PERSPECTIVES ON ILLINOIS SCHOOL FINANCE

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PREFACE

In February 1976 the State Board of Education authorized a comprehensive study of Illinois' state aid programs. To assist in this study, a citizens commission and a group of school finance experts were appointed. The Citizens Commission on School Finance presented its report and recommendations to the State Board in July 1977. The Technical Task Force continues to provide valuable assistance to staff of the Illinois State Aid Equalization Study.

Several studies were made in the fall of 1976, and these are presented in this volume. These studies, as is the Illinois State Aid Equalization Study, were funded by the U.S. Office of Education under Section 842 of P.L. 93-380. We appreciate the efforts of the persons performing these studies in dealing with complex facets of state level school finance.

Carol E. Hanes, Project Director
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VARIOUS INCOME-WEIGHTED OPERATING TAX RATES AND ILLINOIS STATE AID TO EDUCATION

J. Dan Hou and Warren B. Carson

Introduction

In Illinois, public school districts can choose either the resource equalizer formula or the Strayer-Haig formula to compute their state aid claims. In 1975-76, 81 percent of Illinois school districts with 94 percent of pupils picked the resource equalizer formula. According to the resource equalizer formula, districts with the same operating tax rates are guaranteed the same level of resources per pupil from state and local funds. As for districts with different operating tax rates, those with higher operating tax rates are guaranteed higher levels of expenditures. The difference between the guaranteed expenditures and local revenues is covered by state aid. The local revenues come from taxation on assessed valuation of real property within the local school district. In other words, the guaranteed expenditure level is the function of operating tax rates rather than assessed valuation under the resource equalizer formula.

The resource equalizer formula was designed to meet the requirement of fiscal neutrality, a principle established in Serrano v. Priest. Districts with lower assessed valuation per pupil were the major concern of the Serrano case. Data in Table 1 show that these districts tend to be the ones with higher operating tax rates. Hence, these districts are likely to benefit the most from the resource equalizer formula.

It has been asked very often whether income-poor families live in school districts with lower assessed valuation per pupil. In 1974, Benson stated that

"poor people live in all types of districts, as characterized by assessed valuation per student."[1] Testing this conclusion, Hou conducted a study in 1975 to investigate the relationship between district assessed valuation per pupil and median family income for Illinois. He found a curvilinear relationship existing between these two variables. For each type of school district with below-the-median assessed valuation per pupil, a positive relationship was found between district median family income and assessed valuation per pupil. Among school districts with above-the-median assessed valuation per pupil, elementary and unit districts showed no noticeable relationship between median family income and assessed valuation per pupil, while the relationship for high school districts was found to be negative.[2] In other words, there were school districts in Illinois that were low in median family income, but high in assessed valuation per pupil. These districts tended to have low operating tax rates. Under the resource equalizer formula, these districts are not guaranteed as high an expenditure level as are the school districts with higher operating tax rates.

Table 1

The Correlation Coefficients between Various Variables and 1973 Operating Tax Rates by District Type

	1973 EAV* per TWADA**	Median Family Income	Per Capita Income
Elementary	-0.27	0.65	0.61
High School	-0.28	0.55	0.55
Unit	-0.33	0.29	0.23

*EAV stands for equalized assessed valuation.
**TWADA is an acronym for Title I weighted average daily attendance.

Table 1 also reveals that lower operating tax rates tended to be found in school districts with lower median family income or per capita income, and vice versa, especially in elementary and high school districts. Under the resource equalizer formula, a lower expenditure level is guaranteed to districts with lower operating tax rates and a higher expenditure level to districts with higher operating tax rates. Hence, a lower expenditure level tends to be associated with a lower income level, and a higher expenditure level with a higher income level. In other words, the inclusion of the operating tax rate in the resource equalizer formula tends to help income-rich school districts more than income-poor districts in terms of expenditure level.

To provide equal access to available resources for school districts with less ability-to-pay, i.e., lower income level, two methods have been investigated to include an income factor in the state aid formula. The first method is to weight assessed valuation by income.[3] As such, districts with higher assessed valuation per pupil and lower income level would have increased access to state funds. The second method is to weight tax rates by income.[4] The weighting would give tax rate credits to school districts with lower income levels. As a result, these income poor districts would have a greater opportunity to participate fully in the state aid system. The second method may exert more influence than the first method on school districts using the resource equalizer formula, in which the expenditure level is the function of operating tax rates. Therefore, the second method should be considered carefully in planning reform of the state aid system.

It was the purpose of this study to investigate the effects of various income-weighted operating tax rates on the distribution of Illinois state aid to education.

Objectives of the Study

The objectives of the study were to investigate the following questions:

1. Which types of communities will be affected the most by income-weighted operating tax rates: central cities, suburbs, independent cities, or rural areas?
2. What are the effects of income-weighted operating tax rates on the reduction of district expenditure variation?
3. What are the effects of income-weighted operating tax rates on fiscal neutrality.

Sources of Data

The fiscal data used in this study were retrieved from the data files of the Illinois Office of Education. These fiscal data include those for calculating estimated 1975-76 state aid. Median family income and per capita income data were obtained from the 1970 Census: Illinois School District Profiles, also published by the Illinois Office of Education. Information in the Profiles was retrieved from the fourth count tape of the 1970 Census developed by the U.S. Bureau of the Census. Census data used to classify school districts in the geographical typology were retrieved from the fifth count tape of the 1970 Census data.

Variables Used and Definitions of Terms

Community Type

In this study a demographical typology was used to classify communities served by school districts. According to the demographical typology, Illinois school districts were put into the following four categories: central city, suburb, independent city, and rural area. A central city school district is one that serves the largest city in the standard metropolitan statistical area

(SMSA) as defined by the U.S. Bureau of the Census in 1970.[5] School districts with less than 50 percent of the population living in urbanized area were classified as rural area districts, regardless of whether they were in SMSAs or non-SMSAs. On the other hand, school districts with over 50 percent of their population residing in the urbanized areas were considered as "urban" school districts. The SMSA urban school districts, except those of central cities, were further categorized as suburbs. If the urban school districts were not in the SMSAs, they were considered as independent city districts.

Estimated Expenditures

For this study, actual operating expenditures were not available. Hence, operating expenditures were estimated by adding estimated 1975-76 state aid to local operating revenues. The local operating revenues are the product of district assessed valuation multiplied by its operating tax rate.

Income-Weighted Operating Tax Rates

In this study, three income-weighted operating tax rates were included separately in the simulations of 1975-76 estimated state aid formulas. In the simulations, all of the variables except the operating tax rate were held constant. The district operating tax rate was replaced by an income-weighted operating tax rate in each simulation. The following are the three income-weighted operating tax rates:

OTR1. This income-weighted operating tax rate was developed on the basis of the rank order of the district median family income. More operating tax rate credits were given to the group of districts with lower median family income. However, the credits were not given to school districts with a median family income higher than the state median family income ($11,096) or to districts with operating tax rates lower than the maximum operating tax rates without referendum

(1.27 percent for elementary and high school districts, and 2.075 percent for unit districts). In essence, this was a grouped weighting of median family income.

OTR2. The district's operating tax rate was multiplied by the ratio between the state median family income ($11,096) and the district median family income. For school districts in which either the median family income was above $11,096 or the operating tax rate was below the maximum operating tax rate without referendum, no credit was applied to the operating tax rate. In other words, OTR2 was an individual weighting of median family income.

OTR3. In this weighting, the district operating tax rate was multiplied by the ratio between the state per capita income ($3,498) and the district per capita income. School districts with either the per capita income above $3,498 or the operating tax rate below the maximum operating tax rate without referendum were given no weighting.

For those school districts either with an income level above the state average or with an operating tax rate below the maximum operating tax rate without referendum, the operating tax rates remain unweighted for OTR1, OTR2, and OTR3. In other words, operating tax rates for each of these districts were the same for all of the simulations.

