ALTERNATIVE INCOME-RELATED TAXES
FOR LOCAL REVENUE

by 866

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I. INTRODUCTION

"Nothing in life is quite so certain as death and taxes." This old adage is as timely and as meaningful today as ever. Most people are subject to taxes on income they receive above exemptions and deductions. They pay sales taxes and commodity taxes on many of the purchases they make for their business and their personal needs. Property owners in United States pay an annual tax on their homes, business buildings, improvements and land as a condition of continued ownership. And finally, above specified exemptions either they or their estates will end up paying capital gains, transfer, gift, or inheritance taxes when their properties are transferred to others.

The power to tax, when exercised, provides the fuel necessary for the operation of government. It is an indispensable ingredient of government on every level. As the Supreme Court of the United States has observed: "The power to tax is the one great power upon which the whole national fabric is based. It is as necessary to the existence and prosperity of the nation as the air he breathes is to the natural man. It is not only the power to destroy but the power to keep alive."[1]

The power to tax is, of course, the means by which governments collect the major portion of the revenues they use to finance their many operations; and it may be used in such a way that governments affect social and economic conditions. But as great and important as these powers may be, they are always limited. Most governments are limited in taxation power by the constitution and legislative acts. But even in the absence of these limits, all governments are limited in the sense that they cannot tax property beyond the point of confiscation or tax income to the point that the people will rebel.

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[1] Nichol v. Ames, 173 U.S. 509, 515 (1899).

Some individuals and organizations in our country believe the property tax to be incapable of further expansion and any increase in property assessments or levies would magnify its weaknesses. To provide for the ever increasing revenue needs of our local governments it is widely agreed that nonproperty tax revenues may provide an answer. Because of the differences in the tax base between property and most nonproperty taxes it is unlikely that all persons would be affected the same by a shifting from the property tax. It is important to determine the economic repercussions of such a change and which occupational groups will be affected greatest by a nonproperty tax. It is answers to these and other questions that are sought in this thesis.

The purpose of this study was to determine some aspects of and measure the feasibility and impact of alternative taxing systems to the property tax for local governments.

This thesis includes a discussion of the administrative feasibility of nonproperty taxes for local levels of government and the effects of reorganization of local units (as applied to schools in particular) on efficiency in the administration of a nonproperty tax.

One part of the study was to determine the effects of population on the tax rate required to obtain revenue to operate local governments.

The main objective, however, was to determine the impact (amount of taxes paid) on different occupational groups and the shift in tax burden which would occur if the local property tax on real and personal property were replaced by a local gross earnings tax.

II. THE PROPERTY TAX

Importance

Since colonial days and the first use of a property tax in the United States, it has been treated almost exclusively as a source of state and local revenues. Because of the constitutional requirement that federal direct taxes be apportioned among the states in proportion to their population the federal government found the property tax difficult to levy and collect. The federal government therefore used other sources of tax revenue.

Real and personal property taxes were the major sources of revenue for both state and local governments up until the early 1900's. Since that time most state governments have turned to other sources of revenue; and several states have withdrawn completely from the property tax and now rely upon the general sales tax and the income tax for the major part of their revenue needs.

Kansas state government has followed a pattern of decreasing reliance upon the property tax and no longer levies a state property tax for general operating purposes.

In contrast to the state's decreasing reliance upon the property tax, the local governments in Kansas have been confined primarily to the property tax. The 1962 census of government shows that in 1961 local governments in Kansas received 97.6% of their total tax revenue from the property tax and 63.2% of total revenue for local governments was derived from the property tax.[1]

Because of the heavy reliance of the local governments on the property tax consideration is being given to relieving the burden of property owners in Kansas with a nonproperty tax source of revenue. The Kansas Livestock Association reports:

> Major source of school revenue today is from taxes on real estate and personal property--taxes on land, homes, and businesses. This is supplemented by state money, principally from the sales tax funds. The system was satisfactory when 90 percent of our ability to pay taxes could be traced to property ownership. The situation has changed. Today a majority of income cannot be traced to ownership of property. Our wealth has shifted from tangible to intangible property, not touched by our school tax system.[2]

Evaluation

The property tax has strong and weak points. These points can best be discussed by comparing them to the principal cannons of a "good" tax. Important among these criteria of a "good" tax are (1) ability to pay, (2) the benefits received, (3) a uniform year-to-year yield and reliability of payment, (4) be economical to administer, (5) convenient to the taxpayer and his understanding of the tax.[3]

The property tax is based on the assumption that the value of property is a measure of wealth. The tax may be criticized from an equity standpoint in that gross value is not adjusted for debt against the property.

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[1] Bureau of the Census, U.S. Department of Commerce, 1962 Census of Government, Taxable Property Values, Vol. II.

[2] Kansas Livestock Association, Quality Schools for Kansas, A Report Prepared by the Kansas Livestock Association Tax Committee, p. 2.

[3] Raleigh Barlowe, Land Resource Economics, Third Printing (Englewood Cliffs, N. J.: Prentice-Hall Inc. 1961) p. 558.

Furthermore, many property owners are "land poor" with small current cash incomes. Groves states that the two groups that generally qualify best for this description are elderly citizens and farmers. About two-thirds of the elderly live in their own homes.[1]

An increasing need for revenue to run our local governments has resulted in a substantial growth in local property taxes in Kansas. Local tax levies on tangible property in Kansas increased from $117.7 million for fiscal year 1950 to $301.4 million for fiscal 1963, a gain of $183.7 million or 156 percent during that period of time. School tax levies accounted for a large part of this increase--such levies rose from $58.9 million in fiscal 1950 to $177.9 million in fiscal 1963, a gain of $119 million or 202 percent.[2]

The relation between property ownership and ability to pay has declined. Many large personal incomes now are from salaries, fees, and dividends instead of direct income from real property ownership.

With the changes of the last century the property tax is less representative of benefits received than it was when protection of property was a major service of government. In 1963, 57.5 percent of all property tax revenue was spent for education.[3] Retired persons who pay little but property taxes and have no children in school may not be receiving full benefits from these expenditures.

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[1] Harold M. Groves, An Evaluation of the Property Tax as a Part of the Fiscal System, A Report presented at a Seminar Sponsored by the North-Central Land Tenure Research Committee and the Farm Foundation, Chicago, Illinois, November 1962, Prepared by the Department of Agricultural Economics (Urbana, Illinois: March 1963), p. 16.

[2] Kansas Legislative Council, Research Department, "A Look at Local Earnings Taxes," Kansas Government Journal, (May 1964), p. 216.

[3] Property Valuation Department, Statistical Report of Property Assessment and Taxation, 1963, p. 11.

Another weakness of the property tax is the need for assessment reform. Frequently the assessor has had little training and all property within the assessment district is not equally assessed. There is also inequities between districts due to each assessment district using its own standards to determine the level of assessed value. Inequities arise when school districts overlap two or more assessment districts or when a state-wide property tax is levied.

Also, in some areas, property which acquires exempt status, removes a large part of the tax base but does not reduce demands for services.

The property tax shows up favorably in many respects. Its relative ease in administration is one that local governments have made such wide use of the tax. The fixed nature of real and personal property essentially guarantees the collection of a tax once it is levied. And because assessed values are quite constant from year to year the revenue to be derived from the tax is predictable in advance and uniform in yield. However, the individual taxpayer may be hit hardest when he is least able to pay.

Regardless of how well the property tax has served the local government in the past and the increasing demand of society for more and improved services it may not be right for the property tax to carry such a large part of the burden of local government.

To meet the expanding needs of society many local jurisdictions have turned to state aid and federal grants-in-aid to help finance the operations of government. But, the desirability of financing local government with state or federal funds has been questioned. Stocker reported that "...when the privilege of spending funds is not linked to the onerous task of levying taxes, inefficiency, profligacy, and waste are found."[1]

Some local jurisdiction outside of Kansas in attempting to broaden their tax base, have found local sales and earnings taxes to be the most successful supplement to the property tax. Most other nonproperty taxes have been found to produce very little revenue.

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[1] Frederick D. Stocker, Nonproperty Taxes as Sources of Local Revenue, Bulletin 903, (Ithaca, New York: Cornell University Agricultural Experiment Station, December, 1953), p. 14.

III. LOCAL ADMINISTRATIVE FEASIBILITY OF NONPROPERTY TAXES

The purpose here is to discuss the administrative feasibility of local nonproperty taxes. A review is made of past studies of local taxation.

Local earnings taxes are used in six states--Alabama (one city), Kentucky (nine cities and one county), Michigan (three cities), Missouri (two cities), Ohio (approximately 70 cities and villages), and Pennsylvania (over 1,200 local units, including about 850 school districts, 307 municipalities, and 80 townships).[1]

Sales taxes are the most widely used nonproperty taxes at the local level. As of June, 1962, there were 1950 local jurisdictions in twelve states using such taxes. This included 1773 municipalities, 172 counties, and 5 school districts.[2]

Local gross earnings taxes and general sales taxes fall into three patterns. First, local governments levy and administer their own taxes and the state does not have such a tax. New York City's three percent sales tax with no New York state sales tax is an example. Also, neither Pennsylvania nor Ohio has a state personal income tax.

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[1] Research Department, Kansas Legislative Council, Major State and Local Nonproperty Taxes, (Topeka: Kansas Legislative Council, Publication No. 240, January, 1963), p. 12.

[2] Research Department, Kansas Legislative Council, loc. cit., p. 15.

Secondly, in some states local governments levy and collect their own nonproperty taxes independently of the state even though the state does have such a tax, resulting in duplication of administration. This is the situation with the sales tax in Colorado, for example.

The third pattern is when the local taxes overlap a state imposed tax, in which case the state collects the locally imposed taxes. This pattern is most frequent among states with locally assessed nonproperty taxes.

The importance of nonproperty taxes for local revenue varies considerably among states. Alaska leads all the states with 44 percent of its local revenue coming from nonproperty sources. However, in 1960 most states received less than 10 percent of their local tax revenue from tax sources other than property.[1]

Local Sales Tax

There is considerable variation among the states as to what is taxable under the local sales tax law. Typically, however, the tax is imposed on the receipts from retail sale of tangible personal property. But the laws immediately go on to enumerate certain exemptions.

Among the most significant exemption from some local sales tax is food. Such an exemption is incorporated into the sales tax laws of Denver, the cities of California and New York. In states where the local tax overlaps the state tax and is collected by the state it is not feasible to exempt food unless the state follows a similar policy.

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[1] Research Department, Kansas Legislative Council, Nonproperty Tax Revenues of Local Government, (Topeka: Kansas Legislative Council, December, 1961) Table 11.

By exempting food from the local tax lower income families who spend a larger part of their income than others on food benefit relatively more. The exemption reduces resistance to the tax. On the other hand, the exemption gives rise to some administrative problems, and lowers the tax base considerably.

Sales to nonresidents, when delivery is made outside the taxing district, is another exemption sometimes included in the tax laws. The purpose of this exemption is to protect the position of local merchants in competition with others outside the taxing area.

It is easy to see how the exemption of deliveries to nonresidents increase the problems of administration. Records would need to be kept of the destination of every delivery and the merchant would be required to segregate taxable from nontaxable sales. Enforcement becomes more complicated and, like every exemption, it will lower the tax base.

Other common exemptions are sales of drugs, medicines, eyeglasses, hearing aids, and so forth.

Economic Effect

The local sales tax, where all units do not have the same tax, has been criticized because of its deterrent effect on local economic activity. The objection centers around the idea that the tax will cause nonresidents and residents who customarily do their business in the taxing community to transfer their business to merchants outside of the taxing district, to avoid paying the tax. However, the experience of the cities in New York seem to indicate that transfer of business due to the tax has been minor.[1]

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[1] Stocker, loc. cit., p. 38.

Administrative Costs

There is a fairly wide range of collection costs for local sales taxes. The cost ranges from less than one percent in some of the large cities to around five percent in smaller taxing units.[1] These costs of administration do not include discounts allowed to retailers for the cost of collection. An allowance is not always made to the retail collector.

Feasibility in Kansas

Whether or not a local sales tax would be administratively feasible in Kansas depends to a large degree upon the geographic location and the amount of retail sales within the taxing district. The 1962 Census of Government in Kansas reported 5,410 local government units in Kansas. Many of these units have few retail sales on which to base a tax and other tax districts, though large in taxable base, are located so that local shoppers who ordinarily do their business within the taxing district may transfer their patronage to merchants outside the area of the tax. It was pointed out earlier that this shifting of patronage has not developed when municipal governments levied a tax and the entire city is included in the taxing district. However, if a school district in which only part of a city was taxed, shifting of patronage would be more likely to develop.

Experience in other states indicated that a local sales tax in Kansas would be most feasible in urban communities where suburban competition is unimportant and in rural areas over a geographical area large enough to include substantial retail sales on which to establish a tax base. This seems to indicate that the tax is most effective in large cities and/or on a county basis. However, the most critical area of finance appears to be with the school districts.

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[1] Office of Education, U.S. Department of Health, Education, and Welfare, Nonproperty Taxation for Schools--Possibilities for Local Application, Bulletin No. 4, (Washington: U.S. Government Printing Office, 1963), p. 80.

Reorganization for Greater Efficiency

Under the present organization of school districts in Kansas it is doubtful if a local sales tax is feasible. The 1962 Census of Government for Kansas reported over 2,250 school districts in Kansas. Most of these school districts are located in rural areas where the amount of retail sales is very small.

Considerable change has taken place among school districts during the past few years. Proposals for reorganization of school districts into unified districts has been developed in varying degrees of planning under Senate Bill 400.[1] The proposed unification plans would reduce the number of school districts from 75 to 95 percent in most counties.[2]

The reorganization of local units, school districts in particular, will increase significantly both the economic and administrative feasibility of a sales tax. Since Kansas currently has a state general sales tax many school districts after reorganization and other local jurisdictions in Kansas could make effective use of a sales tax if the tax were administered by the state and then allocated to the respective taxing district on the basis of collection.

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[1] Created under Chapter 361 of the Laws of Kansas 1961.

[2] Research Department, Kansas Legislative Council, School Unification Plans, (Topeka: Kansas Legislative Council, Publication No. 238, January, 1963), p. 2.

Increases in administrative efficiency can be achieved also when several taxing districts group together in levying a uniform tax. This not only reduces the personnel and machinery needed to administer the tax, but reduces the possibility of persons shifting their purchases of goods to areas outside the taxing area.

Because of the size of most taxing districts in Kansas and the advisability of having the tax locally levied but state collected, it would not be practical to exempt products that the state tax includes. Therefore, food could not be exempt and the basis of the local and state taxes would need to be identical.

Local Adjusted Gross Income Tax

A local income tax has received the most attention as a possible source of nonproperty revenue in Kansas.[1] The taxation of income by local governments outside Kansas is quite different from the federal system of taxing income or to typical state income taxes.

Most local income taxes could more appropriately be called gross earnings and net profits taxes rather than personal income taxes. The local tax is usually a flat rate tax applicable only to wages and salaries, and business and professional net profits and without deductions and exemptions. In most states where corporate and business net profits are taxed they are taxable only to the extent to which they are attributable to activities within the taxing district. In some localities corporate and business profits are not taxed.

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[1] See House Concurrent Resolution No. 26, Kansas Legislative Session of 1963.

There is some variation in the taxation of residents and nonresidents under local gross earnings taxes. It has been the practice, however, of most jurisdictions to exempt nonresidents from taxation when the tax is levied by the community of residence. Double taxation can be avoided in this way.

