missouri	514 86	103 07	399 8	77 4	78 0	-0 8
North Dakota	627 09	137 53	356 0	94 2	104 1	-9 5
South Dakota	548 90	138 85	295 3	82 5	105.1	-21 5
Nebraska	574 84	123 77	364 4	86 4	93 7	-7 8
Kansas	633 04	145 77	334 3	95 1	110 4	-13 9
SOUTHEAST	489.51	95.25	413.9	73.5	72 1	1.9
Virginia	554 68	89 60	519 1	83 3	67 8	22.9
West Virginia	536 22	87 45	513 2	80 6	66 2	21 8
Kentucky	501 56	78 38	539 9	75 4	59 3	27 2
Tennessee	440 97	86 78	408 1	66 3	65 7	0 9
North Carolina	479 43	95 24	403 4	72 0	72 1	-0 1
South Carolina	443 22	96 15	361 0	66 6	72 8	-8 5
Georgia	488 37	94 55	416 5	73.4	71 6	2 5
Florida	512 89	134 09	282 5	77 1	101 5	-24 0
Alabama	413 92	74 62	454 7	62 2	56 5	10 1
Mississippi	451 24	82 02	450.2	67 8	62 1	9 2
Louisiana	566 29	132.89	326 1	85.1	100 6	-15 4
Arkansas	405 34	79 00	413.1	60 9	59 8	1 8

Source: Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, 1976 Edition.

TABLE 3-A
PER CAPITA STATE-LOCAL TAX REVENUE IN 1975



Source. Table 2

[1]The state distribution of actual total local government tax revenue is estimated.

Source: Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, 1976 Edition.

TABLE 4
SALES TAX COLLECTIONS IN FLORIDA
1960-1975

YEAR	SALES TAX (Thousands) [1]	REAL SALES TAX (Thousands)	REAL SALES TAX PER CAPITA	% CHANGE IN REAL PER CAPITA SALES TAX
1960	$ 171,368	$ 193,199.5	39.0	
1961	170,233	189,992.2	36.5	- 6.37
1962	181,701	200,553.0	37.1	1.67
1963	191,339	208,657.6	37.3	.41
1964	230,051	247,632.9	42.8	14.74
1965	260,524	275,686.8	46.2	8.04
1966	283,050	291,203.7	47.5	2.62
1967	300,873	300,873.0	47.8	.82
1968	357,683	343,265.8	52.9	10.52
1969	573,779	522,567.4	78.0	47.53
1970	658,197	565,947.5	82.6	5.85
1971	715,191	589,605.1	82.8	.29
1972	875,768	698,937.0	94.0	13.41
1973	1,041,145	782,227.6	100.0	6.17
1974	1,196,342	809,981.0	98.2	-1.52
1975	1,199,521	744,119.7	87.7	-10.69

[1] Source: 1966 and 1976 Annual Report of the Comptroller.

TABLE 5
GASOLINE TAX COLLECTIONS IN FLORIDA
1960-1975

YEAR	GASOLINE TAX (Thousands) [1]	REAL GAS TAX (Thousands)	REAL GASOLINE TAX PER CAPITA	% CHANGE IN REAL PER CAPITA GASOLINE TAX
1960	$ 119,639	$ 134,880.5	27.2	
1961	112,814	137,069.2	26.4	- 3.24
1962	127,915	141,186.5	26.2	- .79
1963	134,652	146,839.7	26.2	.38
1964	141,540	152,357.4	26.3	.31
1965	150,380	159,132.3	26.7	1.36
1966	159,855	164,459.9	26.8	.40
1967	169,155	169,155.0	26.9	.37
1968	181,090	173,790.8	26.8	.47
1969	196,675	179,121.1	26.7	- .12
1970	213,977	183,127.3	26.7	- .08
1971	232,941	192,037.1	27.0	.95
1972	287,982	229,834.0	30.9	14.50
1973	325,297	244,400.5	31.2	.86
1974	331,532	224,463.1	27.2	-12.66
1975	338,297	209,861.7	24.7	- 9.11

[1] Source: 1966 and 1976 Annual Report of the Comptroller.