Operating Tax Rates

The operating tax rate for 1975-1976, as defined in The School Code of Illinois, consists of all district taxes extended for all purposes except bond and interest, summer school, rent, transportation, special education building, capital improvement, and vocational education building.[6]

Study Population

The population of this study consists of all public school districts in Illinois, except high school districts. The reason for excluding high school

districts is that these school districts in theory can reach the maximum of the state guaranteed expenditure levels without passing referenda. In other words, high school districts can reach that maximum expenditure level with an operating tax rate of 1.05 percent, which is below the 1.27 percent of the maximum operating tax rate without referendum. It was found that operating tax rates of all high school districts fall below the 1.27 percent. In this study, any school district with an operating tax rate below the maximum operating tax rate of non-referendum was given no weighting.

Statistics

In this study, three statistics were used: percentage, coefficient of variation, and coefficient of regression. Percentage was used to investigate the change of operating tax rates and state aid by district type and community type. The coefficient of variation, which is the product of 100 multiplied by the ratio of the standard deviation to the mean, was used to measure the variation of expenditure per TWADA. A lower coefficient indicates a reduction in expenditure differences between districts. The coefficient of regression was used to measure fiscal neutrality. In the regression equation, the logarithm base 10 of the estimated expenditures per TWADA is the dependent variable, and the logarithm base 10 of assessed valuation per TWADA is the independent variable. The coefficient of regression can be either positive or negative. If the sign is positive, the closer the coefficient is to zero, the more it shows fiscal neutrality. If the sign is negative, the farther the coefficient is from zero, the greater it shows the compensatory effects.

Limitations

Income data used in this study were retrieved from the fourth and the fifth count tapes of the 1970 Census. The data reflect consolidations of

Illinois school districts through June of 1975. For school districts consolidated afterwards, no income data are available to weight their operating tax rates. Hence, for these districts estimated state aid without income weighting was used for each weighting instead.

A small sample size was used in collecting the 1970 Census data. For personal income data, the sample size was only 20 percent of the population. Pohlman found that the sampling errors in the fourth count of the 1970 Census data were worse for those school districts with enrollment of less than 300.[7] Therefore, income data used in this study, especially those of small districts, are vulnerable to sampling errors.

The income data retrieved from the 1970 Census reflect 1969 personal income. It has been seven years since the census was taken. These out-of-date income data may cause some errors in measuring the real taxpaying ability of districts.

Findings of Data Analysis

Effects of Income Weighting on Operating Tax Rates

Table 2 presents percentages of the best six months average daily attendance (ADA) and percentages of school districts that would be influenced by the three income weightings. If the operating tax rate is weighted by median family income, i.e., OTR1 or OTR2, 33.77 percent of elementary school districts with 17.68 percent of ADA and 72.07 percent of unit districts with 41.41 percent of ADA could be favorably affected. Table 2 also shows that the per capita income weighting could cause an increase of the operating tax rate for purposes of estimating state aid claims. The increase would be reflected in 40.22 percent of elementary districts (or 181 districts) with 28.14 percent of ADA, and 74.54 percent of unit districts (or 331 distrists) with 41.46 percent of ADA. From these data, it can be concluded that the per capita income weighting among the three income weightings studied could exert the greatest effects on the

operating tax rates of elementary and unit districts on the basis of the number of affected ADA and school districts.

Table 2

Percentage of ADA and School Districts Benefiting from Income Weighting

	OTR1*	OTR2**	OTR3***
Elementary			
ADA: 497,145	17.68	17.68	28.14
Districts: 450	33.77	33.77	40.22
Unit			
ADA: 1,276,749	41.41	41.41	41.46
Districts: 444	72.07	72.07	74.54

*OTR1: Operating tax rate with the grouped weighting of median family income.
**OTR2: Operating tax rate with the individual weighting of median family income.
***OTR3: Operating tax rate with the per capita income weighting.

Table 3 displays the percentages of ADA and school districts with the maximum operating tax rate for full funding, i.e., 1.95 percent for elementary or 3.00 percent for unit districts as of 1975-76. Only 20.44 percent of elementary districts (or 92 districts) with 46.01 percent of ADA and 4.05 percent of unit districts (or 18 districts) with 42.01 percent of ADA reached the full-funding maximum operating tax rates without any income weighting in 1975-76. When the income weightings were applied to the operating tax rates, the percentages of districts with the full-funding maximum operating tax rates all increased. Among the three income weightings, the per capita income weighting resulted in the highest percentage of districts with the maximum full-funding operating tax rates: 35.33 percent of elementary districts with 52.97 percent of ADA and 41.21

percent of unit districts with 56.94 percent of ADA. These represented an increase of 14.89 percent of elementary districts (or 67 districts) and 37.16 percent of unit districts (or 165 districts).

Table 3

Percentage of ADA and School Districts with the Maximum Operating Tax Rate for Full Funding

	OTR*	OTR1**	OTR2**	OTR3**
Elementary				
ADA: 497,145	46.01	50.97	50.21	52.97
Districts: 450	20.44	33.33	32.44	35.33
Unit				
ADA: 1,276,749	42.01	51.71	54.67	56.94
Districts: 444	4.05	31.53	39.86	41.21

*OTR: Operating tax rate without income weighting.
**OTR1, OTR2, and OTR3 are the same as those in Table 2.

Effects of Income Weighting on State Aid

In the 1973 reform of the Illinois state aid system, limitations were imposed on school districts to prevent full funding of the resource equalizer formula during the first four years. In this study, "estimated claim" indicates the amount of state aid a school district can claim with all the limitations, while "fully funded state aid" refers to the amount of state aid a district may be fully entitled without any such limitations.

Tables 4 and 5 present separately the total state aid for estimated claim and full funding by district type. The total state aid for estimated claim in 1975-76 was $1.203 billion without income weighting (OTR), $1.237 billion with the grouped weighting of median family income (OTR1), and $1.234 billion with

the individual weighting of median family income (OTR2), and $1.238 billion with the per capita income weighting (OTR3). In the long run, the state aid total for full funding is $1.452 billion without income weighting (OTR), $1.512 billion with the grouped weighting of median family income (OTR1), $1.508 billion with the individual weighting of median family income (OTR2), and $1.515 billion for the per capita income weighting (OTR3).

Table 4

Estimated Claim: 1975-76

	OTR	OTR1	OTR2	OTR3
Elementary	$ 260,483,232	$ 266,508,976	$ 265,204,224	$ 267,150,304
High School	112,055,936	112,055,936	112,055,936	112,055,936
Unit	830,675,456	858,903,040	856,649,472	858,811,904
State Total	$1,203,214,624	$1,237,467,952	$1,233,909,632	$1,238,018,144

Table 5

Fully Funded State Aid

	OTR	OTR1	OTR2	OTR3
Elementary	$ 289,173,760	$ 300,530,176	$ 298,401,024	$ 301,302,528
High School	223,918,912	223,918,912	223,918,912	223,918,912
Unit	939,083,008	987,549,952	985,853,696	989,596,928
State Total	$1,452,175,680	$1,511,999,040	$1,508,173,632	$1,514,818,368

Tables 6 and 7 show the effects of the income weightings on the estimated claim and fully funded state aid per TWADA by district type and by community

type. For elementary school districts, the per capita income weighting (OTR3) caused the largest percentage increase of state aid: 2.56 percent for 1975-76 estimated claims per TWADA and 4.19 percent at full funding. For unit districts, the largest percentage increase of 1975-76 estimated state aid claim per TWADA was caused by the grouped weighting of median family income (OTR1). The percentage increase was 3.39 percent over the one for non-weighting. However, if fully funded, the per capita income weighting (OTR3) gave unit districts the largest percentage increase in state aid, i.e., 5.38 percent.