The question of what should be taxed within a jurisdiction does remain a major problem, however. There is merit in the taxing of income where it is earned or the locality in which it is derived from. The owners of a business may not live in the same taxing jurisdiction in which their business is located and farmers may own property in two or more counties. Several problems in ease of administration would arise if this income was to be taxed at its source, but considerable revenue may escape taxation otherwise.

Collection

The local gross earnings tax is collected largely by withholding at the source. It is generally agreed that, without withholding whenever possible of the income tax from income, it is doubtful that such a tax would be feasible. An annual return is also required from all taxpayers by most localities. The withholding procedure eliminates a large payment at the end of the year and thus makes the tax less objectionable and easier to pay.

Administrative costs for local gross earnings taxes are difficult to determine because the administration of the tax may be placed under an existing tax unit. However, most estimates of cost of collection vary between two and five percent of the gross yield with some approaching ten percent and a few under two percent.[1]

There are several reasons for the wide variation in cost of administration of the gross earnings tax. The most obvious is variations in tax rates. Because of the relatively fixed costs of collection, the higher the amount of revenue collected, the lower the cost as a percent of yield. Also the smaller unit will have a larger percentage cost than the larger unit. Still another reason is the economic base of the taxing district. A district with large payroll industry will find enforcement easier. Of further consideration, is the effectiveness of administration.

Yield

The earnings tax is a good producer of revenue for most local units where it is used. "Without exception, however, the municipal income tax has demonstrated its effectiveness as a producer of large and continuing amounts of revenue."[2] The local tax appears to rank high as a revenue producer for other units of local government. "For smaller communities the income yield, though lower than that found in cities, is nevertheless impressive. A survey of fifty-nine predominantly rural jurisdictions in Pennsylvania (in nearly all of which the tax is levied by the school district) revealed an average per capita yield of $5.48."[3]

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[1] Office of Education, U.S. Department of Health, Education and Welfare, loc. cit., p. 54.

[2] James A. Papke, Other Sources of Local Revenue, Taxes and Charges, (Detroit: City of Detroit, 1960), p. 15.

[3] Stocker, loc. cit., pp. 55-57.

Effect on Business

There is little evidence that an earnings tax is likely to affect a business severely enough to cause it to move. The rate of the tax is low and probably would not increase costs to the business to any great extent in most cases. Also the earnings tax has the advantage that it is paid only when there is profit.

Feasibility in Kansas

The local earnings tax has been used successfully by several taxing jurisdictions in six states, ranging from a city of over two million people down to school districts of fewer than twenty-five pupils.[1] However, from the administrative viewpoint the size of the jurisdiction does not seem to be as significant as the type of economic base on which the tax is levied.

As discussed earlier in this paper, the problem of compliance to the earnings tax rests to a great deal upon the withholding of the income tax from wages and salaries of every taxpayer in the taxing jurisdiction. When most of the taxpayers are employed in some local industrial plant this requirement is met by collection of the tax at the source. Under these conditions earnings taxes have been administratively feasible and productive. However, when most of the income in a community is derived from farming or other self-employed businesses it decreases the administrative feasibility to where it may not be efficient to levy an earnings tax.

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[1] Office of Education, U.S. Department of Health, Education, and Welfare, loc. cit., p. 69.

Under the present organization of the local governments in Kansas, it would seem doubtful if a gross earnings tax would be administratively feasible. There is a large number of small units of government in Kansas, but even more important is the fact that many of these small units of government are comprised mainly of self-employed persons. With a reorganization of school districts the feasibility of the tax should improve.

Most cities of over 10,000 people and county governments in Kansas should find the earnings tax a valuable source of revenue to supplement a property tax or to replace part of the revenue now being derived from property taxes.

IV. PROPERTY TAX LEVIES COMPARED WITH SALES TAXES PAID AND ADJUSTED GROSS INCOME OF INDIVIDUALS

This chapter presents the results of an examination of property tax levies, sales taxes paid, and adjusted gross income in each county of Kansas. The purpose is to examine the possible use of a local adjusted gross income tax or a sales tax to provide revenue for Kansas local governments. This part of the study related primarily to the rate which would have to be levied on adjusted gross income or on retail sales to provide the revenue required to replace or supplement the property tax. These rates will be of value with respect to indicating the magnitude (on a county basis) of adjusted gross income and retail sales taxes required to replace property tax levies in each Kansas county. Through the study of the required tax rated for different counties some information pertaining to reasons for high or low rates should be obtained.

Adjusted Gross Income

For each county the 1959 and 1962 property tax levies for county, schools, and total county governments were obtained from the Property Valuation Department in Topeka. The adjusted gross income of individuals for each county was obtained from the Department of Revenue who compiled this information from all state income tax returns filed in 1960 and 1963 for the 1959 and 1962 tax year.

The years 1959 and 1962 were used because the county income data, which was compiled by the Department of Revenue, are the most recent available on a county basis. No attempt was made to determine if these were representative years for individual adjusted gross income, but there is also no reason to believe that they were not representative. A comparison of several more years would provide a trend in income fluctuations; however, county data were not available for more than the two years being used.

Only tangible property taxes levied for the operation, maintenance, and total capital improvements in each county are included in the property tax levy that is being used. Intangibles and special taxes are not included. The tangible tax levies by county, schools (grades K-14), including both district and county school levies, and total county which includes all property within the county, were obtained for use in this study.

The adjusted gross income of individuals as reported on state income tax returns on Line 9 of Form 40 and Line 7 of Form 40S was used in this study. Corporate income and income of nonresidents were not included. A person's income was credited to the county he named as his residence on the tax return, regardless of where he earned or received his income.

It is recognized that the ratio resulting from a comparison of property tax levies and individual adjusted gross income does not fully represent the base on which a gross earnings tax would be placed. Corporate income is not included which tends to make the rates higher than if it were included. All property taxes paid can be deducted from adjusted gross business income and farm income. If an adjusted gross income tax were to replace the property tax it would have the effect of increasing adjusted gross income by the amount of property tax being relieved by the new tax. This would also have a tendency to reduce the ratio between the two taxes. The adjusted gross income data are for counties, not for school districts. That requires an assumption of only one school district for each county. Due to economies of scale the cost of one district might be less than our present system of several districts in each county. However, these county income figures are the only ones now available and the ratio may overstate the required rate on adjusted gross income slightly. They are of value in comparing the magnitude of adjusted gross income of individuals compared with property tax levies in each county. No attempt is made to determine a rate for city governments because this would require data pertaining to the adjusted gross income in cities and such information is not available.

The adjusted gross income tax rate is set at a level to replace completely all local property tax levies for the county, schools, or all tangible property tax revenue in the county depending upon which comparison between adjusted gross income and property tax levies (county, schools, or total county) is used. This was done only for convenience in computing the ratio. If the tax is to be used only to relieve part of the property tax, the levy on adjusted gross income can be lowered accordingly.

To compute the ratio of the property tax levy to the adjusted gross income, it was necessary only to divide the property tax levy for the local government by the adjusted gross income. This was done for all 105 counties in Kansas for the years 1959 and 1962. The figures obtained provide an indication of the general level of adjusted gross income tax rates which would be required to replace the local property tax levies for the units of government on a county basis. A county levying an adjusted gross income tax of six percent on resident income would raise the same amount of revenue as does its present district and county tax levies on property for school operation and improvement expenses. It should be remembered that these rates are probably a little high due to the type of data used.

Table 1 shows the frequency distribution for the county ratios of property taxes levies to adjusted gross income. The arithmetic mean for the state and the range among the 105 counties is also given. Most counties would have to levy a rather high tax on adjusted gross income to completely replace the property tax revenue used for schools or for all units of county government.[1] In 1962, 75 counties had a ratio of total school levies to adjusted gross income of six percent or more while in 30 counties the ratio was less than six percent.

It is of interest to note the wide range in required tax rates on adjusted gross income for the 105 counties within the state. There are probably several reasons for such a wide range among the counties and many of these are unique within a county. However, by studying the economic base and population of each county and comparing these with the required tax rate a pattern seems to develop. Most of the counties with

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[1] House Bill 425 (1963), introduced by the Kansas Livestock Association, called for a six percent tax levy ceiling on adjusted gross income for schools which was intended to replace completely the present ad valorem tax relating to schools.

Table 1.--Distribution of counties according to the property tax in percent of adjusted gross income for county, schools, and total county units in Kansas, 1959 and 1962.

Property tax in percent of adjusted gross income	Number of counties					
	County[a]		Schools[b]		Total county[c]	
	1959	1962	1959	1962	1959	1962
0.0 - 3.9	61	64	3	3		
4.0 - 5.9	30	32	27	27	1	1
6.0 - 7.9	9	6	45	52	5	4
8.0 - 9.9	5	3	18	17	16	20
10.0 - 11.9			8	3	21	20
12.0 - 13.9			4	3	22	30
14.0 - 15.9					17	16
16.0 - and over					23	14
Total	105	105	105	105	105	105
Range	1.1-9.7	0.9-9.0	3.7-13.9	3.4-13.5	5.4-26.4	4.9-24.3
Mean	3.8%	3.6%	7.2%	6.9%	13.3%	12.5%

Source: Computed from information supplied by State Revenue Department from state income tax returns and information from the Property Valuation Department.

[a] County government.

[b] Aggregate for all public schools in county.

[c] All governments in county.

high tax rates were located in areas where the economic base is primarily agricultural. Those counties with a low ratio of property tax levies to adjusted gross income were primarily the heavily populated counties whose economic base is largely commercial or industrial.

Local Sales Tax

The information obtained from the Property Valuation Department pertaining to 1959 and 1962 property tax levies was again used in determining the tax levy on gross sales required to replace the property levies within each county. Information was not available concerning the amount of gross sales subject to taxation in each county of Kansas so it was decided that the revenue collected from the state sales tax by county should be used as the base of comparison. The Department of Revenue made available a list of the amount of revenue received from sales taxes in each county for the years 1959 and 1962.

Sales tax revenue derived from chain stores, public utilities, vending machines, and circus and carnivals are not given by county from which they come and therefore the county figures are not complete. Receipts from the above mentioned sources represent close to ten percent of the total. This is a substantial amount but there was no information available that would closer represent the true retail sales from each county.

To make a comparison of property tax levies to retail sales, the property tax levies for the desired unit of local government was divided by the amount of revenue obtained from the state sales tax in the respective year and the quotient was multiplied by 2.5 which is the present sales tax levy. The ratio obtained provides a measure of the sales tax rate required for each county to replace the local revenue now obtained through the tangible property tax. These comparisons are based on the assumption that a local sales tax would use the same base or measure of tax as is now used by the state. It is most likely that a local sales tax for purposes of administrative feasibility would have to use the same base as the state. Again the reader is reminded that these comparisons are based on sales revenue for county totals and not by school district.

In Table 2 the frequency distribution of the ratio between property levies and gross sales is given (the rate required). The arithmetic mean for the state and the range among the 105 counties are shown also.

For 1962, in 83 counties the ratio of the total school levies to gross sales was six percent or more. The ratio was ten percent or more in 37 counties, including nine in which the ratio was over fourteen percent. This indicated that the tax rate required to replace the property levies for school or all county units would be high. The range between counties is even greater for the local sales tax than for a local adjusted gross earnings tax.[1] One reason is the small amount of gross sales in some of the western counties of the state.

The amount of gross sales within a county and the sales tax rate which is based on gross sales seems to be related to the county population and economic base. The same relationships that existed for adjusted gross income were also present for gross sales.

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[1] See Table 1.

Table 2.--Distribution of counties according to the property tax in percent of gross retail sales for county, schools, and total county units in Kansas, 1959 and 1962.

Property tax in percent of gross retail sales	Number of counties					
	County[a]		Schools[b]		Total county[c]	
	1959	1962	1959	1962	1959	1962
1.0 - 3.9	50	47	1	2		
4.0 - 5.9	22	27	19	19		
6.0 - 7.9	21	21	25	21	3	2
8.0 - 9.9	7	4	27	26	9	8
10.0 - 11.9	2	4	14	13	18	16
12.0 - 13.9	2	2	7	15	10	14
14.0 - 15.9			5	6	12	11
16.0 - 17.9	1		5	1	15	17
18.0 - 19.9			2	1	14	10
20.0 - and over				1	24	27
Total	105	105	105	105	105	105
Range	1.2-16.6	1.0-13.7	3.5-19.8	3.8-19.8	6.9-38.8	7.7-37.3
Mean	4.9%	4.8%	9.1%	9.2%	16.7%	16.7%

Source: Computed from information supplied by State Revenue Department from state income tax returns and information from the Property Valuation Department.

[a] County government.

[b] Aggregate for all public schools in county.

[c] All governments in county.

Non-linear Regression Analysis for Determining Tax Rates

The information obtained from the previous discussions of computed tax rates required to replace the property tax indicated that the major factors affecting the magnitude of the tax rates were population and economic base. For example, it was noted that in most counties the non-property tax rate required to replace the present property tax was lower in counties with a higher population than in those counties with a sparse population.

It is difficult to class counties by economic base for the reason that several counties have a wide and diversified range of industries from which its residents derive a livelihood. For this reason no attempt was made to include a variable for the economic base into this analysis. However, an attempt is made later in this study to account for this factor.

The following non-linear regression equation was used to relate tax rates to population.

$$R = A + B_1X + B_2X^2$$

where

R is the nonproperty tax rate required to replace the property tax

X is population

X^2 is population squared

A is the intercept on the axis of the dependent variable.

the (B)'s are the parameters of regression

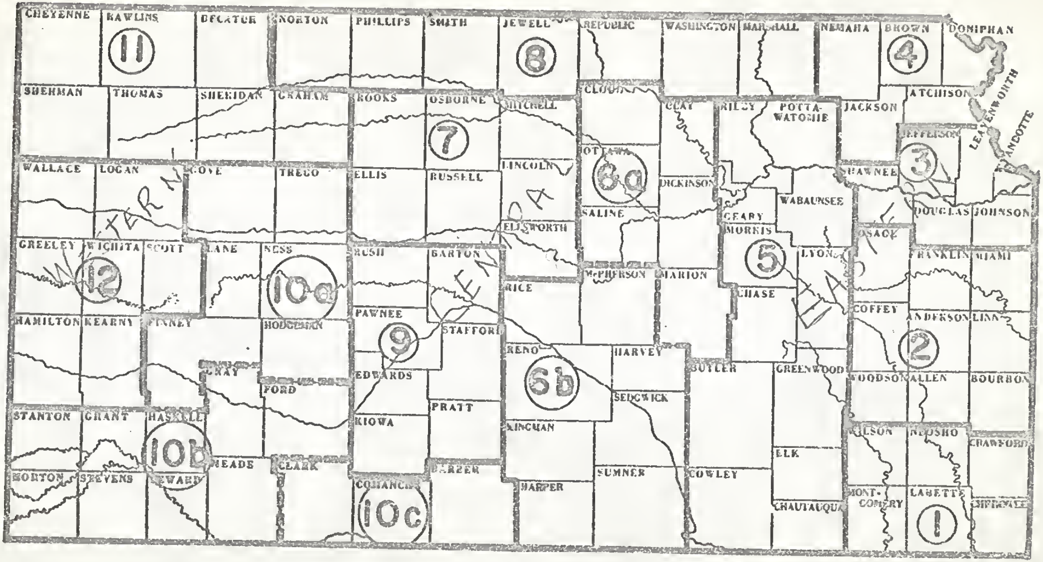
The population of each county for the years 1959 and 1962 was obtained from the Kansas State Board of Agriculture as reported by county assessors. The ratio between gross retail sales and property tax levies and adjusted gross income and property tax levies were also used to obtain the regression equation. The IBM 1410 computer was used in obtaining the equations and tests of correlation between the population and tax rate.