TABLE 6

BEVERAGE TAX AND LICENSES COLLECTIONS IN FLORIDA

1960-1975

YEAR	BEVERAGE TAX AND LICENSES (Thousands) [1]	REAL BEVERAGE TAX AND LICENSES (Thousands)	REAL BEVERAGE TAX AND LICENSES PER CAPITA	% CHANGE IN REAL BEVERAGE TAX AND LICENSES PER CAPITA
1960	$ 47,360	$ 53,393.5	10.78	
1961	48,977	54,661.8	10.51	- 2.53
1962	51,930	57,317.9	10.61	.99
1963	53,917	58,797.2	10.51	- .99
1964	65,579	70,591.0	12.20	16.07
1965	70,249	74,337.6	12.46	2.20
1966	74,896	77,053.5	12.55	.70
1967	79,697	79,697.0	12.67	.93
1968	90,207	86,571.0	13.33	5.23
1969	110,642	100,766.8	15.04	12.80
1970	122,950	105,718.0	15.42	2.54
1971	130,803	107,834.3	15.14	- 1.81
1972	150,274	119,931.4	16.11	6.41
1973	165,897	124,640.9	15.88	- 1.41
1974	180,320	122,085.3	14.80	- 6.85
1975	184,576	114,501.2	13.49	- 8.82

[1] Source: 1966 and 1967 Annual Report of the Comptroller.

TABLE 7
MOTOR VEHICLE LICENSES COLLECTIONS IN FLORIDA
1960-1975

YEAR	MOTOR VEHICLE LICENSES (Thousands)[1]	REAL MOTOR VEHICLE LICENSES (Thousands)	REAL MOTOR VEHICLE LICENSES PER CAPITA	% CHANGE IN REAL MOTOR VEHICLE LICENSES PER CAPITA
1960	$ 50,862	$ 57,341.6	11.6	
1961	51,834	57,850.4	11.1	- 3.94
1962	54,836	60,525.4	11.2	.77
1963	57,648	62,865.9	11.2	.25
1964	83,544	89,929.0	15.5	38.30
1965	90,275	95,529.1	16.0	3.09
1966	86,174	88,656.4	14.4	- 9.84
1967	94,133	94,133.0	15.0	3.61
1968	80,624	77,374.3	11.9	-20.37
1969	77,360	70,455.4	10.5	-11.76
1970	92,806	79,798.8	11.6	10.70
1971	116,453	96,004.1	13.5	15.81
1972	133,632	106,649.6	14.3	6.28
1973	150,192	112,841.5	14.4	.37
1974	166,113	112,466.5	13.6	- 5.21
1975	175,624	108,947.9	12.8	- 5.82

[1]Source: 1966 and 1976 Annual Report of the Comptroller.

TABLE 8
RACING TAX COLLECTIONS IN FLORIDA
1960-1975

YEAR	RACING TAX (Thousands)[1]	REAL RACING TAX (Thousands)	REAL RACING TAX PER CAPITA	% CHANGE IN REAL RACING TAX PER CAPITA
1960	$ 26,977	$ 30,413.8	6.1	
1961	26,146	29,180.8	5.6	-8.65
1962	27,686	30,558.5	5.7	1.86
1963	28,581	31,167.9	5.6	-1.56
1964	32,816	35,324.0	6.1	9.57
1965	35,880	37,968.3	6.4	4.31
1966	38,759	39,875.5	6.5	2.03
1967	39,253	39,253.0	6.2	-3.94
1968	42,693	40,972.2	6.3	1.12
1969	47,929	43,651.2	6.5	3.25
1970	51,642	44,404.1	6.5	- .58
1971	56,021	46,183.8	6.5	.12
1972	61,610	49,170.0	6.6	1.86
1973	67,550	50,751.3	6.5	-2.09
1974	76,844	52,027.1	6.3	-2.51
1975	81,161	50,348.0	5.9	-5.92

[1] Source: 1966 and 1976 Annual Report of the Comptroller.

TABLE 9
CIGARETTE TAX COLLECTIONS IN FLORIDA
1960-1975

YEAR	CIGARETTE TAX (Thousands)[1]	REAL CIGARETTE TAX (Thousands)	REAL CIGARETTE TAX PER CAPITA	% CHANGE IN REAL CIGARETTE TAX PER CAPITA
1960	31,681	35,717.0	7.2	
1961	33,629	37,532.4	7.2	.05
1962	34,914	38,536.4	7.1	-1.11
1963	35,772	39,009.8	7.0	-2.30
1964	55,684	59,939.7	10.4	48.55
1965	57,653	61,008.5	10.2	-1.22
1966	58,719	60,410.5	9.8	-3.80
1967	60,814	60,814.0	9.7	-1.77
1968	71,450	68,570.1	10.6	9.23
1969	109,427	99,660.3	14.9	40.85
1970	108,455	93,254.5	13.6	-8.54
1971	122,087	100,648.8	14.1	3.90
1972	146,288	116,750.2	15.7	10.98
1973	160,062	120,256.9	15.3	-2.29
1974	174,240	117,968.9	14.3	-6.71
1975	176,948	109,769.2	12.9	-9.54

[1] Source: 1966 and 1976 Annual Report of the Comptroller.