Table 6

Estimated State Aid Claim per TWADA with an Income Weighting as a Percentage of 1975-76 Estimated Claim per TWADA with No Income Weighting

	OTR	OTR1	OTR2	OTR3
Elementary	$496.82	102.31%	101.81%	102.56%
Unit	$525.43	103.39%	103.12%	103.38%
Elementary Districts				
Suburbs	$501.46	101.07%	100.73%	101.27%
Independent Cities	$498.52	111.11%	109.37%	111.56%
Rural Areas	$468.47	105.69%	104.79%	106.15%
Unit Districts				
Central Cities	$553.69	100.74%	100.44%	100.11%
Suburbs	$558.95	102.33%	101.90%	103.26%
Independent Cities	$501.97	110.13%	109.91%	110.54%
Rural Areas	$431.65	108.79%	108.81%	109.52%

Tables 6 and 7 also reveal the effects of three income weightings on the distribution of state aid among the different types of communities. With regard to elementary districts, if the per capita income weighting (OTR3) was used in the forumla, the percentage increase of 1975-76 estimated claim was the highest:

1.27 percent for suburbs, 11.56 percent for independent cities, and 6.15 percent for rural areas. Fully funded state aid to these districts under the per capita income weighting (OTR3) increased 1.93 percent for suburbs, 17.89 percent for independent cities (which is a little lower than that under the grouped weighting of median family income), and 21.19 percent for rural areas.

Table 7

Estimated Fully Funded State Aid per TWADA with an Income Weighting as a Percentage of That with No Income Weighting

	OTR	OTR1	OTR2	OTR3
Elementary	$551.54	103.92%	103.19%	104.19%
Unit	$594.00	105.16%	104.98%	105.38%
Elementary Districts				
Suburbs	$558.22	101.49%	101.06%	101.93%
Independent Cities	$540.52	119.81%	116.57%	117.89%
Rural Areas	$518.38	111.82%	110.36%	121.19%
Unit Districts				
Central Cities	$648.43	101.29%	100.95%	100.60%
Suburbs	$608.89	103.05%	102.64%	104.40%
Independent Cities	$539.85	115.11%	115.21%	116.06%
Rural Areas	$466.20	114.81%	115.33%	116.54%

For unit districts, the findings for estimated claim and full funding are consistent. For central cities, the greatest percentage increase in state aid for the estimated claim and at full funding was caused by the grouped weighting of median family income weighting (OTR1): 0.74 percent and 1.29 percent, respectively. As for the other types of communities, the per capita income weighting (OTR3) caused the largest percentage increase of estimated claim: 3.26 percent of suburbs, 10.54 percent for independent cities, and 9.52 percent for rural

areas. If state aid was fully funded, these communities would also benefit the most from the per capita income weighting (OTR3): 4.4 percent for suburbs, 16.06 percent for independent cities, and 16.54 percent for rural areas.

Tables 6 and 7 also reveal that the percentage increase in state aid to elementary and unit districts in independent cities and rural areas would be much higher than that for these districts in central cities and suburbs. This finding reflects the fact that districts in independent cities and rural areas have a much lower median family income or per capita income than do districts in central cities and suburbs, as shown in Table 8. These lower income levels, together with lower operating tax rates, resulted in a very high percentage increase in state aid to districts in these communities.

Table 8

Averages of District Ability and Effort Measures
by Community Type

	Central City	Suburb	Independent City	Rural Area
1973 Operating Tax Rates				
Elementary		1.869	1.429	1.394
High School		1.720	1.332	1.437
Unit	2.456	2.600	2.323	2.275
Median Family Income				
Elementary		$13,896	$9,152	$9,320
High School		$13,343	$9,105	$8,883
Unit	$10,186	$11,228	$8,971	$8,606
Per Capita Income				
Elementary		$4,141	$2,849	$2,810
High School		$4,038	$2,814	$2,730
Unit	$3,295	$3,366	$2,808	$2,700

Effects on Reduction of Expenditure Variation

Table 9 presents coefficients of expenditure variation for different income weightings. The coefficients of variation for all three weightings are lower than those for non-weighting. This indicates that the income weightings would have the effect of reducing expenditure variation.

Among the three weightings, per capita income weighting (OTR3) produced the lowest coefficients with one exception. The exception was for expenditures with full funding of elementary districts. In this case, the grouped weighting of median family income (OTR1) resulted in a slightly lower coefficient than the per capita income weighting (OTR3). However, the difference was not significant. Therefore, it can be concluded that the per capita income weighting (OTR3) would be the best weighting in reducing the variation of expenditures.

Table 9

Coefficients of Variation: Estimated 1975-76 Expenditures per TWADA

	OTR	OTR1	OTR2	OTR3
With Estimated Claim				
Elementary	30.95	29.58	29.77	29.53
Unit	13.31	12.47	12.47	12.44
With Full Funding				
Elementary	29.79	27.59	27.91	27.60
Unit	13.66	13.41	13.42	13.39

Effects on Fiscal Neutrality

Table 10 displays the coefficients of regression for all of the three income weightings. The coefficients of regression for the three income weightings were lower than those for non-weighting, if the estimated claim was included in

computing estimated expenditures. The coefficients for both elementary and unit districts were the lowest, if the per capita income weighting was used. This indicates that the per capita income weighting is the best weighting among the three studied income weightings to move toward fiscal neutrality. If state aid was fully funded the data in Table 10 also show that the per capita income weighting was still the best weighting to achieve fiscal neutrality for elementary districts. As for unit districts, it was found that the coefficients approached zero (which indicates complete fiscal neutrality) and then became negative. These negative coefficients reflect compensatory effects. The higher the negative coefficients, the higher the compensatory effects. The per capita income weighting had the highest compensatory effects. Therefore, the per capita income weighting was the best weighting to move toward fiscal neutrality for both elementary and unit districts and to have compensatory effects on unit districts with full funding.

Table 10

Coefficients of Regression

	OTR	OTR1	OTR2	OTR3
With Estimated Claim				
Elementary	0.1105	0.0852	0.0876	0.0832
Unit	0.0756	0.0383	0.0384	0.0367
With Full Funding				
Elementary	0.0700	0.0147	0.0190	0.0137
Unit	0.0159	-0.0581	-0.0591	-0.0636

Summary of the Findings

1. Among the three income weightings, the per capita income weighting (OTR3) would be the best weighting in terms of the numbers of school districts and ADA that would experience an increase in operating tax rate. The per capita income weighting (OTR3) caused an increase in operating tax rate for purposes of computing state aid in 40.22 percent of elementary districts (or 181 districts) with 28.14 percent of ADA and 75.54 percent of unit districts (or 331 districts) with 41.46 percent of ADA.
2. On the basis of the percentage of school districts reaching the maximum full-funding tax rates, which were 1.95 percent for elementary districts and 3.00 percent for unit districts as of 1975-76, the per capita income weighting (OTR3) would be also the best among the three income weightings. Under the per capita income weighting (OTR3), the percentage of districts with the maximum full-funding operating tax rates were: 35.33 percent of elementary districts with 52.97 percent of ADA and 41.21 percent of unit districts with 56.94 percent of ADA. The changes in the numbers of school districts with the maximum full-funding operating tax rates from non-weighting to the per capita income weighting (OTR3) were: 92 versus 159 of elementary districts and 18 versus 183 of unit districts.
3. Among the three income weightings, the per capita income weighting (OTR3) was the most favored weighting for elementary and unit districts on the basis of the percentage increase in both per TWADA estimated claim and fully funded state aid.
4. Among elementary districts, the per capita income weighting (OTR3) was the most favorable to districts of all three types of communities--

suburbs, independent cities, and rural areas--if the percentage change per TWADA estimated claim was used as the criterion. If state aid was fully funded, the per capita income weighting (OTR3) was also most favorable to elementary districts in both suburbs and rural areas. However, the grouped weighting of median family income (OTR1) would be the most favorable weighting to elementary districts in independent cities.