Regression equations for adjusted gross income tax levies and retail sales tax levies were first obtained using all 105 counties in the state. The state was then divided into three areas and the regression equations obtained for each area. The three areas Eastern, Central, and Western (Figure 1) were chosen because of the differences in population and economic base (combining type of farming areas). The western counties of the state are recognized as being predominantly rural with agriculture being the major industry. The eastern counties are more heavily populated with a commercial or industrial economic base. There are several exceptions to this general statement, but there is value in comparing these areas.

Solution based on all counties in the state

The non-linear regression equations for adjusted gross income tax levies for 1959 and 1962 are shown in Table 3. The standard partial regression coefficients are shown in parenthesis. The t-value for each B and the coefficient of determination R^2, the proportion of the total sum of squares attributable to regression, are also included in the table.

Figure 1.--Areas of Kansas used in regression analyses (Eastern: type-of-farming areas 1, 2, 3, 4, and 5 Central: areas 6a, 6b, 7, 8, and 9 Western: areas 10a, 10b, 10c, 11, and 12.


CHEYENNE
RAWLINS
DECATUR
NORTON
PHILLIPS
SMITH
JEWELL
REPUBLIC
WASHINGTON
MARSHALL
NEMAHA
BROWN
DONIPHAN
SHERMAN
THOMAS
SHERIDAN
GRAHAM
ROOKS
OSBORNE
MITCHELL
CLOUD
CLAY
RILEY
POTTAWATOMIE
JACKSON
ATCHISON
LEAVENWORTH
WYANDOTTE
JEFFERSON
WALLACE
LOGAN
GOVE
TREGO
ELLIS
RUSSELL
LINCOLN
OTTAWA
DICKINSON
GEARY
WABAUNSEE
SHAWNEE
DOUGLAS
JOHNSON
SALINE
ELLSWORTH
MORRIS
OSAGE
GREELEY
WICHITA
SCOTT
LANE
NESS
RUSH
BARTON
McPHERSON
MARION
LYON
FRANKLIN
MIAMI
RICE
CHASE
COFFEY
ANDERSON
LINN
HAMILTON
KEARNY
FINNEY
HODGEMAN
PAWNEE
STAFFORD
RENO
HARVEY
BUTLER
GREENWOOD
WOODSON
ALLEN
BOURBON
GRAY
FORD
EDWARDS
PRATT
SEDGWICK
STANTON
GRANT
HASKELL
KIOWA
KINGMAN
WILSON
NEOSHO
CRAWFORD
MEADE
CLARK
BARBER
ELK
MORTON
STEVENS
SEWARD
COMANCHE
HARPER
SUMNER
COWLEY
CHAUTAUQUA
MONTGOMERY
LABETTE
CHEROKEE
1
2
3
4
5
6a
6b
7
8
9
10a
10b
10c
11
12

TYPE-OF-FARMING AREAS IN KANSAS
(Revision of Figure 18, Kansas Agricultural Experiment Station Bulletin 251.)

Table 3.--Regression equations for estimated adjusted gross income tax rates for population for counties in Kansas, 1959 and 1962.[a] (X is population per 100,000 people.)

Year and unit of government		A	B_1		B_2	t_1	t_2	R^2
1959								
County, rate	=	.04795	-.06620X (-1.4109)	+	.01867X^2 (1.0867)	6.10	4.70	.3067**
Schools, rate	=	.08445	-.08290X (-1.5581)	+	.02370X^2 (1.2361)	7.00	5.55	.3570**
Total county, rate	=	.15519	-.1507X (-1.5208)	+	.04224X^2 (1.1829)	6.80	5.29	.3507**
1962								
County, rate	=	.04504	-.06161X (-1.5374)	+	.01753X^2 (1.1887)	6.64	5.13	.3469**
Schools, rate	=	.07988	-.07226X (-1.6022)	+	.02097X^2 (1.2630)	7.01	5.53	.3645**
Total county, rate	=	.14484	-.1320X (-1.6433)	+	.03742X^2 (1.2652)	7.40	5.70	.3992**

Source: Computed from information supplied by State Revenue Department from state income tax returns and information from the Property Valuation Department. Population data was compiled by the Kansas Board of Agriculture as Reported by County Assessors.

[a] Equation: $R = A + B_1X + B_2X^2$. Figures in parentheses are the standard partial regression coefficients.

** significant at the .05 probability level.

The regression coefficients, B_1 and B_2, are so small that it is difficult to determine their size at a glance. For example, the regression coefficient B_1 for total county in 1959, was -.000001507 and B_2 was .000000000004224. There are five zeros before the first significant digit for B_2. Therefore, to make the table easier to read the population values X are based on population per 100,000 people. This has the effect of moving the decimal five places to the right for all B_1's and ten places for B_2. For the above regression coefficients B_1 which was -.000001507 would become -.1507 and B_2 would become .04224.

The estimate for the first regression coefficient, B_1, represents the decrease in tax rate per individual in the county. It is decreasing because B_1 is negative in every instance. B_2 is positive in every case and represents the increase in tax rates. For example the regression equation for schools for 1959 was

$$R = .08445 \quad -.0000008290X \;+\; .000000000002370X^2$$

Table 4 shows the solution of the equation for three sizes of population. This example could represent three counties with different size populations.

It can be seen that the tax rate "R" goes down as population increases. This is because the regression coefficient B_1 is negative. However, from the last column of the table it can be seen that the decrease in tax rate gets smaller and smaller as population increases. This is because B_2 is positive and population "X" is squared.

Table 4.--Comparison of tax rate by population size.[a]

Population	R		A	B_1X^2		B_2X^2	Change in R per 1000 persons
5,000	.08036	=	.08445	-.004145	+	.000059	.00082
20,000	.06880	=	.08445	-.016580	+	.000948	.00077
40,000	.05508	=	.08445	-.033161	+	.003791	.00069

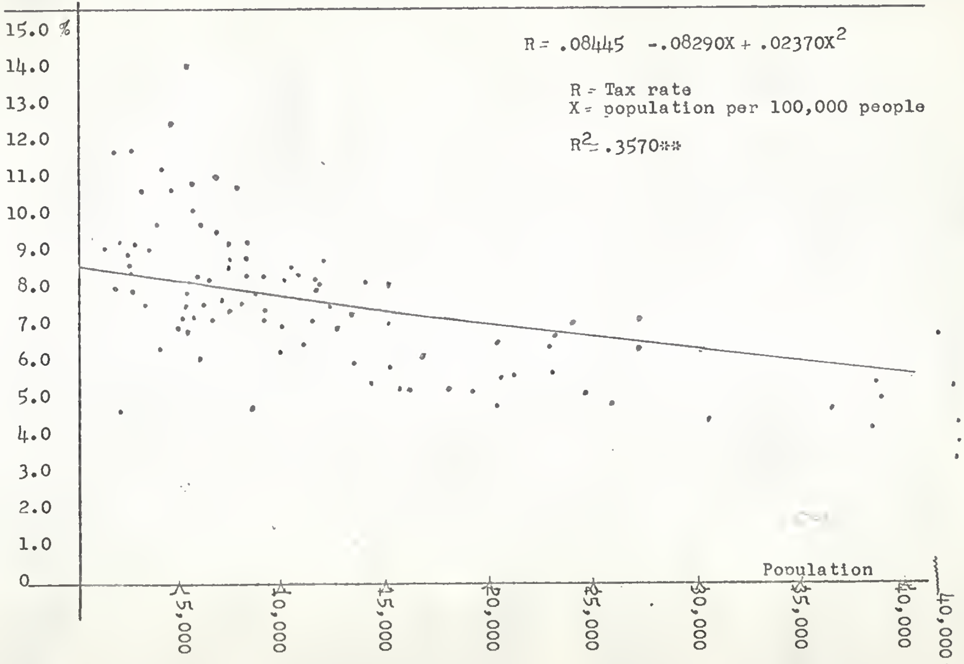
Source: Regression equation for schools for 1959 as computed from information supplied by State Revenue Department from state income tax returns and information from the Property Valuation Department. Hypothetical population data.

[a] Equation: $R = A + B_1X + B_2X^2$

The standard partial regression coefficients indicate the relative importance of the independent variables involved. It can be seen from Table 3 that for counties, schools, and total counties for 1959 and 1962 that the standard partial regression coefficient is greater (ignoring sign) for B_1 than for B_2. We thus see from B_1 and B_2 that X is more useful than X^2 in estimating or predicting the tax rate. We would expect that any curve derived from the regression equation would have a downward slope as population increases. Figure 2 shows the curve derived from the regression equation for schools in 1959. Also included are the tax rates which have been plotted for each county.

The t-values, used to denote significance in the estimates of the respective regression coefficients, were found to be significant at the one and five percent level with 103 and 102 degrees of freedom. The respective coefficients of correlation were significant at the one and five percent levels. That would indicate that population is an important

Figure 2.--Graph of regression equation for estimated adjusted gross income tax rates from population for schools on a county bases in Kansas, 1959.



Source: Regression equation from Table 3. Observations from information supplied by the State Revenue Department from state income tax returns and information from the Property Valuation Department.

factor in determining the tax rates on adjusted gross income required to replace the property tax. High tax rates on adjusted gross income are associated with low populated counties.

Table 5 shows the regression equations for sales tax levies for 1959 and 1962. The values in percentage terms; namely, the sales tax rates.

As with adjusted gross income the standard partial regression coefficient is greater (ignoring sign) for B_1 than for B_2. The curve therefore follows a downward slope as population increases. The t-values and regression coefficients are in all cases lower than they were for adjusted gross income, but they are never the less all significant at the one percent level. It should be noted that the R^2 values are low for both adjusted gross income and gross retail sales tax levies. That is the result of the large differences in tax rates required to replace the property tax even among counties with approximately the same size population.

Regression equations were computed also for density of population in place of total population. Density was based on population per square mile. The equations are not shown; they were found to be almost the same as those for total population. One reason that the results were similar probably is due to the fact that most counties in the state are nearly the same area.

Solution based on areas in the state

For further analysis the counties of the state were divided into three groups (see Figure 1). The eastern area consists of 38 counties, central area 35 counties, and the western area 32 counties. For each area regression equations were obtained for county, schools, and total county units for 1959 and 1962.

Table 5.--Regression equations for estimated gross retail sales tax rates for population for counties in Kansas, 1959 and 1962.[a] (X is population per 100,000 people.)

Year and unit of government	A	B_1	B_2	t_1	t_2	R^2
1959						
County, rate	6.2094	$-9.314X$ (-1.324)	$2.657X^2$ (1.046)	5.54	4.38	.2595**
Schools, rate	10.7376	$-11.39X$ (-1.308)	$3.377X^2$ (1.075)	5.39	4.43	.2380**
Total county, rate	19.790	$-21.22X$ (-1.316)	$6.193X^2$ (1.066)	5.46	4.42	.2468**
1962						
County, rate	6.1464	$-9.122X$ (-1.448)	$2.660X^2$ (1.147)	6.02	4.77	.2953**
Schools, rate	10.7704	$-10.68X$ (-1.294)	$3.238X^2$ (1.067)	5.12	4.22	.2222**
Total County, rate	19.5835	$-20.00X$ (-1.356)	$5.933X^2$ (1.093)	5.47	4.41	.2521**

Source: Computed from information supplied by the State Revenue Department from state retail sales tax returns and information from the Property Valuation Department. Population data was compiled by the Kansas Board of Agriculture as reported by county assessors.

[a] Equation: $R = A + B_1X + B_2X^2$. Figures in parentheses are the standard partial regression coefficients.

** significant at the .05 probability level.

Table 6 shows the parameters for the non-linear regression equations for adjusted gross income tax for schools for 1959 and 1962. The solutions for county and total county are included in the appendix. Schools were selected for further explanation because of the extensive interest shown in school finance.

The standard partial regression coefficients show that the tax rates decreased as population increased much the same as the regression equation for the entire state. Closer examination of the equations by area, however, reveals several differences between areas and the entire state.

For eastern Kansas the required tax rate on adjusted gross income to replace the property tax is higher than the state for counties with a population of less than 10,000 persons. For the eastern county, with population greater than 10,000 persons the tax rate on adjusted gross income is lower than for all counties in the state. This can be observed by placing the desired size of population into the regression equations for schools in eastern Kansas and into the equation for schools in the whole state and solving the equations for "R". The regression equation for eastern Kansas schools explains over fifty percent of the observations. That is somewhat higher than for the state which had an R^2 value of .3570 for 1959 and .3645 for 1962.

The average county in central Kansas followed closely to the pattern of the entire state. The A-value of the regression equation for schools in central Kansas is .08397 and the same value for the state was .08445 for 1959. With a population of 40,000 persons the average central Kansas county would require a tax rate of .052 and the average county of the state would require a tax levy of .055 for school purposes.

Table 6.--Regression equations for estimated adjusted gross income tax rates by area for population for schools on a county basis in Kansas, 1959 and 1962.[a] (X is population per 100,000 people.)

Year and area of state		A	B_1		B_2	t_1	t_2	R^2
1959								
Eastern, rate	=	.08890	$-.1324X$ (-2.360)	+	$.05937X^2$ (1.913)	5.06	4.10	.5062**
Central, rate	=	.08397	$-.0889X$ (-3.085)	+	$.02418X^2$ (2.784)	4.11	3.71	.3801**
Western, rate	=	.09963	$-.3445X$ $(-.6637)$	+	$.6894X^2$ $(.2795)$	.89	.37	.1573
1962								
Eastern, rate	=	.08452	$-.1250X$ (-2.804)	+	$.05577X^2$ (2.346)	5.69	4.76	.5566**
Central, rate	=	.07673	$-.0596X$ (-2.509)	+	$.01587X^2$ (2.193)	5.69	4.76	.2963**
Western, rate	=	.09472	$-.2894X$ $(-.7002)$	+	$.4249X^2$ $(.2343)$	.882	.295	.2242**

Source: Computed from information supplied by State Revenue Department from state income tax returns and information from the Property Valuation Department. Population data was compiled by the Kansas Board of Agriculture as Reported by county assessors.

[a] Equation: $R = A + B_1X + B\ X^2$. Figures in parentheses are the standard partial regression coefficients.

** significant at the .05 probability level.

The t-values used to denote significance in the estimates of the regression coefficients, "B", were found to be significant at the one and five percent level for central Kansas with 36 and 35 degrees of freedom. The same was found to be true for central Kansas with 32 and 33 degrees of freedom. The respective coefficients of determination, "R", were also found to be significant at the one and five percent levels. However, the equations were found not significant for western Kansas in 1959. The R^2-value was .1573 which is nonsignificant at the five percent level with 30 degrees of freedom. But in 1962 the R^2-value was .2242 which is significant at the five percent level. There would appear to be a confounding effect in the equations for the two years. The t-values of the regression coefficients are nonsignificant in both years thus leaving the equation of little value. There is, therefore, evidently no significant correlation between population and required tax rate on adjusted gross income to replace the property tax for schools in western Kansas. Similar results were found for county and total county.