TABLE 10

ESTIMATES OF POPULATION, PRICES AND PERSONAL INCOME EFFECTS ON FLORIDA REVENUES
1961-1975

	CONSTANT	POPULATION	C.P.I.	PERSONAL INCOME	r_1	r_2	r_3	b_1	D.W.	F RATIO	R^2
Sales Tax	-9.7470*	1.4110*	-1.986	1.0405	.3932			.0764*	2.44	990.6	.998
	(1.82)	(1.28)	(2.67)	(2.15)	(6.98)			(1.73)			
Gasoline Tax	5.4771	-.4672*	-.9969	1.1030	.1939				2.32	1335.5	.998
	(2.61)	(1.17)	(4.96)	(6.69)	(9.10)						
Beverage Tax and Licenses	-7.9540	1.1454*	-1.3605	.9565	.1393			.0183*	2.75	625.8	.997
	(1.82)	(1.27)	(3.72)	(2.43)	(3.03)			(.50)			
Motor Vehicle Lincenses	-16.8191*	4.0893*	.7250*	-.7939*	.2378*			-.1796*	1.20	34.9	.951
	(-1.02)	(1.58)	(.45)	(.75)	(1.6370)			(1.41)			
Racing Tax	-1.8262*	1.1169	.1547*	.2665*	.0765			.0417*	2.07	1221.6	.998
	(.6140)	(2.12)	(.65)	(1.24)	(3.1609)			(1.58)			
Cigarette Tax	.1455*	.8435*	-.1893*	.3292*	.3547	.4069	.1385		2.36	593.6	.997
	(.02)	(.68)	(.37)	(.60)	(6.15)	(7.31)	(2.84)				

t-Ratios in Parentheses
* No statistical significance at 95 percent level.

TABLE 11

ESTIMATES OF LONG-RUN STABILITY FOR SELECTED FLORIDA TAXES: 1961-1975

REAL REVENUE COLLECTIONS	CONSTANT	T	r_1	r_2	r_3	b_1	STE	D.W.	R^2	F RATIO	V
Sales Tax	7.343	.078	.361			.0282*	.0503	1.38	.990	348.1	19.9
	(13.56)	(9.41)	(5.93)			(.526)					
Gasoline Tax	10.009	.032	.106				.0438	.91	.937	89.4	22.8
	(33.139)	(6.59)	(2.30)								
Beverage Tax and Licenses	7.387	.058	.097*			-.065*	.0548	1.21	.961	90.9	18.2
	(12.52)	(6.37)	(1.46)			(1.13)					
Motor Vehicle Licenses	8.586	.039	.331			-.225	.0832	.97	.818	16.5	10.7
	(11.69)	(3.31)	(3.19)			(2.04)					
Racing Tax	8.404	.031	.119			.031*	.0203	1.73	.987	297.3	49.3
	(36.04)	(8.22)	(5.22)			(1.19)					
Cigarette Tax	9.862	.012*	.436	.409	.132		.0357	1.76	.992	326.4	28.0
	(15.85)	(1.11)	(8.52)	(7.99)	(2.74)						

t-ratios in parentheses.

*-No statistical significance at 95 percent level.

TABLE 12
ESTIMATES OF SHORT-RUN STABILITY FOR SELECTED FLORIDA TAXES
1961-1975

$\frac{\Delta R}{R}$	CONSTANT	$\frac{\Delta Y}{Y}$	r_1	r_2	r_3	b_1	Partial Coefficient of Determination	D.W.	F Ratio	R^2
Sales Tax	-4.925 (.95)	2.4143 (2.54)	14.2361 (1.98)			-9.1284* (1.07)	.26	2.06	3.69	.501
Gasoline Tax	-5.4050 (2.98)	1.4479 (3.98)	2.8070* (1.07)				.57	1.74	8.14	.58
Beverage Tax and Licenses	-2.0456* (.84)	1.3093 (2.92)	1.9032* (.56)			-3.4252* (.85)	.43	2.30	4.32	.54
Motor Vehicle Licenses	-1.1062* (.14)	.0864* (.08)	21.4022 (1.79)			-22.1726 (2.24)	.00	1.81	1.80	.32
Racing Tax	-4.1572 (1.90)	.6771 (1.98)	3.3692* (1.15)			-1.3478* (.56)	.26	1.59	3.00	.45
Cigarette Tax	-3.6929* (.34)	1.6743* (.93)	5.4689* (.37)	4.3444* (.32)	-9.1616* (.62)		.08	2.42	.67	.21

t-ratios in parentheses.
*No statistical significant at 95 percent level.