5. Among unit districts, districts in communities of all types except central cities benefited from the per capita income weighting (OTR3) in terms of estimated claim per TWADA. The grouped weighting of median family income (OTR1) was of most benefit to unit districts in central cities, although the percentage increase was not very substantial. These findings are consistent with those based on fully funded state aid per TWADA.
6. The data revealed a substantial percentage increase of per TWADA estimated claim and fully funded state aid for both elementary and unit districts in independent cities and rural areas in comparison with the increase for districts in suburbs or central cities, regardless of which of the three income weightings was used.
7. The coefficients of variation revealed that all three income weightings reduced the variation of estimated expenditures per TWADA for elementary and unit districts, regardless of whether estimated claim or fully funded state aid was used. However, the per capita income weighting appeared to be slightly better than the other two income weightings in reducing the variation of expenditures.
8. The coefficients of regression showed that all three income weightings moved both elementary and unit districts closer to fiscal neutrality

on the basis of either estimated claim or fully funded state aid. Among the three income weightings, the per capita income weighting (OTR3) appeared to be the best weighting to bring about fiscal neutrality. Furthermore, it is important to note that all three income weightings had compensatory effects on unit districts, if state aid was fully funded. However, the per capita income had the highest compensatory effects.

Conclusions

On the basis of these analyses of the data, it can be concluded that the per capita income weighting (OTR3) could be a better weighting to be applied to the operating tax rate than either the grouped weighting of median family income (OTR1) or individual weighting of median family income (OTR2). If the per capita income weighting (OTR3) used in this study were to be adopted, the increase of the total estimated claim of state aid for 1975-76 would be $35 million more than the 1975-76 state total without income weighting. However, if state aid were fully funded and the suggested per capita income weighting (OTR3) were used, the increase from $1.452 billion, which is for non-weighting, would be $63 million.

There are several advantages to weighting operating tax rates by income as suggested in the study, which would include the following:

1. No penalties would be imposed on those school districts with above-the-state-average income, i.e., $3,498 for per capita income and $11,096 for median family income. The practice would be politically popular.
2. It would help the school districts in independent cities and rural areas substantially, together with hundreds of school

districts in other areas. The inclusion of income weightings would increase the burden to the state by around $60 million for full funding of the formula.

3. It would provide more opportunities for income poor districts to fully participate in the state aid system. Data showed that increase of the number of school districts with the maximum operating tax rates for full funding were 67 elementary districts and 165 unit districts if the per capita income weighting was used in the Illinois state aid system.

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SCHOOL BUSINESS MANAGEMENT POSITION PAPER

Illinois Financial Accounting Committee

Background

A subcommittee of the Illinois Financial Accounting Committee was appointed for the purpose of reviewing past recommendations of the Committee or areas of concern and to identify those areas that are of principal and continued concern. Members of the subcommittee included Mr. Dave Allen, Mr. Donald Parker, Mr. Timothy McGree, Dr. Ray Lows, Dr. Creta Sabine, and Mr. Ross Hodel. The subcommittee prepared the initial draft of the paper that was adopted by the full committee on November 5, 1976.

Accounting, Reporting, and Financial Control

Accrual Reporting

The Illinois Financial Accounting Committee in 1974-1975 and again in 1975-1976 has recommended that the State Board of Education and the Illinois Office of Education initiate legislation that would move toward mandating accrual reporting. The initial step in the process should be the development of training material and programs to aid in the transition to accrual reporting.

Rationale. The accrual basis measures changes as changes occur rather than awaiting the actual cash transactions. Since the accrual basis is a more comprehensive basis of accounting, it increases the accuracy of measurement and comparability. The accrual basis meets the standards set by the Association of School Business Officials, the Securities and Exchange Commission, the Municipal Finance Officers Association, and the American Institute of Certified Public Accountants. Standards for full financial disclosure include

the accrual basis, which enhances bond and credit ratings. Bond attorneys and consultants are now asking schools to provide accrual basis reports for a clearer picture of district financial standing and worth.

Program Budgeting and Accounting

The Illinois Office of Education should establish a date at which time all school districts in Illinois would be required to use the Illinois Program Accounting Manual for Local Education Agencies.

Rationale. Over the past four years Illinois has invested thousands of dollars in the development of the new accounting manual. At the present time, nearly 30 percent of the school districts in Illinois use the new accounting system. It has proven to be a better tool for management information and should be implemented in all school districts. It is also very inefficient to operate two accounting systems at the state level.

Food Service Essential Cost Accounting

The Illinois Office of Education should move with all deliberate speed to develop such materials and training programs as may be necessary to enable local education agencies to comply with the U.S. Department of Agriculture's instructions on food service essential cost accounting.

Rationale. The U. S. Department of Agriculture has indicated that these guidelines will be mandatory. School districts need to identify accurate and full costs to ensure proper management and reimbursement of the food service program.

Fiscal Year Change

The State Board of Education should initiate legislation to establish a fiscal year beginning on September 1 and ending August 31 for Illinois schools.

Rationale. The recommended fiscal year would be more compatible with school operations and with receipt of tax revenue within the appropriate fiscal year. Also, the change would enable boards of education to have a better idea of the availability of state funds for budget preparation.

School Business Management Practices

School Management Unit

It is recommended that the Illinois Office of Education institute a School Business Management Services Unit to provide assistance to school districts in the areas of school business management. Some needed areas of assistance are the following:

1. Administrative management reviews.
2. Special services in the areas of purchasing, accounting, budgeting, financial planning, insurance, food services, maintenance of plant, warehousing, and transportation.
3. Development of publications on school business management.

Rationale. School districts in Illinois need expertise that will give consistent and enlightened advice, direction, and coordination of school management practices. It is anticipated that this division would bring a consistency of good management practices throughout the state. California and New York have such programs, and they are successful in achieving good business management goals in their respective states.

It is suggested that the Illinois Office of Education give high priority to the above recommendation, but the recommendation is not necessarily intended to be interpreted as creating new positions. It is suggested that the Illinois Office of Education take inventory of its existing personnel and consider possible reassignments.

Consolidation of Funds and Tax Rates

The State Board of Education should initiate legislation to reduce the number of funds and tax rates to three: a general fund, a facilities and equipment fund, and a debt service fund.

Rationale. In 1972 Governor Ogilvie created a School Business Management Task Force that studied the feasibility of consolidating the different funds and tax rates in existence in Illinois. The Task Force recommendation is as follows:

> Reduce to three the number of accounting funds now required or permitted by practice. An unnecessarily large number of funds are maintained by various districts throughout the school system. These separate funds include educational, building, bond and interest, transportation, municipal retirement, site and construction, working cash, rent, activities, capital improvement, capital asset, textbooks, playground and recreation, lunchroom, Model Cities, elementary and secondary monies, special income funds, rehabilitation bonds, and plant operation and maintenance. These are either required by law, by state accounting procedures, or by local edict. A consolidation into a General Fund, Facilities and Equipment Fund, and a Debt Service Fund would serve all valid accounting, reporting, and control programs as well as simplify clerical procedures, records, and reports.

The Financial Accounting Committee is in general agreement with the task force recommendation, and we would urge the initiation of legislation to accomplish consolidation of funds and tax rates.

Working Cash Fund

The State Board of Education should sponsor legislation that would clarify the use of the Working Cash Fund by school districts in Illinois.

Rationale. The present practice ranges from non-use because of misinterpretation of the statutes, to proper use, to abuse. The method in which this fund is being used by a specific school district depends upon legal opinion received by the school districts. Standardization, clarifying the intended use of this fund, is needed.