Table 7 contains the regression equations for sales tax rates for schools by areas of the state for 1959 and 1962. It should be remembered that the values given in the equations are in percentage terms.

The regression equations for gross retail sales tax rates by area for schools had a higher coefficient of determination in all three areas of the state than did the regression equations for the whole state (see Table 5). The lowest R^2 value was for central Kansas in 1962 with .2939 as compared with the state's .2222 in 1962 for schools. The highest coefficient of determination was in western Kansas with .4280. However, the

Table 7.--Regression equations for estimated gross retail sales tax rates by area for population for schools on a county basis in Kansas, 1959 and 1962.[a] (X is population per 100,000 people.)

Year and area of state		A	B_1		B_2	t_1	t_2	R^2
1959								
Eastern, rate	=	10.7199	$-16.247X$ (-2.103)	+	$7.985X^2$ (1.868)	3.85	3.42	.3321**
Central, rate	=	11.3120	$-17.293X$ (-3.128)	+	$4.840X^2$ (2.906)	4.09	3.80	.3558**
Western, rate	=	17.0212	$-148.20X$ (-1.585)	+	$455.3X^2$ (1.025)	2.50	1.68	.3986**
1962								
Eastern, rate	=	11.1397	$-17.42X$ (-2.369)	+	$8.444X^2$ (2.154)	3.87	3.52	.3158**
Central, rate	=	10.6076	$-13.10X$ (-2.728)	+	$3.666X^2$ (2.505)	3.46	3.17	.2939**
Western, rate	=	17.4231	$-147.62X$ (-1.782)	+	$437.1X^2$ (1.2026)	2.61	1.76	.4280**

Source: Computed from information supplied by the State Revenue Department from state retail sales tax reports and information from the Property Valuation Department. Population data was compiled by the Kansas Board of Agriculture as reported by county assessors.

[a] Equation: $R = A + B_1X + B_1X^2$. Figures in parentheses are the standard partial regression coefficients.

** significant at the .05 probability level.

t_2-value for western Kansas is not significant at the five percent level with 30 degrees of freedom for 1962 or 1959. Evidently in western Kansas the first independent variable is the best predictor of the required tax rate. The experiment indicated that the second independent variable X^2 did not have a significant effect on the tax rate. For further work, it might be sufficient to use only the first variable in the equation in western Kansas.

Conclusions

The information presented in this chapter can be of value in determining the feasibility of a gross retail sales tax and/or an adjusted gross income tax. It should be kept in mind, however, that the results obtained in this study are based on several important assumptions and qualifications. (1) Corporate income and income of nonresidents were not included in the adjusted gross income figures. (2) The adjusted gross income and gross retail sales data are for counties, not for school districts which prevents an analysis by current school districts. (3) All occupational groups may not be affected the same by changes in the tax system. Despite these qualifications and possibly others it is believed that the results do reflect to a large degree an accurate picture of the results to be expected if these nonproperty taxes were enacted for the financing of local governments.

The relationship between population and required tax rates on adjusted gross income or gross retail sales to replace the property tax was found to be an inverse relationship. That is the average county in Kansas with a large population will require a smaller tax rate on adjusted gross income or gross retail sales than would a county with a small population. This inverse relationship is not constant, however; it was found that as population per county continues to increase the tax rate will decline at a decreasing rate. The regression equations expressing these relationships were found to be statistically significant for county, schools, and total county for the years 1959 and 1962 when all counties in the state were included in deriving the solutions. When the state was divided into the Eastern, Central, and Western areas, the regression equations for schools were significant in the Eastern and Central areas of the state. The equations were found to be nonsignificant for adjusted gross income tax in 1959, but significant in 1962, in the Western part of the state. The equations were significant in all three areas for gross retail sales.

It would not be possible to generalize all the reasons for the relationship between population and tax rates as presented here. However, one of the major reasons for this can be attributed to economies of scale. In our local governments many costs are fixed and do not increase at a constant rate for every new person entering the taxing jurisdiction. Such is the case with fire protection and road and street equipment. Counties must have a courthouse and paid government officials regardless of population size. These costs do vary to some degree depending upon the size of the community, but the cost for such services do not increase in the same proportion as population in most instances.

As governments grow larger and take on new and increased importance, they reach a point where diseconomies of scale begin to develop. Some of these diseconomies are unavoidable, but they do cause an increase in the cost of government. This was seen in the leveling off of the regression line when population became increasingly large.

For further study a more intensive analysis using a smaller number of selected counties would seem to be beneficial. In such a study counties could be selected that represented the different areas of the state and more information could be obtained from each county which would enable considerably more insight into what factors influence the tax rate. This would in turn make possible an expanded model from which to work.

V. THE IMPACT ON OCCUPATIONAL GROUPS OF THE LOCAL INCOME TAX COMPARED WITH THE PROPERTY TAX

This chapter includes: (1) The rates which would have to be applied to the income base to match the property taxes collected for local government units; (2) an estimate of the average property taxes paid by households deriving their incomes from various occupations; (3) determination of the impact of a local gross income tax on various occupational groups; and (4) the shift in tax burden resulting from a local gross income tax replacing the property tax.

It is hypothesized that a local income tax (gross income tax) in lieu of part or all of the property tax would reduce taxes paid (impact) of some occupational groups and increase taxes paid by other groups.

General Procedure

To test this hypothesis, to obtain information pertaining to the feasibility of a gross income tax for local governments in Kansas, and to indicate areas that needed continued study, a representative Kansas county was selected from which an income base could be obtained for several units of local government. Included within the county and tested are county government, school districts, and total for all units of government in the county. A study including other taxing districts to which local income tax may provide a new source of revenue would add to the results of the study reported herein.

Based on population, density, percent rural and urban population, the number of local governments within the county, and location, Dickinson County was selected as a representative county for an empirical study of a sample of households.

The State Department of Revenue had recorded all information reported on the front page of the state individual income tax returns for about ten percent of all returns filed for 1961. The income tax division reported that this sample of returns was drawn at random from all of the returns. This type of information was available in this form for only 1961. The State Department of Revenue made this information for Dickinson County available for use in this study. It would have been desirable if information could have been obtained from returns over several more years to determine the stability of income for various occupations but this was not feasible for this study.

Investigations at the Dickinson County Treasurer's Office in Abilene indicated that it would be possible to trace through from a person's name to the property (in the county) that he owned and the assessed valuation of such property for 1961.

The assessed valuation of each resident's property could be multiplied by the tax levies of the taxing jurisdictions in which the property was located to obtain the amount of property taxes paid by each property owner. Property tax receipts were also available but there was no way of determining, from the receipts, if the total amount paid was all 1961 taxes.

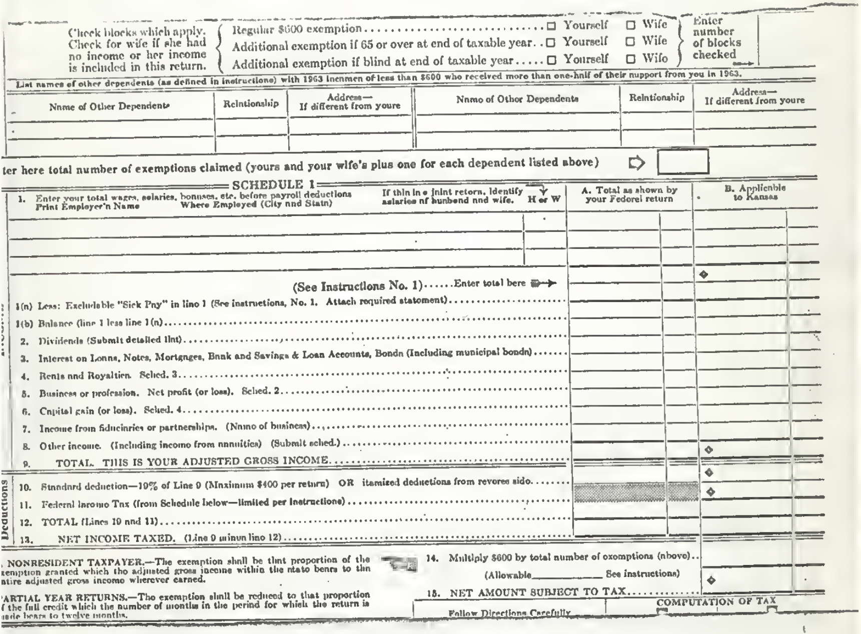
Three occupational groups were selected from which a sample to estimate changes in taxes for occupational groups. The source of an individual's income was the criterion on which occupation would be based. The three occupational groups selected were farming, business-professional, and wage-salaries. Many households derive their income from several sources and this presented a problem in the classification of some people. A school teacher may work his farm during the summer months and on week ends, and a businessman may own several farms and lease them while he runs his business in town. The source of fifty percent or more of a household's income was the basis for grouping by occupation.

In 1961 there were about 6,500 individual income tax returns filed from Dickinson County. The ten percent sample or about 650 returns for which the Income Tax Division had recorded the information from the front page, was thus used to obtain the occupational samples. Each person's name and street address had been removed and a serial number was used in their place.

Figure 3 shows a sample of part of the front page of a 1961 Kansas State Individual Income Tax Return from which the income tax division had recorded the individual income tax data. Under schedule 1, wage and salaries are to be entered as item 1, business and professional earning on line 5, and farm income on line 8 as other income. Line 9 is the total of all income reported in schedule 1 and is called adjusted gross income.

Of the ten percent sample provided by the State Department of Revenue 86 showed farming, business and professional 50, and wage and salaries 380. The remainder of the returns showed income from several other sources such as dividends, rents, interest, or other sources of income.

Figure 3.--A sample of part of the 1961 Kansas State Individual Income Tax Return, Form Inc. 40



Check blocks which apply. Check for wife if she had no income or her income is included in this return.

Regular $600 exemption.............................. ☐ Yourself ☐ Wife
Additional exemption if 65 or over at end of taxable year.. ☐ Yourself ☐ Wife
Additional exemption if blind at end of taxable year..... ☐ Yourself ☐ Wife

Enter number of blocks checked →

List names of other dependents (as defined in instructions) with 1963 incomes of less than $600 who received more than one-half of their support from you in 1963.

Name of Other Dependents	Relationship	Address—If different from yours	Name of Other Dependents	Relationship	Address—If different from yours

ter here total number of exemptions claimed (yours and your wife's plus one for each dependent listed above) ⇨ ☐

SCHEDULE 1

1. Enter your total wages, salaries, bonuses, etc. before payroll deductions

Print Employer's Name	Where Employed (City and State)	If this is a joint return, identify salaries of husband and wife. H or W	A. Total as shown by your Federal return	B. Applicable to Kansas

(See Instructions No. 1)......Enter total here → ◆

1(a) Less: Excludable "Sick Pay" in line 1 (See instructions, No. 1. Attach required statement)........
1(b) Balance (line 1 less line 1(a))........
2. Dividends (Submit detailed list)........
3. Interest on Loans, Notes, Mortgages, Bank and Savings & Loan Accounts, Bonds (Including municipal bonds)........
4. Rents and Royalties. Sched. 3........
5. Business or profession. Net profit (or loss). Sched. 2........
6. Capital gain (or loss). Sched. 4........
7. Income from fiduciaries or partnerships. (Name of business)........
8. Other income. (Including income from annuities) (Submit sched.)........ ◆
9. TOTAL. THIS IS YOUR ADJUSTED GROSS INCOME........

Deductions

10. Standard deduction—10% of Line 9 (Maximum $400 per return) OR itemized deductions from reverse side........ ◆
11. Federal Income Tax (from Schedule below—limited per Instructions)........ ◆
12. TOTAL (Lines 10 and 11)........
13. NET INCOME TAXED. (Line 9 minus line 12)........

NONRESIDENT TAXPAYER.—The exemption shall be that proportion of the xemption granted which the adjusted gross income within the state bears to the ntire adjusted gross income wherever earned.

ARTIAL YEAR RETURNS.—The exemption shall be reduced to that proportion f the full credit which the number of months in the period for which the return is ade bears to twelve months.

14. Multiply $600 by total number of exemptions (above)..
(Allowable__________ See instructions) ◆
15. NET AMOUNT SUBJECT TO TAX..........

Follow Directions Carefully

COMPUTATION OF TAX

For ease of comparison and convenience in testing, each sample was selected to contain the same number of returns. All 50 returns were used for business-professional, and 50 returns were randomly chosen for farmers and wage-salary groups. A check was made of the complete income tax return as filed with the income tax division to be certain that each of the 150 tax returns drawn for the sample (50 from each occupation) had been correctly reported as to the source of income. By cross-checking all available information it seemed reasonable to assume that each return was correctly reported.

A list of the serial numbers shown on the 10 percent sample listing for the three occupational groups was provided to the Department of Revenue to obtain the names of the 150 persons in the sample. These names were needed to find each person's property tax liability for 1961. The list of names was provided by the Department of Revenue with the agreement that a person's name would not be associated with the information from his income tax return. Each name was therefore assigned an identification number drawn from a table of random numbers for use when comparing income and property tax information.

A form was prepared for listing property tax information from the Dickinson County Treasurer's Office.[1] For each occupation, each person's name was listed on the form and space was provided to list the assessed value of his property and the taxing district in which such property was located. This information was then obtained for each of the 150 persons in the sample. The treasurer's office made available a list of the tax levies of each taxing district in Dickinson County. Included within this list was the levies for county government, schools, and the total tax levy for all taxing units within each district. The product of the assessed value of each person's property and the total tax levy on such property was computed to determine each person's property tax. Particular attention was given to the amount of property taxes going for county government, schools (grades K-14), and total for all governments in the county.

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[1] See Exhibit B in Appendix.

Determining the Base of a Local Income Tax

In previous chapters a review was made of the experiences with the local income tax in other places in the United States. In most instances it was found that a local income tax had been most successful when based on individual gross income with no exemptions or deductions allowed. A bill introduced into the 1963 session of the Kansas Legislature, if enacted, would have provided for a local tax on the adjusted gross income of individuals and corporations.[1] This would indicate some support and interest in basing a local income tax on adjusted gross income. The question still remained, however, as to what adjusted gross income should be taxed.

One possibility was to apply a tax on only individual adjusted gross income as it was reported on the 1961 Kansas State individual income tax return. This would include only that income reported on line 9 of the state income tax return (see Figure 3). It is not uncommon for corporate income to be exempt from the local income tax in other states. This provides an incentive for corporations to locate in these areas and the added income to the community may more than offset that lost in tax revenue. The Department of Revenue made available the total reported individual adjusted gross income for 1961 for Dickinson County.

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[1] See House Bill No. 425, Kansas Legislative Session of 1963.

A second possible base for an adjusted gross income tax would be individual adjusted gross income as reported on individual income tax returns, plus corporate adjusted gross income. This would have the advantage of being a wider tax base which would result in a lower tax rate on individual income. No information was available concerning the amount of adjusted gross income reported by corporations in Dickinson County. Therefore, an estimate was made from the total corporate adjusted gross income for the entire state of Kansas. By dividing the total for the state by the number of counties in the state it was assumed that a reasonable estimate of corporate adjusted gross income had been made for Dickinson County. This amount was added to individual adjusted gross income to obtain the possible income tax base.