Economy and Efficiency in School Operation

Current Categorical Funding/State Grants

It is recommended that the state provide current funding for mandated programs.

Rationale. It is unreasonable to expect school districts to provide necessary funding for mandated programs under the tax limitations and inflationary costs that detract monies from the basic operation of the school system. In many instances school districts must borrow to establish newly mandated programs.

Increased Speed of Cash Flow from Comptroller's Office to Local School Districts

It is recommended that procedures be established wherein state aid payments may be transferred on a more direct and less time consuming basis to designated depositories of the respective school districts in Illinois. Legislation should be sponsored to amend Section 3-9 of The School Code of Illinois to require Regional Superintendents to make immediate distribution of state aid monies.

Rationale. The interest lost to the school districts from the state aid payments are disbursed from Springfield until the time the payments are received by the school treasurer may be up to $40,000,000 a year.

Provision for Early Distribution of Taxes

It is recommended that the payment plan for local property taxes be changed to permit school districts to receive the first half of their current tax levy on an estimated basis no later than March 1 of the fiscal year. This practice is presently used in a number of counties, and we would urge the State Board of Education to initiate legislation requiring early distribution in all counties.

Rationale. This change would permit school districts to reduce the monies that they would normally have to borrow; it would coincide with the recommended change in the fiscal year; it would facilitate reporting; and it would help in future financial planning.

Amend the Requirement for Annual Publication

It is recommended that the required annual Statement for Publication be modified to make it less expensive and more meaningful. The State Board of Education should appoint a study committee composed of school and newspaper personnel to recommend legislation revising the statement.

Rationale. The current format and reporting requirement is somewhat meaningless, does not actually report the operational costs of the district, and is expensive both in time required for preparation and cost of publication. It is estimated that the current requirement costs Illinois school districts over $1,000,000 per year.

Provide Tax Exempt Status for Local Districts

Illinois school districts are exempt from most taxes although they continue to pay certain municipal taxes. We urge the State Board of Education to initiate legislation exempting schools from such taxation.

Rationale. Currently, some school districts in the state are encumbered with a local utilities tax that could amount to over $5,000,000 on a statewide basis. It is suggested that school districts be exempt from this and any future taxation of this type.

Change of Status of Township Treasurer Concept

It is recommended that accounting functions in the Cook County school districts, performed on behalf of the districts, be assigned to those districts. Legislation initiating this change should be developed.

Rationale. The accounting functions are fragmented and performed by township treasurers, the City of Chicago treasurer, and/or staff members of local districts. Confusion in duties and responsibilities results in duplication of effort and inhibits the development of adequate accounting, auditing, and internal control procedures.

STATE REVENUES FOR EDUCATION

Walter F. Lindberg

Introduction

Every year federal, state, and local governments spend over $45 billion on the business of education in America. This represents slightly less than 5 percent of the Gross National Product. Over two and one-half million teachers, administrators, and other personnel work to provide education for about 50 million students. In Illinois, state and federal appropriations for our 2,200,000 students exceed two billion dollars. Local school districts add an amount nearly equal to state and federal expenditures.

The business of elementary and secondary school finance merits considerable attention in Illinois. Approximately one-fifth of the state budget is devoted to the common schools. Many studies and recommendations, involving prominent government officials, business leaders, and academicians, have proposed various methods to finance Illinois schools. In spite of, or perhaps because of, all the effort put forth in the school finance area, Illinois relies on a complex and often confusing set of options, alternatives, and special factors to distribute state dollars to local schools

The 1976 Illinois School Finance Study once again brings together representatives of government, business, education, and other fields to address the issues that will face the state and its approximately 1,000 local school districts during the next five years. One of the most critical issues is the topic for this paper: state revenues for education.

The National Educational Finance Project, undoubtedly the most exhaustive school finance study ever undertaken, provided a very simple, but accurate, framework for all school finance studies. "The business of education brings us immediately to the problem of financing such a vast enterprise and to two very basic and important questions:

1. Where do you get the money needed for education?
2. How do you allocate it equally after you get it?"[1]

This paper deals solely with the question of where we get the money. It attempts to answer the following four basic questions:

1. What are the strengths and weaknesses of our present system for getting money for education?
2. How much money for education should we expect during the next five years?
3. Are there any other ways to get money for education?
4. Will the federal government come to the rescue?

The study of school finance, in Illinois and across the nation, has undergone significant changes in emphasis during the last decade. During the 1960s and early 1970s Illinois and many other states implemented state income taxes. To a greater or lesser extent, new revenue from the state income tax increased the amount of state revenue for education. A resultant issue in the school finance field has been how to allocate the new revenue. Since the one-time revenue windfall of the income tax has been absorbed by inflation and general "cost-creep" and the fact that there are no potential new sources for major state revenue increases, school finance experts are beginning to shift their focus. It is safe to predict the fiscal situation for the next several years will cause the school finance field to concentrate its efforts more on how and where to get money for schools, rather than on how to distribute it.

Revenue Sources in Illinois

The current system for generating revenue at the state level is made up of a large number of sources, several of which cannot be considered taxes. Table 1 below illustrates that 63 percent of state-generated revenue in Fiscal Year 1975 was derived from the income tax (corporate and personal) and the sales tax (Retailers' Occupation and Use Tax). In its third year of existence the income tax surpassed the sales tax as the major state revenue source in Illinois.

Table 1

State Revenue-Fiscal Year 1975
(millions)

Source	Amount	Percent of Total
Income Taxes (Gross)	$ 1,580	32.5%
Sales Taxes	1,482	30.5
Motor Fuel Tax (Gross)	392	8.0
Public Utility Taxes	246	5.1
Cigarette Taxes	171	3.5
Liquor Gallonage Taxes	78	1.6
Inheritance Tax (Gross)	77	1.6
Insurance Tax and Fees	62	1.3
Horse Racing Taxes and Fees	63	1.3
Corporate Franchise Tax and Fees	26	.5
Motor Vehicle Fees and Operators License Fees	300	6.2
Interest on State Funds and Investments	113	2.3
Lottery	98	2.0
Other Taxes, Fees, and Earnings	169	3.5
Total	$ 4,856	99.9%

Source: Illinois Budget, Fiscal Year 1977.

It is important to note that, aside from the income and sales taxes, the two next largest revenue producers, the motor fuel tax and the motor vehicle fee and operators license fee, are earmarked for purposes other than education.

Of the $4,856 billion in Fiscal Year 1975 state revenue shown in Table 1, only $3,910 billion was actually available for the General Revenue and Common School Funds. Table 2 shows state revenue available for the schools.

Table 2

General Revenue and Common School Funds Revenue
Fiscal Year 1975
(millions)

Source	Amount	Percent of Total
Income Taxes (Gross)	$1,580	40.4%
Sales Taxes	1,483	37.9
Public Utility Taxes	242	6.2
Cigarette Taxes	158	4.0
Liquor Gallonage Taxes	78	2.0
Inheritance Tax	76	1.9
Insurance Tax and Fees	60	1.5
Corporation Franchise Tax and Fees	26	.7
Interest on State Funds and Investments	95	2.4
Other Taxes, Fees, and Earnings	112	2.9
Total	$3,910	99.9%

Source: Illinois Budget, Fiscal Year 1977.

Strengths and Weaknesses of the Income and Sales Taxes

There are three basic strengths of the state income tax in Illinois:

- It is proportional, those corporations and individuals with higher current income paying more than others.
- It is elastic, the yield increasing as the economy grows.
- It is relatively easy to administer, especially with its flat rate and limited loophole characteristics.