The third adjusted gross income tax base considered in this study will be called a "property tax adjusted gross income." When businessmen and farmers derive their adjusted gross income, expenses of their businesses are deducted from gross profits or income. One of these business expenses is business property taxes, and it is assumed that these taxes are deducted. If a local adjusted gross income tax, in lieu of part or all of the property tax, were enacted, that part of the property tax which was relieved, would no longer be a business expense. The result would be that the adjusted gross income would increase by that amount. The effect might be insignificant if the adjusted gross income tax could be deducted as a business expense. However, the federal and state governments do not allow the income taxes to be deducted as business expenses not subject and it may be that the local government would follow the same practice.

A "property tax adjusted gross income" tax base would consist of individual adjusted gross income as reported on line 9 of the Kansas individual income tax return plus the property taxes paid on business and farm property. To derive this base it was assumed that all property taxes paid by business-professional, and farmers had been deducted from gross business income, so the estimated amount of the property taxes for these two groups was added to the adjusted gross income. The estimated amount of property taxes to be added to adjusted gross income was determined from the sample of businessmen and farmers selected for this study. By including all property taxes paid by businessmen and farmers, income is probably slightly overstated.

Of final consideration would be a "property tax adjusted gross income" tax base which includes both individual and corporate adjusted gross income plus the property taxes on individual businesses and on the corporation. The amount of property taxes added to individual and corporate income was estimated in a slightly different way than it was for individual business property taxes. It was decided that a conservative estimate of the amount of property taxes deducted from business, farm, and corporate gross earnings (in deriving reported adjusted gross income) would be sixty-five percent of the total property taxes collected for all units of government in Dickinson County. The sixty-five percent figure was estimated from the amount of property taxes the businessmen and farmers in the sample paid on their businesses and from corporate property taxes paid for the entire state as reported by the Property Valuation Department. No claim is made that sixty-five percent is a correct estimate of the property taxes paid on business or corporate property, but it is believed that this will give an idea of the effect of a local income tax. The State Property Valuation Department made available the information pertaining to the total property taxes collected for 1961.

Table 8 shows the income basis for an income-related tax for all units of local government in Dickinson County for the year of 1961. Except for individual adjusted gross income the income bases have been estimated and it is not expected that these figures are the actual totals of the income which would be subject to taxes of the county, but it is assumed that these figures do represent a close estimate to the true values.

In other parts of the country a local income-related tax has been found to be an adequate revenue source for local public service districts. A local income-related tax for county government, schools, and total for all units of government in the county are considered in this study. The income-related tax as a revenue source for a county government would be levied on all income subject to tax in the county. These income figures are shown in Table 8. An income-related tax for schools would be levied on every person's income subject to tax, but the tax levy would vary from school district to school district in the district. The levy would not be a constant rate on every person's income in the county, as the county government levy would be. It would be necessary to know the income which

Table 8.--Potential bases for an income-related tax, Dickinson County, Kansas, 1961.

	Tax Base
Individual Adjusted Gross Income	$28,255,423
Individual and Corporate Adjusted Gross Income	38,393,470
Property Tax Individual Adjusted Gross Income[a]	29,803,000
Property Tax Individual and Corporate Adjusted Gross Income[b]	40,403,000

Source: Individual adjusted gross income information from the State Revenue Department from state income tax returns. Individual and corporate adjusted gross income, calculated from corporate income and individual adjusted gross income. Property tax individual adjusted gross income calculated from property tax assessment records and individual adjusted gross income. Property tax individual and corporate adjusted gross income calculated from information provided by the Kansas Property Valuation Department, the State Revenue Department, and individual adjusted gross income.

[a] Summation of individual adjusted gross income and estimated property taxes paid on business including farms.

[b] Summation of individual and corporate adjusted gross income and sixty-five percent of the total property taxes collected for all units of government in Dickinson County in 1961.

would be subject to tax for each district to determine a tax levy for each school district. Without a much larger sample and the assignment of taxpayers to school districts there was no way of determining the amount of income for each of the school districts in 1961 so, it was assumed that all school districts were consolidated into one school district in the county. By grouping all school districts the income for the entire county could be used.

It would have been informative if an income-related tax for city government could have been tested for its effects on tax burden. It was not feasible to do this because, as for school districts, a much larger sample would be needed to determine the income which would be subject to tax for each city. Cities could not be grouped as schools were into a one city taxing district for the entire county, thus enabling the income (subject to tax) figures for the entire county to be used as an income tax base, because while all taxpayers are included in a school district, not all taxpayers in the county are included in a city taxing jurisdiction.

The income figures for the entire county were used as the tax base for an income-related tax for total of all units of government in the county which includes such service districts as schools, cities, townships, drainage districts, and watersheds. For some of these districts not all taxpayers in the county are included and it is not entirely correct to use the income figures for the entire county as the base of an income-related tax; however, it was believed that these tests would be of considerable value in indicating the amount of local income tax to replace part or all property taxes.

If a local income-related tax based on individual adjusted gross income were enacted it would increase the importance of being certain that business and farm expenses were correctly stated before they are deducted from gross income in obtaining individual adjusted gross income. The Kansas State Income Tax instructions specifically state that only business expenses should be deducted, but it is difficult to determine what part of the telephone bill or the truck or other items are used for the business and what part are personal expenses. In figuring net income subject to state taxes, several personal expenditures such as contributions, personal property and sales taxes, interest paid, and medical and dental expenses can be deducted (see Figure 3, Line 10). However, if a local income-related tax were levied on adjusted gross income as reported on Line 9 of the Kansas State Individual Income Tax Return (see Figure 3), personal expenditures would not be deducted from income subject to the local adjusted gross income tax. It would, therefore, be important that business and personal expenses be kept separate and reported separately.

The Property Tax

Table 9 is a statement of the general property taxes levied in 1961 for county government, schools, and total for all units of government, on the property of Dickinson County. The "tangibles and intangibles" category for "total for all units of government" includes the property tax levies for state, county, townships, city, school, and special districts. The "tangible" category for "total for all units of government" does not include the property taxes levied by the state. It therefore includes only those taxes levied for the operation of local units of government within Dickinson County.

Estimating the Income Tax Rate

To simplify the analysis and testing of the effect of a local income-related tax in lieu of part or all of the property tax, the assumption is made that the amount to be raised through the levy against the income base is to be equal to that raised by the levy on the property base for 1961. Table 10 shows the rates which would have to be applied to the income

Table 9.--Property taxes paid by residents of Dickinson County, Kansas, 1961.

	Tangible and Intangible	Tangible
County Government	$ 569,382	$ 543,892
School[a]	1,824,544	1,773,565
Total County[b]	3,276,957	3,027,849

Source: Office of the State Valuation Department.

[a] Aggregate for all public schools in county.

[b] All governments in county.

Table 10.--Rates required with different income-bases to raise equivalent revenue to the property tax for specified units of government in Dickinson County, Kansas, 1961 (in percent).

	County[a]	School[b]	Total County[c]
Individual Adjusted Gross Income	2.02	6.46	11.60
Individual and Corporate Adjusted Gross Income	1.48	4.75	8.54
Property Tax Individual Adjusted Gross Income	1.82	5.95	10.15
Property Tax Individual and Corporate Adjusted Gross Income	1.35	4.39	7.50

Source: Calculated from information in Table 8 and Table 9.

[a] County government.

[b] Aggregate for all public schools in the county.

[c] All governments in the county.

base shown in Table 8 to match the receipts from property taxes in 1961 as shown in Table 9. The rates for "individual" and "individual and corporate adjusted gross income" are based on tangible and intangible property taxes collected, while "individual" and "individual and corporate property taxed adjusted gross income" are based on tangible property taxes collected for the respective government unit within Dickinson County.

The rates for "individual adjusted gross income" are higher than the other rates based on a wider source of income subject to tax. In comparing the tax rates for "individual adjusted gross income" with "property tax individual adjusted gross income," it is immediately obvious that if business and farm taxes were not included as a deduction from income subject to tax that the tax rate would be about 10 percent less. This decrease in the tax rate may or may not decrease a businessman or farmer's tax liability. This would depend upon how much his income subject to tax increased (or the amount of business or farm property taxes he was paying). Businessmen and farmers as a group pay more property taxes than wage or salary earners and other occupational groups, which have no business property taxes.

Table 11 shows the adjusted gross income by occupational groups as reported on their individual Kansas state income tax returns filed for 1961. Table 12 shows the assessed valuation of property owned by each occupational group.

Comparison of the Local Adjusted Gross Income Tax With the Property Tax by Occupations

One of the purposes of this chapter was to measure the shift in tax burden which would occur if the property tax were replaced by a local income-related tax. This can be accomplished by making a comparison of

Table 11.--Adjusted gross income by occupational groups as reported on individual Kansas state income tax returns, Dickinson County, Kansas, 1961.

Occupation	Sample size	Adjusted Gross Income
Farmers	50	$163,788
Business and Professional	50	241,020
Wage and Salary	50	242,291

Source: Summation of data supplied by Kansas State Department of Revenue from individual state income tax returns.

Table 12.--Valuation of tangible property for each occupational group, Dickinson County, Kansas, 1961.

Occupation	Sample size	Assessed Valuation
Farmers	50	$585,431
Business and Professional	50	189,535
Wage and Salary	50	98,968

Source: Records in Office of County Treasurer, Dickinson County, Kansas.

the average amount of property taxes each occupational group paid in 1961 with the amount of taxes they would have paid if the same amount of revenue had been collected through an income-related tax.

The first step in making such a comparison was to obtain the amount of property taxes paid by each of the three occupational groups of taxpayers. The necessary information had been obtained for each of the 150 persons in the sample, so a summation was made for each occupation to obtain the property tax liability for each group. Table 13 shows the tax liabilities for the particular units of government. These figures have little meaning by themselves for they are only the taxes paid by 150 taxpayers, 50 for each occupation. They are shown here so that they may be compared with the amount of taxes these same people would have paid if a local income tax had been levied in place of the property tax.

The next step in the comparison of the tax burden resulting from the two taxes, was to obtain the amount of taxes that would have been paid if an income-related tax had been used to provide revenue for local government. This was done by applying the estimated income tax rates shown in Table 10 to the income which would be subject to tax for each individual in each occupation. The amount of income taxes that would be paid by those persons in each occupation under the respective tax bases are shown in Tables 14 through 17. These tables show the amount of tax revenue that these individuals would have paid for county government, schools, (on a county basis) and total for all units of local government in Dickinson County. The grand total column is a summation of the three occupational groups.

Table 13.--Sample totals of property taxes paid in Dickinson County, Kansas, 1961.

	Occupation			
	Farm	Business Professional	Wage Salary	Grand Total
Number in sample	50	50	50	150
County[a]	$ 5,764	$ 1,890	$ 975	$ 8,630
School[b]	17,151	6,870	3,371	27,392
Total County[c]	28,877	13,792	6,518	49,188

Source: Summation of calculated taxes paid by each person in the sample.

[a] County government.

[b] Aggregate for all public schools in the county.

[c] All governments in the county.

Table 14.--Sample totals of potential revenue from an "individual adjusted gross income" tax base in Dickinson County, Kansas, 1961.

	Occupation			
	Farm	Business Professional	Wage Salary	Grand Total
Number in sample	50	50	50	150
County[a]	$ 3,301	$ 4,857	$ 4,882	$13,040
School[b]	10,576	15,563	15,646	41,785
Total County[c]	18,996	27,953	28,100	75,048

Source: Summation of calculated taxes paid by each person in the sample.

[a] County government.

[b] Aggregate for all public schools in the county.

[c] All governments in the county.

Table 15.--Sample totals of potential revenue from an "individual and corporate adjusted gross income" tax base in Dickinson County, Kansas, 1961.

	Occupation			
	Farm	Business Professional	Wage Salary	Grand Total
Number in sample	50	50	50	150
County[a]	$ 2,429	$ 3,574	$ 3,593	$ 9,596
School[b]	7,783	11,453	11,514	30,750
Total County[c]	13,979	20,571	20,680	55,230

Source: Summation of calculated taxes paid by each person in the sample.

[a] County government.

[b] Aggregate for all public schools in the county.

[c] All governments in the county.

Table 16.--Sample totals of potential revenue from a "property tax individual adjusted gross income" tax base in Dickinson County, Kansas, 1961.

	Occupation			
	Farm	Business Professional	Wage Salary	Grand Total
Number in sample	50	50	50	150
County[a]	$ 3,490	$ 4,638	$ 4,410	$12,538
School[b]	11,410	15,162	14,416	40,988
Total County[c]	19,426	25,813	24,544	69,783

Source: Summation of calculated taxes paid by each person in the sample.

[a] County government.

[b] Aggregate for all public schools in the county.

[c] All governments in the county.

Table 17.--Sample totals of potential revenue from a "property tax individual and corporate adjusted gross income" tax base in Dickinson County, Kansas, 1961.

	Occupation			
	Farm	Business Professional	Wage Salary	Grand Total
Number in sample	50	50	50	150
County[a]	$ 2,581	$ 3,430	$ 3,261	$ 9,273
School[b]	8,419	11,186	10,637	30,242
Total County[c]	14,364	19,086	18,148	51,597

Source: Summation of calculated taxes paid by each person in the sample.

[a] County government.

[b] Aggregate for all public schools in the county.

[c] All governments in the county.

In comparing Table 14 with Table 13, the substantial difference in the grand totals is immediately obvious. One reason for this difference is that corporate adjusted gross income is not included in the tax base. From Table 15 it can be seen that if corporate adjusted gross income were included in the tax base that individual taxpayers would pay substantially less taxes. It is of interest to note that the grand total in Table 17 is less than that in Table 15. Apparently by adding the business property taxes to adjusted gross income it lowered the tax rate enough that the total amount of revenue that would be forthcoming from this levy was less than when business property taxes were not added to adjusted gross income for these 150 individuals. This may be expected, however, since the sample that was taken by the State Department of Revenue which included ten percent of all personal income tax returns filed in 1961 showed that sixty-eight percent of all personal adjusted gross income in Dickinson County came from wages and salaries, and business property taxes only increased the tax base by about nine percent.

In comparing Table 17 with Table 13, it is still obvious that there is a difference in the grand totals even though the income tax base has been expanded to include corporate adjusted gross income plus business property taxes that would be relieved by an income-related tax. Part of this difference is probably due to the way in which the sample of 150 taxpayers was selected. By selecting the sample from income tax returns filed in 1961 it is quite likely that resident households which pay property taxes and yet do not receive income of sufficient amount to be required to file a state income tax return were not included in the sample. For example, a couple with both individuals over 65 years of age are not required to file a state income tax return unless their income was $2,400.00 or over. This would have the effect of understating adjusted gross income for the sample used in this study.

A careful check was made in each of the counties boarding Dickinson County to make certain that all of the property owned by each of the 150 individuals in the sample had been located. It was found, that in some of the counties, the legal description of the property was needed in order to determine the owner's name. In these counties there was no way of going from a person's name to the property he owned. It is, therefore, possible that some of the property taxes paid by those individuals included in the sample was missed either because their property could not be located in a neighboring county or they owned property in other counties which were not checked. This may also be a reason for the difference in the grand total for property taxes and income-related taxes.

The next step was the comparison of the average amount of property taxes each occupational group paid in 1961 with the amount of taxes that would have been paid with an income-related tax. The totals for the sample for each government unit, as shown in Table 11 for property taxes and Tables 14 through 17 for an income-related tax, were divided by the number of individuals in each occupational group of the sample. These computations yield the amount of taxes the average person paid in 1961 for Dickinson County and the average amount he would have paid if an income tax had replaced the property tax. These averages are based upon the person's occupation or source of income. The computations are shown in Tables 18 through 21. For each occupational group and for county government, schools (on a county basis), and totals for all units of local government, are shown the average property taxes paid, the average potential adjusted gross income tax liability, and the percent increase or decrease in tax liability.

A test was made to determine if any statistically significant difference exists between the amounts of taxes for each occupational group and if there is a significant difference between the property tax and an income-related tax.

The first step was to determine if there exists any significant difference in the average amount of property taxes paid by farmers, business or professional, and wage or salary occupational groups. The analysis of variance for the three units of government are included in Table 20.

Table 18.--Comparison between average property taxes paid and average potential individual adjusted gross income tax for occupational groups, Dickinson County, Kansas, 1961.

	Farm			Bus. & Prof.			Wage & Salary		
	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent
County Government	$115	$ 66	-43	$ 38	$ 97	157	$ 20	$ 98	400
Schools on a county basis	343	212	-38	137	311	126	67	313	364
Total all units of local government	578	380	-34	276	559	103	130	562	331

Source: Computed from Table 13 and Table 14.

Table 19.--Comparison between average property taxes paid and average potential individual and corporate adjusted gross income tax for occupational groups, Dickinson County, Kansas, 1961.

	Farm			Bus. & Prof.			Wage & Salary		
	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent
County Government	$115	$ 49	-58	$ 38	$ 71	89	$ 20	$ 72	268
Schools on a county basis	343	156	-55	137	229	67	67	230	242
Total all units of local government	578	280	-52	276	411	49	130	414	217

Source: Computed from Table 13 and Table 15.

Table 20.--Comparison between average property taxes paid and average potential property tax individual adjusted gross income tax for occupational groups, Dickinson County, Kansas, 1961.

	Farm			Bus. & Prof.			Wage & Salary		
	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent
County Government	$115	$ 70	-40	$ 38	$ 93	145	$ 20	$ 88	352
Schools on a county basis	343	228	-34	137	303	121	67	288	328
Total all units of local government	578	389	-33	276	516	87	130	491	277

Source: Computed from Table 13 and Table 16.

Table 21.--Comparison between average property taxes paid and average potential property tax individual and corporate adjusted gross income tax for occupational groups, Dickinson County, Kansas, 1961.

	Farm			Bus. & Prof.			Wage & Salary		
	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent
County Government	$115	$ 52	-55	$ 38	$ 69	81	$ 20	$ 65	234
Schools on a county basis	343	168	-51	137	224	63	67	213	216
Total all units of local government	578	287	-50	276	382	38	130	363	178

Source: Computed from Table 13 and Table 17.

From the tables it can be seen that the tests yield very large F values. The tabular F values for 2 and 147 degrees of freedom are 3.07 and 4.79 at the .05 and .01 probability level, respectively. Since calculated F exceeds one percent tabular F, it is concluded that a real difference existed among occupational means.

The analysis of variance tests in Table 22 are multiple comparison tests, that is, the means of three different groups were compared. One problem that arises is that some differences between occupational groups may be declared significant when they are not. The Tukey's W-procedure test was developed to determine where the differences are. The test is made by computing

$$W = Q\ S\bar{x}^{1}$$

where W is a difference at a specified significance level and is the produce of $S_{\bar{x}}$ and a factor Q, taken from a table of a studentized range.

Table 23 shows the findings of the Tukey test for the average property taxes paid by each of the three occupational groups. The sample means are arrayed from high to low and each is subtracted from those above. When the difference exceeds the W-value it is considered significant. The same results were obtained for the three units of government, namely, there is a significant difference in taxes paid by farmers and business or professional men, and between farmers and wage or salary earners, but there is apparently no significant difference in the amount of taxes paid by business or professional and wage or salary earners.

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[1] Robert G. D. Steel and James H. Torrie, Principles and Procedures of Statistics (New York: McGraw-Hill Book Company, Inc., 1960), p. 109.

Table 22.--Analysis of variance for average property taxes paid by occupational groups, Dickinson County, Kansas, 1961.

	Average Property Tax		
	Farm	Business Professional	Wage Salary
County[1]	$115	$ 37	$ 20
School[2]	343	137	67
Total[3]	578	276	130

Analysis of Variance for [1]County Government

Source of variation	df	Mean square	F[a]
Among occupation	2	129,250.38	36.75**
Within occupation	147	3,516.17	
Total	149		

Analysis of Variance for [2]School (on a county basis)

Source of variation	df	Mean square	F[a]
Among occupation	2	1,026,140.60	29.93**
Within occupation	147	34,283.00	
Total	149		

Analysis of Variance for [3]all Government in the County

Source of variation	df	Mean square	F[a]
Among occupation	2	2,601,345.48	23.55**
Within occupation	147	110,442.70	
Total	149		

Source: Computed from Table 13.

** Significant at .01 probability level.

[a] Tabular F value 3.07 and 4.79 at .05 and .01 probability levels, respectively.

Table 23.--Tukey's W-test for average property taxes paid by occupational groups, Dickinson County, Kansas, 1961.

	County W = 28.19			School W = 87.98			Total County W = 157.91		
Occupation	X	X-20	X-38	X	X-67	X-137	X	X-130	X-276
Farm	115	96	77	343	276	206	578	447	302
Business and Professional	37	18		137	70		276	145	
Wage and Salary	20			67			130		

Farm---**---Bus. & Prof.---   ---Wage & Salary

^--------------**-------------------^

Source: Mean values taken from Table 22.

** Significant at the .05 probability level.

$W = QS_{\bar{x}}$

Looking next at the tax liability under an adjusted gross income based tax for the three occupations, the analysis of variance test is again used. Only the tests for "total for all units of government in the county" are shown for the income-related tax. The F values for all three units of government would be the same because the same reported adjusted gross income figures were used in obtaining the tax liability in each case. The tax rates by which the reported adjusted gross income was multiplied was the only difference. If an analysis of variance test was run for county government or schools, the same F value would be obtained.

Table 24 shows the tax liability under an "individual adjusted gross income tax" and also includes the analysis of variance test. Table 25 shows the tax liability under an "individual and corporate adjusted gross income tax" and includes the analysis of variance. The F values for both tables are the same because each person's income remained unchanged while only the tax rate applied to income changed.

The tabular F values for 2 and 147 degrees of freedom are 3.07 and 4.79 at the .05 and .01 probability level, respectively. Calculated F exceeds five percent tabular F, but does not exceed the one percent tabular F. Apparently there is evidence of a difference among occupational means if tested at the five percent level, but no difference if tested at the one percent level.

The analysis of variance for "property tax individual adjusted gross income" is shown in Table 26 along with the average tax liability for each occupation. Table 27 shows similar information for a "property tax

Table 24.--Analysis of variance for average tax liability under possible individual adjusted gross income based tax by occupational groups for all governments, Dickinson County, Kansas, 1961.

	Occupation		
	Farm	Business Professional	Wage Salary
County	$ 66	$ 97	$ 98
School	212	311	313
Total	380	559	562

Analysis of Variance for All Governments in the County

Source of variation	df	Mean square	F[a]
Among occupation	2	543,808.55	4.42
Within occupation	147	122,861.64	
Total	149		

Source: Computed from Table 14.

[a] Tabular F value 3.07 and 4.79 at .05 and .01 probability levels, respectively.

Table 25.--Analysis of variance for average tax liability under possible individual and corporate adjusted gross income based tax by occupational groups for all governments, Dickinson County, Kansas, 1961.

	Occupation		
	Farm	Business Professional	Wage Salary
County	$ 49	$ 71	$ 72
School	156	229	230
Total	280	411	414

Analysis of Variance for All Governments in the County

Source of variation	df	Mean square	F[a]
Among occupation	2	294,520.06	4.42
Within occupation	147	66,540.31	
Total	149		

Source: Computed from Table 15.

[a] Tabular F value 3.07 and 4.79 at .05 and .01 probability levels, respectively.

Table 26.--Analysis of variance for average tax liability under possible property tax individual adjusted gross income based tax by occupational groups, Dickinson County, Kansas, 1961.

	Occupation		
	Farm	Business Professional	Wage Salary
County	$ 70	$ 93	$ 88
School	228	303	288
Total	389	516	491

Analysis of Variance for All Governments in the County

Source of variation	df	Mean square	F^a
Among occupation	2	228,624.41	2.24
Within occupation	147	101,998.95	
Total	149		

Source: Computed from Table 16.

[a] Tabular F value 3.07 and 4.79 at .05 and .01 probability levels, respectively.

Table 27.--Analysis of variance for average tax liability under possible property tax individual and corporate adjusted gross income based tax by occupational groups, Dickinson County, Kansas, 1961.

	Occupation		
	Farm	Business Professional	Wage Salary
County	$ 52	$ 69	$ 65
School	168	224	213
Total	287	382	363

Analysis of Variance for All Governments in the County

Source of variation	df	Mean square	F[a]
Among occupation	2	124,987.64	2.24
Within occupation	147	55,765.42	
Total	149		

Source: Computed from Table 17.

[a] Tabular F value 3.07 and 4.79 at .05 and .01 probability levels, respectively.

individual and corporate adjusted gross income tax." The F value for both tables is 2.24. For the same reasons as explained earlier, an analysis of variance test for county government and schools (on a county basis) would have resulted in the same F value.

The F value 2.24 is not significant at the five percent or one percent levels. There appears to be no significant difference between the means of the tax liability for the three occupational groups. In terms of adjusted gross income alone, and as defined here, it appears that an income-related tax is more equitable (in terms of amounts per taxpayer) levy than the property tax.

The final step in testing the hypothesis concerning the effects of tax changes is to determine if there is a difference in the amount of taxes an occupational group would pay if the property tax were replaced by an income-related tax. Table 28 shows the F-values for the analysis of variance for the differences in the property tax and each of the four income based taxes for farmers, business and professional, and wage and salary occupations. The F-values are again only shown for "totals for all units of government in the county." The tests of the analysis of variance are shown in the appendix.

The tabular F values for 1 and 98 degrees of freedom are 3.92 and 6.85 at the .05 and .01 probability levels, respectively. For farmers, the F values range from 7.67 based on "individual adjusted gross income" to 19.17 for "individual and corporate adjusted gross income." Therefore, farmers would have paid significantly less taxes if a local income tax had been used.

Table 28.--F values from analysis of variance for differences in average property taxes paid and average potential income-related tax liabilities for occupational groups, Dickinson County, Kansas, 1961.

	Farm	Business Professional	Wage Salary
Individual Adjusted Gross Income	7.67**	11.69**	90.91**
Individual and Corporate Adjusted Gross Income	19.17**	3.93**	61.10**
Property Tax Individual Adjusted Gross Income	7.02**	9.64**	77.90**
Property Tax Individual and Corporate Adjusted Gross Income	18.18**	2.65**	48.61**

Source: Computed from summation of calculated property taxes paid and potential income-related tax liabilities.

** Significant at .01 probability level.

For business and professional men the F value ranges from 11.69 based on "individual adjusted gross income" which is significant at the one percent and five percent levels to 2.65 for "property taxed individual and corporate adjusted gross income." An F value of 2.65 is not significant at the one percent probability level, indicating that the average business and professional man would not experience a substantial shift in tax burden if the property tax were replaced by this particular income tax base.

The F values were very high for all four income tax bases for those persons deriving the major part of their income from wages and salaries. An F value of 90.91 based on "individual adjusted gross income" to 48.61

based on "property tax individual and corporate adjusted gross income." This evidence is sufficiently strong to indicate that there is definitely a difference in the means of the two taxes, and if an income tax would have replaced the property tax, wage and salary earners would likely have their taxes increased by as much as three fold. In only one case of the 50 individuals classed as wage and salary earners did the amount of property taxes paid exceed the potential income tax liability.

VI. COMPARISON OF THE LOCAL INCOME TAX WITH THE PROPERTY TAX IN THE WHEATON SCHOOL DISTRICT, 1960-1962[1]

During 1963 Charles K. Mays, a graduate research assistant, in the Department of Economics and Sociology at Kansas State University, undertook a tax study in the Wheaton School District.

> To determine some of the problems to be encountered in making a test of the feasibility of a local income-related tax in Kansas...it was decided to pick a small governmental entity, preferably in close proximity to Manhattan for convenience in gathering information, and try to ascertain the local income tax base for such a unit over a period of years. To keep the analysis as uncomplicated as possible, the test considered only the tax revenue needed to meet school needs.... A list of small common school districts in the area near Manhattan was compiled from information in the office of the Research Department of the Kansas Legislative Council. After some initial study and elimination, the Wheaton School District, a small, predominantly rural district in Pottowatomie County, was selected for further investigation. No claim is made that this district is representative of all school districts or even all rural school districts, but it was believed that many of the problems which may be found in other districts would appear in this district as well. The Wheaton School District includes the City of Wheaton, with a population of about 125, and also takes in portions of four townships in Pottowatomie County: Clear Creek, Lone Tree, Rook Creek, and Sherman.[2]

Mays was able to obtain for the years 1960, 1961, and 1962 the amount of school property taxes paid on all personal and real property owned by the residents of the school district. Through the Department of Revenue he was also able to obtain income tax information for these three years.

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[1] Charles Kenley Mays, "Nonproperty Taxes For Local Revenue, Particularly Income-Related Taxes For Public Schools in Kansas," Unpublished Master's Thesis, Kansas State University, Manhattan, Kansas, 1964, p. 56.

[2] *Ibid.*, pp. 56-61.

> ...a form was prepared for the use of the Income Tax Division in reporting income information from state income tax returns filed by residents of the district.
> Income Tax Division personnel entered the income and income tax data on the forms for these households which had filed a return or returns for the years in question.[1]

The property and income tax information compiled by Mays was used to determine the income base of the school district compared to its property tax base, and to determine the tax rate that might be required to match property tax revenue. For this study the same property tax and income information will be used to determine the impact on the individual taxpayers, and to see if similar results are obtained to those reached in the previous chapter.

Based on income the residents of the Wheaton School District were divided into three groups; farmers, wage and salary, and other, which may include business profits, rental income, or any number of other types of income. As in the previous chapter, the source of fifty percent or more of a household's income was the basis on which a person was classified.

It was not possible to use all of the taxpayers in the Wheaton School District because several residents had not filed an income tax return and there was no available information pertaining to their income or its source. Therefore, only those persons for whom an individual income tax return had been filed for two or more years were included in this study. So that there would be the same number of individuals in each occupational group for all three years, it was necessary to estimate the missing years income for those persons not filing a return for one of the three years. By classification of the eligible residents, 55 were farmers, 32 were grouped as wage and salary, and 23 were classed as other, making a total of 110 individuals to be used in the study.

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[1] _Ibid._, p. 56.

A maximum potential income base was computed from income and property tax information. In deriving this base certain assumptions were made. All property taxes paid had been deducted from gross business income, so the amount of the property taxes was added to the adjusted gross income. The portion of school expenses now borne by corporate property taxes were assumed to be met by the tax on corporate income. For those resident households not filing a state income tax return it was assumed that their incomes were just under the reportable category.

Mays computed a "compromise income base," the mean of total adjusted gross income of the district as reported on individual income tax returns and the maximum potential income base. This base was used as an estimate of the actual total adjusted gross income of the district. The rate per hundred dollars adjusted gross income which would have to be applied to this income base to match the receipts from property taxes in the same year would be \$8.40, \$6.62, and \$7.57 for 1960, 1961, and 1962, respectively.[1]

Table 29 shows the comparison of the average amount of property taxes each occupational group paid in 1960, 1961, and 1962, with the amount of taxes that would have been paid with a compromise adjusted gross income tax. These figures were derived by summing the taxes paid (or would have been paid in the case of the income tax) by each person in the sample and taking the means of these totals.