The income tax, when considered as part of the overall state-local tax package in Illinois also meets another important test of a good tax system.[2] Because the total tax burden in Illinois is almost identical to the national average tax burden, measured in terms of total taxes as a percent of per capita

income, the Illinois tax system does not alter normal economic behavior. Comparing the Illinois tax burden to that of neighboring states, there is little reason for corporations or individuals to cross state lines due to excessive tax burdens.[3]

Even though forty-four states are employing the income tax in one fashion or another, there are several negative aspects to the income tax, especially as it is structured in Illinois:

1. Elasticity, a plus factor during periods of economic growth, becomes a weakness during periods of economic depression.

2. It is relatively easy, and therefore politically tempting, to legislate loopholes into the income tax, making it less equitable and more complex. This is certainly the case with the federal income tax.

3. The constitutionally mandated flat rate and eight-to-five corporate-personal rate ratio mitigate against much of the income tax's potential for yielding additional revenue.

In favor of the sales and use tax as constituted in Illinois, it is easily and cheaply administered. While not as elastic as the income tax, its growth does tend to keep pace with overall economic growth. In contrast to the income tax, the sales tax does not respond nearly as drastically or rapidly to a declining economy, making it more stable and reliable than the income tax.

There are three major shortcomings of the sales tax as employed in Illinois:

1. It is regressive relative to income. Because food and medicine are not exempt from the sales tax in Illinois, it takes a larger share of the poor's income than it does for wealthier citizens.

2. It tends to alter economic behavior in that the Illinois sales tax rate is higher than that of several neighboring states, making those states more appealing to retail businesses.

3. Given the above, there is limited potential for dramatically increasing the sales tax yield.[4]

The Major State Tax Sources and the Property Tax

While a review of the local property tax is outside the scope of this effort, two observations should be made about the relationship among the three major school revenue producers. First, to replace the property tax's annual yield of slightly less than two billion dollars would require a sales tax rate of 11 percent, or an income tax rate of 10 percent for corporations and 6.25 percent for individuals.[5] Second, the mixing of these three principal sources of revenue complement each other in terms of economic stability and growth predictability. The continued steady growth rate of the property tax and the inability of the income or sales taxes to replace it mean that these three major revenue sources will be with us for a long time.

Projecting State Revenue Growth Over Five Years

An examination of the several revenue projections made by state agencies and private organizations shows significant disparaties. Moreover, these disparaties tend to increase as the time period of the projections is extended into the future. No state agency releases revenue projections for more than two years. The General Assembly exercises its statutory responsibility to estimate revenues through the Illinois Economic and Fiscal Commission.

For example, a 1972 school finance study group attemped to project state tax revenue growth for a period from 1973 to 1978. The Fiscal Year 1973-74 tax revenue increase was estimated at $186 million; the 74-75 increase was projected at $198 million.[6] Actual increases were reported by the state Bureau of the Budget to be $384 million and $322 million, respectively.[7] There was a larger actual increase in the year when a smaller increase had been predicted and a smaller actual increase in the year when a somewhat larger increase had been predicted.

Even over shorter time periods, it has proven difficult to develop accurate revenue estimates. In one year, from March 1975 to March 1976, the Bureau of the Budget adjusted its 1975 sales tax estimate down by $53 million to match the actual figure. In a relative sense the estimate was rather accurate, within three and one-half percent. However, the total yield from State revenue sources in Fiscal Year 1982 may be approaching $8.5 billion.[8] Three and one-half percent of $8.5 billion is $297 million, about equal to the entire sales and income tax growth between Fiscal Year 1975 and 1976.

The above is by no means intended as a criticism of efforts at projecting revenue growth. Rather, it is presented to demonstrate the caution with which such projections should be used.

Economic Conditions and Revenue Projections

Fluctuations in world economic conditions further complicate the business of making accurate state revenue projections, especially considering that the major revenue source, the income tax, is the tax most sensitive to economic changes. The 1974-1976 economic downturn, manifesting the combined forces of rapidly rising prices and declining economic activity, has caused even greater disparities to appear in revenue projections for Fiscal Year 1977 and future years. The ranges of revenue projections illustrated by Table 3 below are based on two general assumptions:

- Economic stability, as evidenced by a decrease in the state's unemployment rate and a slowdown in consumer price index increases during 1976, will continue during the next five years.
- The generally steady growth pattern of major state taxes will continue at the same rate as during the mid-1970s.

Of course, 1982 dollars will have considerably less purchasing power than 1976 dollars, a factor which bears remembering when comparing today's costs to a future year's revenue projections.

Finally, we should not make the mistake of considering revenue increases as automatic increases in money for the schools. Recent history in Illinois has shown welfare spending is increasing at a more rapid rate than school spending.

Table 3

State Revenue Projections 1977-1982
(Dollars in Millions)

Year	Income Tax Low-High	Sales Tax Low-High	Other	Total Low-High	Increase Low-High
1977	$1852-1933*	$1744-1842	$1880	$5476-5655	
1978	1967-2135	1874-2020	1951	5792-6106	$316-451
1979	2144-2412	2023-2270	2031	6198-6713	406-607
1980	2347-2737	2195-2545	2122	6664-7404	466-691
1981	2570-3106	2381-2852	2228	7179-8186	515-782
1982	2814-3525	2583-3190	2352	7749-9067	570-881

Note: Other taxes and revenues represented in this table are those enumerated in Table 1, supra.

*1977 Income Tax and 1977 and 1978 Sales Tax include accelerated payments.

Other Ways to Get Money for Education

> "There are no major unused tax sources! Not all sources are used in every state, but it is likely, in view of heavy demands for revenue, that all states will use all major tax sources in the immediate future. Thus, it would seem more productive to concentrate on improving the yield of existing tax structures rather than to search for new sources."[9]

There is almost nothing new under the sun in the way of a new revenue source for education. But there are several possible ways to increase the

amount of state money available for the schools, none of which are significant in themselves, but which, as a group, could amount to more than $200 million annually in new money. Of course, any legislature that would attempt passage of a great number of special interest taxes and rate increases of current taxes would guarantee its early demise.

There are really very few ways in which we can get more state revenue for education, or for any other governmental program:

1. Raise tax rates, decrease exemptions, or reduce administrative costs and avoidance opportunities.

2. Allow different levels of government to share in the levy of existing taxes; federal property and sales taxes, state property taxes, and local income and sales taxes are examples.

3. Impose a package of minor taxes that will have a significant revenue impact when taken collectively. These can supplement or supplant existing taxes.

Table 4 lists a number of previously researched minor revenue producers and comments on their yield if implemented in Illinois. Much of the content is taken from the report of the Governor's Revenue Study Committee of 1968-1969.

Inheritance taxes, insurance taxes, reductions in tax exemptions, utilities taxes, commodity transfer taxes, and the value added sales tax have all been considered and rejected in Illinois. While none has potential approaching the scope of our major tax sources, these nonetheless would be worthy of further study.

Two noted economists have suggested that an extension of the sales tax to cover services, particularly financially related services, may be the best area for Illinois to consider for increasing tax revenues. They expect substantial growth in the financial services industry in Chicago, resulting from Chicago's expanding role in international finance.[10]

Table 4

Potential Sources of State Revenue
(Dollars in Millions)

Type of Tax	Estimated 1976 Yield
Services-Related Extensions of Sales Tax Coverage	
Admissions to athletic and cultural events and exhibitions	$ 15
Beautician, barber, and other similar personal services	10
Photography, printing, and other related services	13
Fabrication, renovation, remodeling, and similar services	50
Property-Related Extensions of Sales Tax Coverage	
Rental and lease of tangible property	38
Private sale of motor vehicles	13
Repair and alteration of real property	25
Reduction in exemptions for religious and other exempt property	37
Taxes on the Purchase of Non-Essential Items	
1.25 percent point increase in the hotel-motel tax rate	3
3 cents per package increase in the cigarette tax rate	55
20 percent increase in other tobacco product taxes	8
33 and 1/3 percent increase in the liquor gallonage tax rate	20
Total Estimated Yield	$ 277 million

Other State Receipts

University tuition, receipts from state institutions, and revolving fund receipts are among several items that are not taxes and do not, in the strictest sense, generate revenue for the state. However, if a result of their collection would be to make more money available for the financing of local schools, these receipts should also be studied.