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[1] Ibid., p. 89, Table 29.

Table 29.--Comparison between average property taxes paid and average potential compromise adjusted gross income tax for occupational groups, Wheaton School District, 1960-1962.

Year	Farm			Other[a]			Wage & Salary		
	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent	Aver. Prop. Tax	Aver. AGI Tax	Per-cent
1960	$225	$192	-14	$212	$212	0	$ 59	$230	290
1961	232	216	- 7	206	180	-13	54	200	269
1962	266	216	-19	230	257	12	68	231	242

Source: Computed from summation of calculated taxes paid by each person in the sample. Information provided by the Kansas State Revenue Department from state income tax returns, from townships enumeration rolls, and property tax assessment records, compiled by Charles Mays.

[a] Other income may include business profits, rental income or any number of other types of income.

To determine if there exists any significant difference in the average amount of property taxes paid by each occupation the analysis of variance for the amount of property taxes paid in 1960, 1961, and 1962 was used. The results of these tests are shown in Table 30. The tabular F value for 2 and 107 degrees of freedom are 3.09 and 4.82 at the .05 and .01 probability level, respectively. Since calculated F exceeds the one percent tabular F for each of the three years, the three occupational groups are not sharing equally the cost of public schools in the Wheaton School District.

In obtaining the compromise adjusted gross income figures shown in Table 29 it was assumed that the total of the property taxes paid were deducted from adjusted gross income for those with business or farm income. To bring adjusted gross income up to the level it would have been if no property tax had been levied, property taxes were added to the reported adjusted gross income figures.

One of the assumptions underlying the analysis of variance is that treatments have a common variance. For the Wheaton School District, this assumption has been violated because the households with the five highest reported adjusted gross incomes in 1960, 1961, and 1962, were reported to have over thirty percent of all adjusted gross income in the Wheaton School District. It was therefore necessary to change each person's adjusted gross income to its logarithm in order to use the analysis of variance. The logarithm of each person's income gives a normal distribution.

Table 30.--Analysis of variance for average property taxes paid by occupational groups, Wheaton School District, 1960-1962.

Year	Occupation		
	Farm	Other	Wage Salary
1960	$225	$212	$ 59
1961	232	206	54
1962	266	230	68

Analysis of Variance for 1960

Source of variation	df	Mean square	F[a]
Among occupation	2	229,013.80	10.24**
Within occupation	107	29,205.56	
Total	109		

Analysis of Variance for 1961

Source of variation	df	Mean square	F[a]
Among occupation	2	335,201.69	12.19**
Within occupation	107	27,497.53	
Total	109		

Analysis of Variance for 1962

Source of variation	df	Mean square	F[a]
Among occupation	2	408,931.48	22.68**
Within occupation	107	35,675.17	
Total	109		

Source: Calculated from information provided by the Kansas State Revenue Department from state income tax returns, from township enumeration rolls, and property tax assessment records, compiled by Charles Mays.

** Significant at .01 probability level.

[a] Tabular F value 3.09 and 4.82 at .05 and .01 probability levels, respectively.

Table 31 shows the average adjusted gross income tax liability for each of the three occupational groups, and the analysis of variance tests are also shown. The tabular F values for .05 probability level is again 3.09, so apparently there is no real difference in the amount of income-related taxes that the three occupational groups would pay.

Tables 32, 33, and 34 for the years 1960, 1961, and 1962, respectively, show the tests to determine if there is a difference in the amount of taxes an occupational group would pay if the property taxes were to be replaced by an income-related tax. There is little difference between the two taxes for farmers and "other" occupational groups, but there is a significant difference between the means for the wage and salary group.

Table 31.--Analysis of variance for average tax liability under possible compromise adjusted gross income based tax by occupational groups, Wheaton School District, 1960-1962.

	Occupation		
Year	Farm	Other	Wage Salary
1960	$192	$212	$230
1961	216	180	200
1962	216	257	231

Analysis of Variance for 1960

Source of variation	df	Mean square	F[a]
Among occupation	2	.0367	.1740
Within occupation	107	.2110	
Total	109		

Analysis of Variance for 1961

Source of variation	df	Mean square	F[a]
Among occupation	2	.3421	1.94
Within occupation	107	.1766	
Total	109		

Analysis of Variance for 1962

Source of variation	df	Mean square	F[a]
Among occupation	2	.1953	.567
Within occupation	107	3.4432	
Total	109		

Source: Calculated from information provided by the Kansas State Revenue Department from state income tax returns, compiled by Charles Mays.

[a] Tabular F value 3.09 and 4.82 at .05 and .01 probability levels, respectively.

Table 32.--Analysis of variance for average property taxes paid and average potential compromise adjusted gross income tax liability for occupational groups, Wheaton School District, 1960.

Farm

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	29,292.77	1.33
Within occupation	108	21,999.02	
Total	109		

Other

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	.3957	.804
Within occupation	44	.4919	
Total	45		

Wage and Salary

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	468,129.65	22.3**
Within occupation	62	20,993.15	
Total	63		

Source: Calculated from information provided by the Kansas State Revenue Department from state income tax returns, from township enumeration rolls, and property tax assessment records, compiled by Kenneth Mays.

** Significant at .01 probability level.

Table 33.--Analysis of variance for average property taxes paid and average potential compromise adjusted gross income tax liability for occupational groups, Wheaton School District, 1961.

Farm

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	7,843.79	.338
Within occupation	108	23,180.25	
Total	109		

Other

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	.3199	.674
Within occupation	44	.4740	
Total	45		

Wage and Salary

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	341,897.48	22.58**
Within occupation	62	15,142.36	
Total	63		

Source: Calculated from information provided by the Kansas State Revenue Department from state income tax returns, from township enumeration rolls, and property tax assessment records, compiled by Charles Mays.

** Significant at .01 probability level.

Table 34.--Analysis of variance for average property taxes paid and average potential compromise adjusted gross income tax liability for occupational groups, Wheaton School District, 1962.

Farm

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	68,864.54	2.16
Within occupation	108	31,801.67	
Total	109		

Other

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	.0043	.008
Within occupation	44	.5100	
Total	45		

Wage and Salary

Analysis of Variance for Wheaton School District

Source of variation	df	Mean square	F
Among occupation	1	427,691.48	18.66**
Within occupation	62	22,917.35	
Total	63		

Source: Calculated from information provided by the Kansas State Revenue Department from state income tax returns, from township enumeration rolls, and property tax assessment records, compiled by Charles Mays.

** Significant at .01 probability level.

VII. SUMMARY AND CONCLUSIONS

The purposes of this tax study were; (1) to consider the administrative feasibility of nonproperty taxes for local levels of government, (2) to determine what rates would be required to replace the property tax for the various units of local government with an income related tax or a sales tax, and (3) to study the impact (amount of taxes paid) on different occupational groups of the property tax and an income-related tax.

The importance of the property tax was discussed and its changing role from a primary source of revenue for state and local government to its present importance of being confined primarily to the local governments. It was found that, although the state relies very little on the property tax, the increasing demand for local government services has resulted in a large increase in property taxes. The property tax was evaluated and found to have several weaknesses which have resulted from the changing role of the services government provides; the migration of farm families to urban and suburban communities, the needs for re-assessment of property, and the exempt status of some property. The property tax was also found to have its strong points in ease of administration and its ability to supply a constant source of revenue.

A review was made of past studies of nonproperty taxes and their administrative feasibility. Use has been made of both the sales tax and the income taxes in numicipalities, counties, and school districts in several states. Experience in other states indicated that a local sales tax in Kansas would be most feasible in urban communities where suburban competition is unimportant and in rural areas over a geographical area large enough to include substantial retail sales on which to establish a tax base. With the reorganization of local units, school districts in particular, the feasibility of a sales tax would be increased. This same effect could also be achieved if several taxing districts were grouped together in levying a tax. The general sales tax may be most suitable when locally levied but state collected.

Local income taxes are usually a flat rate tax applicable only to wages and salaries, farming, and business and professional net profits and without deductions and exemptions. It is generally agreed that, without withholding of the income tax from income, it is doubtful that such a tax would be feasible. A local income tax would not be feasible in many of the local taxing jurisdictions in Kansas because of the large number of self-employed persons and the many small units of government, but an income tax may be suitable for large cities or on a county basis.

To determine the rate which would have to be levied on adjusted gross income or on retail sales to provide the revenue required to replace or supplement the property tax for each county, the 1959 and 1962 property tax levies for county, schools, and total county governments were obtained from the State Property Valuation Department. The adjusted gross income of individuals for each county was obtained from the Department of Revenue. The ratio of the property tax levy to the adjusted gross income was obtained for each of the 105 counties in the state. Most of the counties with high tax rates were located in areas where the economic base is primarily agricultural. Those counties with a low ratio of property tax levies to adjusted gross income were primarily the heavily populated counties whose economic base is largely commercial or industrial.

A comparison was also made between the property tax levies and retail sales. Since the amount of gross sales was not available, the state sales tax was used as the base of comparison. The same relationship that existed for adjusted gross income was also present for gross sales.

It was noted that in most counties the nonproperty tax rate required to replace the property tax was lower in counties with a high population than in those counties with a sparse population. A non-linear regression equation was used to relate tax rates to population. It was found that the relationship between population and the nonproperty tax rates was an inverse relationship, but that the relationship did exist.

This inverse relationship is not constant, however; it was found that as population per county continues to increase, the tax rate will decline at a decreasing rate. The regression equations expressing these relationships were found to be statistically significant for county, schools, and total county for the years 1959 and 1962 when all counties in the state were included in deriving the solutions. When the state was divided into the Eastern, Central, and Western areas the regression equations for schools were significant in the Eastern and Central areas of the state. The equations were found to be nonsignificant for adjusted gross income tax in 1959, but significant in 1962 in the Western part of the state. The equations were significant in all three areas for gross retail sales. Economies of scale is probably the major reason for this relationship existing.

To test the hypothesis that a local income tax (gross income tax) in lieu of part or all of the property tax, would reduce taxes paid (impact) of some occupational groups and increase taxes paid by other groups; Dickinson County was chosen as a representative county from which data could be obtained for the test.

From state individual income tax returns filed with the Department of Revenue a sample of residents of the county in various occupations was obtained. The Income Tax Division cooperated in making available the income information for each person selected in the sample. From the Dickinson County Treasurer's Office it was possible to determine the amount of taxes paid by each person in the sample for county government, school purposes, and total for all units of government in the county.

Three occupational groups were selected for the comparison of taxes paid by each group, classification based on the principal source of the person's adjusted gross income.

Four potential income bases were computed from income and property tax information: (1) "Individual adjusted gross income" which consists of all income reported from Dickinson County on state individual income tax returns; (2) "Property tax individual adjusted gross income" which includes individual adjusted gross income as reported on tax returns plus the property taxes paid on businesses and farm property; (3) "Individual and corporate adjusted gross income"; and (4) "Property tax individual and corporate adjusted gross income" which includes reported individual and corporate adjusted gross income plus sixty-five percent of all property taxes paid for the support of local governments. Income tax rates sufficient to raise revenue equivalent to that raised by property taxes for county government, aggregate for all schools in the county, and total for all units of county government were calculated for each income tax base.

The analysis of variance for the amount of property taxes each occupational group paid was conducted to determine if there was a significant difference for the three occupational groups. Analysis of variance for the four income-related taxes was also conducted to determine if a difference existed, and finally a comparison was made between the property tax and the income-related tax for each occupation.

The tests showed significant changes in tax liabilities of occupational groups if local income taxes replaced property taxes. In every test farmers' tax liabilities would decrease and wage-salary tax liabilities would increase by a significant amount. The results were not as conclusive for business-professional groups. However, in most tests the evidence indicated that there would be a significant difference of taxes paid for this group also.

The amount of shift in tax burden which would occur if the local property tax were replaced by a local adjusted gross income tax depends a great deal on which one of the four adjusted gross income bases is used. It would be difficult to determine which of the four is most likely as a possible local income tax base. However, it would appear that from the tests an income tax based on individual and corporate adjusted gross income with the property taxes paid by business professional and farmers added to their reported adjusted gross income would result in the most equitable levy. The analysis of variance tests indicated that in terms of adjusted gross income alone, using any of the four bases, that the income tax would be more equitable than the property tax. At the .05 percent probability level there was found to be no significant difference in the amount of income-related taxes the three occupational groups would pay.

These same tests and comparisons were applied to property tax and income tax information for the Wheaton School District in Pottawatomie County for the years 1960, 1961, and 1962. The tests showed similar results to those obtained in Dickinson County. There is a significant difference in the amount of property taxes paid by different occupational groups. There was no significant difference in the amounts of income-related taxes that the three occupational groups would pay. Wage and salary earners would pay a greater amount of taxes under an income based tax than with the present property tax. On the average, farmers would pay about the same amount of taxes under either tax as would other occupational groups. The reason that farmers would probably find little change in their tax burden is because the Wheaton School District is composed primarily of farmers.

It is unlikely that a local gross income tax would completely replace the property tax. Property owners likely would have a large windfall with property values increasing and disposable income increasing. Some wage and salary earners might find it difficult to pay the new tax that would be placed on them.

The administration of the adjusted gross income tax would have some problems. People are familiar with the property tax and understand its operation. Some people, particularly those now exempt from net income taxes, would find it difficult to comply with the requirements of a new tax because they would lack understanding of its requirements. It is likely that for an adjusted gross income tax to be effective it would have to be levied on all individual adjusted gross income. This would require everyone to file a tax return if they earned any income during the taxing year. Many people not presently required to file a tax return would be required to do so and this would present problems.

In future studies of local income taxes, it would be well if more counties could be included in the sample. It would also be of value if a study could be made to include several years so that fluctuations in income could be studied. A larger sample would be of value so that cities could be included and a wider range of occupations might be used.

BIBLIOGRAPHY

Books

American Federation of Labor and Congress of Industrial Organizations. *State and Local Taxes*. (AFL-CIO Publication No. 80) Washington, D. C.: American Federation of Labor and Congress of Industrial Organizations, 1958.

Barlowe, Raleigh. *Land Resource Economics*. Englewood Cliffs, N. J.: Prentice-Hall, 1961.

Break, George F., and Rolph, Earl Robert. *Public Finance*. New York: Ronald Press Co., 1961.

Due, John F. Government Finance, *An Economic Analysis*. Homewood, Ill.: Richard D. Irwin, 1963.

Groves, Harold M. *Financing Government*. (Fifth Edition) New York: Henry Holt and Co., 1958.

McDonald, James T. *Municipal Finance in Kansas: 1948-1959: A Study of Nine Cities of the First Class*. (Fiscal Information Series Number Ten) Lawrence: Governmental Research Center, The University of Kansas, 1961.

Steel, Robert G. D., and Torrie, James H. *Principles and Procedures of Statistics*. New York: McGraw-Hill, 1960.

Taylor, Philip Elbert. *Economics of Public Finance*. (Third Edition) New York: MacMillan, 1961.

Bulletins

_____. *Kansas Tax Facts: A Handbook on State and Local Taxes*. (Publication No. 238) Topeka: Research Department Kansas Legislative Council, 1962.

Lutz, Edward A. *Local and State Financing in the United States and New York State*. (Cornell Extension Bulletin 1040) Ithaca: New York State College of Agriculture, 1960.

_____. Talk About Taxes: Local and State Financing Discussion Questions. (Discussion Leaflet 6 on Public Policy) Ithaca: New York State College of Agriculture, 1960.

_____. Nonproperty Taxation for Schools: Possibilities for Local Application. (OE-22021 Bulletin 1764, No. 4) Washington: U. S. Department of Health, Education, and Welfare, 1963.

_____. School Unification Plans: In Twenty Counties Under S.B. 400. (Publication No. 238) Topeka: Research Department Kansas Legislative Council, 1963.

Stocker, Frederick D. Nonproperty Taxes as Sources of Local Revenue. (Bulletin 903) Ithaca: Cornell University Agricultural Experiment Station, 1953.

Taylor, Milton C. Local Income Taxes as a Source of Revenue for Michigan Communities. East Lansing: The Institute for Community Development and Services, Continuing Education Service, Michigan State University, 1961.

Wright, Willard A., and Pine, Wilfred H. Cost of Rural High Schools in Central Kansas, 1956-1957. (Bulletin 429) Manhattan: Kansas State University, Agricultural Experiment Station, 1961.

Reports

Advisory Committee on Intergovernmental Relations. Local Nonproperty Taxes and the Coordinating Rule of the State. (Report A-9) Washington, D. C.: Government Printing Office, 1961.

Citizens Advisory Committee. State and Local Public Finance in Kansas. Topeka: State of Kansas, 1963.

_____. Local Earnings Taxes in Other States. Topeka: Research Department, Kansas Legislative Council, 1964.

McClelland, Harold F. State and Local Finance. Lincoln: Legislative Council Committee on Taxation, 1962.

North-Central Land Tenure Research Committee and the Farm Foundation. Rural Taxation Problems. Department of Agricultural Economics, Agricultural Experiment Station University of Illinois College of Agriculture, Urbana, Illinois, 1963.

Papke, James A. Other Sources of Local Revenue, Taxes and Charges. Detroit: Citizens Income Tax Study Committee, 1960.

Research Department, Kansas Legislative Council. Major State and Local Nonproperty Taxes. Topeka: Kansas Legislative Council, 1963.

_____. The Local Income or Gross Earnings Tax in Pennsylvania. Topeka: Kansas Legislative Council, 1962.

Public Documents

Kansas Legislature Session of 1963. House Bill No. 425 By Committee on Livestock. Topeka: Kansas Legislature, 1963.

_____. House Concurrent Resolution No. 26 By Committee on Assessment and Taxation. Topeka: Kansas Legislature, 1963.

Unpublished Material

Dopson, Fred Charles. "An Empirical Study of Taxes Paid by Kansas Farmers in 1960." Unpublished Master's Thesis, Kansas State University, Manhattan, Kansas, 1962.

Friend, Reed E. "A Study of Methodology for Estimating the Impact of Taxes on Kansas Farm Operations." Unpublished Master's Thesis, Kansas State University, Manhattan, Kansas, 1960.

Mays, Charles Kenley. "Nonproperty Taxes for Local Revenue, Particularly Income-Related Taxes for Public Schools in Kansas." Unpublished Master's Thesis, Kansas State University, Manhattan, Kansas, 1964.

Research Department, Kansas Legislative Council. "Fundamental Policy Questions Concerning Application of an Earnings Tax." Memorandum. Topeka: Kansas Legislative Council, 1963. (Mimeographed)

APPENDIX

EXHIBIT A.

Regression equations for estimated adjusted gross income tax rates by area for population for county government in Kansas, 1959 and 1962.[a] (X is population per 100,000 people.)

Year and area of state		A	B_1		B_2	t_1	t_2	R^2
1959								
Eastern, rate	=	.06283	-.13691 (-2.617)	+	$.061920X^2$ (2.139)	6.31	5.15	.6089**
Central, rate	=	.04788	-.08749 (-3.129)	+	$.023666X^2$ (2.810)	4.24	3.80	.3984**
Western, rate	=	.07044	-.65307 (-1.365)	+	$1.897886X^2$ (.835)	2.06	1.26	.3408**
1962								
Eastern, rate	=	.05767	-.12995 (-3.013)	+	$.058006X^2$ (2.523)	6.80	5.69	.6419**
Central, rate	=	.04388	-.06967 (-2.819)	+	$.018330X^2$ (2.501)	3.73	3.31	.3533**
Western, rate	=	.06914	-.66279 (-1.814)	+	$1.985364X^2$ (1.815)	2.66	1.81	.4276**

Source: Computed from information supplied by State Revenue Department from state income tax returns and information from the Property Valuation Department. Population data was compiled by the Kansas Board of Agriculture as reported by county assessors.

[a] Equation: $R = A + B_1X + B_2X^2$. Figures in parentheses are the standard partial regression coefficients.

** Significant at the .05 probability level.

EXHIBIT A. CON'T.

Regression equations for estimated retail sales tax rates by area for county government in Kansas, 1959 and 1962.[a] (X is population per 100,000 people.)

Year and area of state		A	B_1		B_2	t_1	t_2	R^2
1959								
Eastern, rate	=	7.6155	$-17.164X$ (-2.67)	+	$8.006692X^2$ (2.247)	6.22	5.24	.5823**
Central, rate	=	6.3599	$-13.368X$ (-3.049)	+	$3.670165X^2$ (2.778)	4.00	3.64	.3585**
Western, rate	=	11.7349	$-148.322X$ (-1.807)	+	$496.524X^2$ (1.273)	2.87	2.02	.4057**
1962								
Eastern, rate	=	7.5895	$-17.659X$ (-2.883)	+	$8.066242X^2$ (2.470)	5.78	4.95	.5464**
Central, rate	=	5.9323	$-11.031X$ (-2.991)	+	$3.039410X^2$ (2.705)	4.02	3.63	.3711**
Western, rate	=	11.9057	$-148.059X$ (-2.306)	+	$483.51608X^2$ (1.716)	3.68	2.74	.5175**

Source: Computed from information supplied by the State Revenue Department from state retail sales tax reports and information from the Property Valuation Department. Population data was compiled by the Kansas Board of Agriculture as reported by county assessors.

[a] Equation: $R = A + B_1X + B_2X^2$. Figures in parentheses are the standard partial regression coefficients.

** Significant at the .05 probability level.

EXHIBIT A. CON'T.

Regression equations for estimated adjusted gross income tax rates by area for population for total for all units of local government in Kansas, 1959 and 1962.[a] (X is population per 100,000 people.)

Year and area of state		A	B_1		B_2	t_1	t_2	R^2
1959								
Eastern, rate	=	.17608	-.28642X (-2.498)	+	$.130064X^2$ (2.034)	5.50	4.52	.5399**
Central, rate	=	.15907	-.18331X (-3.397)	+	$.049213X^2$ (3.027)	4.96	4.42	.4833**
Western, rate	=	.18017	-.72500X (-.758)	+	$1.41305X^2$ (.3109)	1.05	.43	.2123**
1962								
Eastern, rate	=	.16273	-.26098X (-2.998)	+	$.116460X^2$ (2.509)	6.71	5.61	.6359**
Central, rate	=	.14352	-.12740X (-2.930)	+	$.033427X^2$ (2.524)	4.13	3.56	.4297**
Western, rate	=	.17341	-.72406X (-.990)	+	$1.43706X^2$ (.448)	1.33	.60	.3133**

Source: Computed from information supplied by State Revenue Department from state income tax returns and information from the Property Valuation Department. Population data was compiled by the Kansas Board of Agriculture as reported by county assessors.

[a] Equation: $R = A + B_1X + B_2X^2$. Figures in parentheses are the standard partial regression coefficients.

** Significant at the .05 probability level.

EXHIBIT A. CON'T.

Regression equations for estimated retail sales tax rates by area for county total of all units of local government in Kansas, 1959 and 1962.[a] (X is population per 100,000 people.)

Year and area of state	A	B_1	B_2	t_1	t_2	R^2
1959						
Eastern, rate	21.246	-35.898X (-2.500)	$17.5879X^2$ (2.214)	5.12	4.53	.4581**
Central, rate	21.390	-34.213X (-3.249)	$9.4765X^2$ (2.987)	4.39	4.03	.3956**
Western, rate	30.921	-282.549X (-1.561)	$865.169X^2$ (1.006)	2.45	1.58	.3905**
1962						
Eastern, rate	21.434	-36.456X (-2.694)	$17.347X^2$ (2.404)	4.80	4.28	.4259**
Central, rate	19.781	-26.107X (-2.946)	$7.2022X^2$ (2.668)	3.92	3.55	.3585**
Western, rate	31.481	-284.205X (-1.872)	$849.4540X^2$ (1.275)	2.82	1.92	.4588**

Source: Computed from information supplied by the State Revenue Department from state retail sales tax reports and information from the Property Valuation Department. Population data was compiled by the Kansas Board of Agriculture as reported by county assessors.

[a] Equation: $R = A + B_1X + B_2X^2$. Figures in parentheses are the standard partial regression coefficients.

** Significant at the .05 probability level.

EXHIBIT B.

Property taxes for sample of taxpayers in Dickinson County, Kansas, 1961.

			Computed taxes						Taxes paid		
					Schools						
Name	Assessed value	Tax district	County	City	Elem.	H.S.	Total	Total	Personal	Real	Total

EXHIBIT C.

Analysis of variance for differences in average property taxes paid and average potential individual adjusted gross income tax liability for occupational groups, Dickinson County, Kansas, 1961.

Farm

Analysis of Variance for total All Units of Local Government

Source of variation	df	Mean square	F^a
Among occupation	1	976,529.35	7.67**
Within occupation	98	127,261.24	
Total	99		

Business and Professional

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F^a
Among occupation	1	2,005,228.76	11.69**
Within occupation	98	171,466.31	
Total	99		

Wage and Salary

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F^a
Among occupation	1	4,657,645.95	90.91**
Within occupation	98	51,228.96	
Total	99		

Source: Computed from Table 18.

[a] Tabular F value 1.98 and 2.58 at .05 and .01 probability levels, respectively.

** Significant at .01 probability level.

EXHIBIT C. CON'T.

Analysis of variance for difference in average property taxes paid and average potential individual and corporate adjusted gross income tax liability for occupational groups, Dickinson County, Kansas, 1961.

Farm

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	2,219,548.74	19.17**
Within occupation	98	115,771.24	
Total	99		

Business and Professional

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	459,560.25	3.93**
Within occupation	98	116,883.84	
Total	99		

Wage and Salary

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	2,005,376.03	61.10**
Within occupation	98	32,819.42	
Total	99		

Source: Computed from Table 19.

[a] Tabular F value 1.98 and 2.58 at .05 and .01 probability levels, respectively.

** Significant at .01 probability level.

EXHIBIT C. CON'T.

Analysis of variance for difference in average property taxes paid and average potential property tax individual adjusted gross income tax liability for occupational groups, Dickinson County, Kansas, 1961.

Farm

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	893,225.35	7.02**
Within occupation	98	127,152.91	
Total	99		

Business and Professional

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	1,445,015.57	9.64**
Within occupation	98	149,801.32	
Total	99		

Wage and Salary

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	3,249,247.79	77.90**
Within occupation	98	41,708.24	
Total	99		

Source: Computed from Table 20.

[a] Tabular F value 1.98 and 2.58 at .05 and .01 probability levels, respectively.

** Significant at .01 probability level.

EXHIBIT C. CON'T.

Analysis of variance for difference in average property taxes paid and average potential property tax individual and corporate adjusted gross income tax liability for occupational groups, Dickinson County, Kansas, 1961.

Farm

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	2,106,506.80	18.18**
Within occupation	98	115,845.08	
Total	99		

Business and Professional

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	280,236.83	2.65**
Within occupation	98	105,646.80	
Total	99		

Wage and Salary

Analysis of Variance for Total All Units of Local Government

Source of variation	df	Mean square	F[a]
Among occupation	1	1,352,380.61	48.61**
Within occupation	98	27,820.31	
Total	99		

Source: Computed from Table 21.

[a] Tabular F value 1.98 and 2.58 at .05 and .01 probability levels, respectively.

** Significant at .01 probability level.

ALTERNATIVE INCOME-RELATED TAXES FOR LOCAL REVENUE

by

DAVID MICHAEL NELSON

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AN ABSTRACT OF A MASTER'S THESIS

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The purpose of this study was to determine some aspects of and measure the feasibility and impact of alternative taxing systems to the property tax for local governments. The thesis includes a discussion of the administrative feasibility of nonproperty taxes for local levels of government and the effects of reorganization of local units (as applied to schools in particular) on efficiency in the administration of a nonproperty tax.

One part of the study was to determine the effects of population on the tax rate required to obtain revenue to operate local governments.

The main objective, however, was to determine the impact (amount of taxes paid) on different occupational groups and the shift in tax burden which would occur if the local property tax on real and personal property were replaced by a local income-related tax.

Use has been made of both the sales tax and the income tax in municipalities, counties, and school districts in several states. Experience in other states indicated that a local sales tax in Kansas would be most feasible in urban communities where suburban competition is unimportant and in rural areas over a geographical area large enough to include substantial retail sales on which to establish a tax base. With the reorganization of local units, school districts in particular, the feasibility of a sales tax would be increased. The general sales tax may be most suitable when locally levied but state collected.

Local income taxes are usually a flat rate tax applicable only to wages and salaries, farming, and business and professional net profits and without deductions and exemptions. Without withholding of the income

tax from income, it is doubtful that such a tax would be feasible. A local income tax would not be feasible in many of the local taxing jurisdictions in Kansas because of the large number of self-employed persons and the many small units of government, but an income tax may be suitable for large cities or on a county basis.

A non-linear regression equation was used to determine the effects of population on the tax rate required to obtain revenue to operate local governments. It was found that the relationship between population and the nonproperty tax rates was an inverse relationship, but that the relationship did exist.

This inverse relationship is not constant, however. It was found that as population per county continues to increase the tax rate will decline at a decreasing rate. The regression equations expressing these relationships were found to be statistically significant for county, schools, and total county for the years 1959 and 1962 when all counties in the state were included in deriving the solutions. When the state was divided into the Eastern, Central, and Western areas, the regression equations for schools were significant in the Eastern and Central areas of the state. The equations were found to be nonsignificant for adjusted gross income tax in 1959, but, significant in 1962, in the Western part of the state. The equations were significant in all three areas for gross retail sales. Economics of scale is probably the major reason for this relationship existing.

To test the hypothesis that a local income tax (gross income tax) in lieu of part or all of the property tax would reduce taxes paid (impact) of some occupational groups and increase taxes paid by other groups, Dickinson County was chosen as a representative county from which data could be obtained for the test.

Three occupational groups; farmers, wage and salary, and business and professional, were selected for the comparison of taxes paid by each group. Classification was based on the principal source of the person's adjusted gross income.

The tests showed significant changes in tax liabilities of occupational groups if local income taxes replaced property taxes. In every test farmer's tax liabilities would decrease and wage-salary tax liabilities would increase by a significant amount. The results were not as conclusive for business-professional groups, however. In most tests the evidence indicated that there would be a significant difference of taxes paid for this group also.

The analysis of variance tests indicated that in terms of adjusted gross income alone, the income tax would be more equitable than the property tax. At the .05 percent probability level there was found to be no significant difference in the amount of income-related taxes the three occupational groups would pay.