The Future of Federal Support for Education

Federal support for all state-local government activities has doubled as a percent of total federal-state-local revenues over the last 20 years. During that same period it has increased in amount from over $3.0 billion to in excess of $45 billion, a fourteen-fold growth. However, federal support for local schools, expressed as a percent of total support has declined slightly in the past five years.[11] The important point here is not the numbers themselves, but the trend they represent. Support for local schools, as a percent of the total federal budget, has barely held even, and by some measures has actually declined, during the past five years.

Since federal funds comprise less than seven percent of total state-local-federal expenditures for education in Illinois, their increasing or decreasing would at first seem to have relatively minor impact on school finance in the state. But because of the concentration of federal funds in several key areas of our educational delivery system, their reduction can have drastic consequences for Illinois schools. Programs for economically disadvantaged students, bilingual students, and children with other special needs rely heavily on federal funds to carry out their functions.

It has been proposed by one presidential candidate that federal support for education be increased from the national average of 11 percent to approximately 30 percent of total federal-state-local outlays for local schools. Given the many other federal fiscal requirements, this seems unlikely. One course the state can actively pursue, and to some extent it is already working in the area, is to use effective administrative means to ensure that Illinois gets its rightful share of federal funds for education and that future legislation is beneficial to the state.

A Closing Comment

The local property tax is the least popular of all taxes and the least likely to be either eliminated or substantially increased. There are no new state-level tax sources waiting with a promise of substantial tax dollars for local schools. We will be fortunate if federal support remains stable rather than decreasing.

How, then, are the money needs of the local schools to be met? How much do the schools really need? Is it more worthwhile for the state to allocate its ever more limited resources to welfare than to education? Should local governments be forced to make choices between public safety and good schools? Is the ideal of free public education for all one we can no longer afford?

The field of school finance has its most important tasks and most difficult challenges waiting impatiently in the future for answers to these questions.

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MEASURES OF EDUCATIONAL NEED

William P. McLure

Categories of Educational Need

The concept of need is applicable to every area of human activity to denote a requirement to fulfill a worthy purpose. In education the pupil is the unit for defining all needs relevant to his or her development.

The phrase "measure of educational need" has been used for many years in state aid formulas to represent the method or procedure for determining the amount of funds to be made available to operating districts from state and federal governments. With few exceptions--notably Florida, Utah, and New Mexico--most states have measures consisting of a general aid program based on a simple count of pupils and supplementary categorical aids for certain special purpose programs. In some states the classroom or instructional unit is used in the general aid formula, but in these instances the unit is defined for a given number of pupils.

The Illinois finance plan is typical among the states. The measure of need for the general aid formula is 1.00 for full-time pupils in average daily attendance (ADA) in grades 1-8, 0.50 for half-day kindergarten pupils, and 1.25 for pupils in grades 9-12. The last weighting was introduced in 1969 at a time when the average gross operating expenditure per pupil in these grades was found to be 1.33 times the average in grades 1-8.

Categorical funds are based on the recognition, but not the measurement, of extra costs of some programs for pupils with special needs. For example, the educational profession has come a long way in the last thirty years in

diagnosing the needs of pupils and grouping those of similar educational difficulties into programs for special instructional methods to meet, insofar as possible, atypical needs. Pupils with atypical needs cost extra money as compared with "regular" pupils.

There is no standard system of cost accounting in practice in Illinois to reveal the per pupil cost in the various programs in special education, vocational education, compensatory education, bilingual education, and gifted pupil programs. An analysis of differential per pupil program costs was conducted by McLure for the year 1973-1974 in twenty-three Illinois school districts.[1]

The programs for which total instructional costs were found are shown in Table 1 with respective cost indexes for each full-time equivalent pupil (FTE). In Category V, for example, programs had a cost index of 5.50, i.e., an average cost per pupil of 5.5 times the cost per regular pupil in grades 1-8. To find the index of extra costs in all special and vocational education programs, subtract 1.00 from each total unit or index of need. Thus, the average extra cost per pupil in this category was 4.50 times the average cost of each pupil in grades 1-8.

Attention is called to the classification of special and vocational programs into categories of resource intensity. These categories represent instructional units. The four programs in Instructional Resource Category V have an average of five pupils per full-time equivalent teacher, plus a high proportion of nonteaching supportive services working as a unit to meet the pupils' atypical needs. These programs are listed according to predominant classification as found in twenty-three Illinois school districts in 1973-1974.[2]

There are certain programs whose costs cannot be prorated feasibly to instructional programs. These programs, listed in Table 2, are based on conditions that provide their own measures of need for operation and evaluation of

Table 1

Identified Illinois Programs and Cost Factors, 1973-1974

		FTE Pupils Per FTE Teacher	Cost Index Per FTE Pupil
Regular Programs			
A.	Kindergarten		.65
B.	Grades 1-8		1.00
C.	Grades 9-12		1.25
Special Education Programs			
I.*	Bilingual Education Compensatory Education Gifted Education	16.0-19.9	1.45
II.	Educable Mentally Handicapped	12.0-15.9	1.90
III.	Behaviorally Disordered Trainably Mentally Handicapped Educationally Handicapped Learning Disabled	8.0-11.9	2.80
IV.	Preschool Special Education Multiply Handicapped Physically Handicapped Deaf Hearing Impaired Speech Impaired	6.0-7.9	4.10
V.	Blind Partially Sighted Brain Injured Home-Hospital Bound	4.0-5.9	5.50
	Residential Schools	under 4	Budget Approval
Vocational Education Programs			
I.*	Business and Personnel Home Economics	16.0-20.0	1.56
II.	Agriculture Health Occupations Trade and Industrial Cooperative Work Study	12.0-15.9	2.19
III.	-----	8.0-11.9	2.81
IV.	-----	4.0-7.9	4.69

*All special education and vocational programs were assigned to an instructional resource category of I-VI for special education and I-VI for vocational education based on cost factors established in the study.

Table 2

Noninstructional Programs Requiring Categorical Funding

Program	Measurement Unit
1. Transportation	Number of pupils and pupils per mile
A. General--daily commuting to and from school	
B. Special Purpose--	
(1) Handicapped pupils to and from school	
(2) Pupils to and from vocational centers	
2. Food Service	Number of pupils
A. General School Population	
B. Special Programs	
3. Health Services	Number of pupils
4. Rehabilitation	Number of pupils
5. Subsistence	Number of pupils
A. Orphans	
B. Scholarships	
C. Schools for Delinquents	
6. Retirement Systems	Defined Personnel
7. Capital Facilities	Pupil Population to be served
A. Renovation	
B. New Plants and Facilities	

funding. Consequently, these programs are excluded from the measure of resources needed for instructional programs. Thus, measures of total educational need can be consolidated into (1) a comprehensive measure of instructional costs and (2) a few categorical measures for noninstructional programs.

State and federal aids also might be classified into the same two broad groups: (1) instructional costs provided through a general formula with program weightings as indicated in Table 1, and (2) categorical funding of noninstructional programs listed in Table 2. This report makes no proposal for changing the present procedures for funding noninstructional programs.

Measurement of Instructional Costs

This section includes a description of a comprehensive measure of educational need for current operating expenditures of instructional programs for the regular school year, excluding summer school, and an example of the procedure for using the generated aid formula to compute the state aid for each school district. This formula would incorporate all state and federal categorical instructional aids into the present general state aid formula.

Definition of Terms

Several terms used in discussing measures of instructional cost are defined below.

Instructional program. An instructional program is defined as an operational entity of activities consisting of teachers, supportive services of administrators, counselors, therapists, etc., and auxiliary services of clerks and custodians, the operation of buildings, and miscellaneous expenses.

Instructional programs are classified into two broad groups: (1) special, including special education, bilingual education, compensatory education, gifted education, and vocational education, and (2) basic or regular, including all

other areas of instruction and supportive services not designated as special programs. The State Board of Education should have the responsiblility for defining and approving a special program that would be included in this formula.

Full-Time Equivalent Student. A full-time equivalent student (FTE) in each approved program is defined in terms of full-time and part-time students as follows:

1. A full-time student is one student on the active membership roll of a given program or combination of programs, subject to attendance five days a week with the minimum number of hours as required per day for the given grade level and the standard number of days in the school year as prescribed by law.

2. A part-time student is an active member of a school program or combination of programs who regularly attends less than the full day.

3. A full-time equivalent student is a full-time student, or a combination of part-time students in a special program or a combination of programs that is equivalent to a full-time student. Full-time equivalency in combination of programs is the sum of fractions of a full-time equivalent membership in each program equal to the number of hours per week for which the pupil is a member, divided by the standard number of hours of the school day for the given grade level.

4. A pupil in active membership is a pupil regularly attending, except for illness or other extenuating circumstances, until withdrawal.

Instructional Resource Unit. An instructional resource unit is defined as the aggregate of all teaching and supportive services that are directly associated with instructional groups. The instructional unit is defined as the range in number of pupils appropriate for teaching pupils diagnosed as having particular personal and educational needs to be served within a given program.

Weighted Pupil Units. The following procedure is used to compute the annual, fiscal year measure of need, expressed as full-time equivalent pupil units weighted for cost equivalency among respective instructional programs. The basis for computing weighted FTE pupil units in the regular program should be changed from average daily attendance (ADA) to average daily membership (ADM) in the general state aid formula.

Step 1: Determination of Full-Time Equivalent Pupil Membership. For each special and vocational education program approved by the State Board of Education, the local school district counts pupils in the first full month of the school year as the basis for computing FTE pupil units, instructional units, and resource units.

Step 2: Determination of Standard Cost Units of Instruction. Cost factors, or indexes, are applied to aggregate full-time equivalent pupil membership in each approved program to determine the respective numbers of weighted FTE pupil units. The scale of cost factors for special programs is shown in Table 1.

Computation of State Aid. The state has adopted the policy of allocating state aid to districts for resident pupils. This practice is consistent with the principle of local districts responsibility for these pupils.

The amount of all funds--state, local, and federal--needed for pupils in a given instructional program is determined at the site of instruction. While the district of residence is credited with the measure of financial need, the district or other entity that operates the program receives the funds. Thus, there is a cash flow that follows pupils in proportion to the instructional inputs of one or more operational units.

The following procedure is used to compute the regular, special, and vocational components of state aid.

Component 1: Regular Programs. Compute the total number of pupil units in weighted average daily membership (WADM) as indicated in the first part of Table 3

for all resident FTE pupils in each district regardless of classification by program. These units will be applicable to the general formula for determining the state aid for this component.

Component 2: Special and Vocational Education Programs. Determine the Instructional Resource Category for each special program and compute the total number of weighted FTE pupil units of all programs in each resource category. Multiply the number of FTE pupils allowed for each instructional unit by the cost factor of the respective resource category and sum these results for all categories. This sum will be expressed in terms of FTE pupils weighted to the value of 1.00 for basic programs in grades 1-8 for special programs in elementary and high school alike.

Then, compute the number of extra weighted FTE pupil units for each resource category as follows: subtract the number of FTE pupils (1.00 for each FTE pupil in grades 1-8 and 1.25 for each FTE pupil in grades 9-12) from the number of weighted FTE pupil units computed in the preceding paragraph. The results, summed for all resource categories, will be in FTE pupils weighted to the base 1.00 in grades 1-8 and 1.25 in grades 9-12.

State aid will be allocated to special programs in two parts: (1) basic program aid as computed in Component 1, and (2) the special aid for the extra cost units essential to the respective program. The amount of state aid for extra costs would be computed as follows for each district for resident pupils. Districts with grades K-12: For programs in elementary and high school, multiply the number of extra weighted FTE pupil units by the average expenditure per basic FTE pupil unit in grades 1-8, or by $1,260, whichever is larger. Districts with only grades 9-12: Divide the number of extra weighted FTE pupil units by 1.25 and multiply the result by the average expenditure per basic FTE pupil, or $1,575, whichever is larger.

The amount of special and vocational state aid computed by this procedure would be reduced by such amounts of special federal funds as might be applicable to the respective programs as extra costs above the average basic programs. For vocational programs, the amount allocated may not be less than the minimum required to match the federal funds.

Special attention is called to the provision in the computation of Component 2 of state aid to base the extra costs of special and vocational programs on $1,260 per basic elementary pupil, and $1,575 per basic unweighted high school pupil. This provision is based on the assumption that the state aid formula would continue to be computed at $1,260 per basic elementary pupil and $1,575 per basic unweighted high school pupil.

If the extra compensation for the costs of special programs were to be based on the average regular cost, which could be less than $1,260, districts in regional cooperatives making the full effort to qualify at $1,260, would be penalized. Since the state has mandated special programs, the foundation level of $1,260 per pupil in WADM would be a logical base for computation of extra costs of special programs. Furthermore, this provision would not decrease pressure on districts to increase local effort to obtain the full benefits of the state aid formula, nor decrease the relative position of expenditures for special programs in those districts which have average expenditures above the foundation level.

An example of the computation of state aid using the methodology described above is contained in Table 3.

Program Cost and Evaluation

This section includes an example of a system of program cost analysis and program evaluation which may be used to provide basic information for the periodic modification of weightings in the state aid formula for the extra costs of special

Table 3

State Aid Computation for Sample District

Program	ADM	Weighting	Weighted FTE Pupils	Weighted FTE Minus ADM	State Aid Weighted FTE X $1,260
Basic					
Prekindergarten	64.03	0.65	41.62	(22.41)	$ 52,441.20
Kindergarten	394.87	1.00	394.87		497,536.20
Elementary	5,068.23	1.00	5,068.23		6,385.969.80
Secondary	2,952.60	1.25	3,690.75	738.15	4,650,345.00
	8,479.73		9,195.47	715.74	$11,586.292.20
Special Education					
Blind	25.00	5.50	137.50	112.50	
Preschool	68.00	4.10			
Physically Handicapped	13.00	4.10			
Deaf	23.00	4.10			
	(104.00)		426.40	322.40	
Behaviorally Disordered	30.00	2.80			
Educationally Handicapped	402.00	2.80			
Learning Disabled	123.00	2.80			
Trainable Mentally Handicapped	36.00	2.80			
	(591.00)		1,654.80	1,063.80	
Educable Mentally Handicapped	348.00	1.90	661.20	313.20	
Speech Impaired	500.00	1.45	725.00	225.00	
	1,568.00		3,604.90	2,036.90	$2,566,494.00
Vocational Education					
Agriculture	51.00	2.19			
Industrial	433.00	2.19			
Cooperative Work Study	193.00	2.19			
	(677.00)		1,482.63	805.63	
Business	489.00	1.56			
Home Economics	1,102.00	1.56		890.96	
	(1,591.00)		2,481.96		
	2,268.00		3,964.59	1,896.59	$2,389,703.40
			16,764.96	4,649.23	$16,542,489.60

and vocational programs. Seven forms for the collection and computation of program cost information are given; these forms provide a system for the distribution of pupils and staff to programs, as is necessary for program cost analysis.

The first five forms were used by McLure in the 1975 study of costs and were developed in two previous projects.[3] The information provided by these forms may be used to evaluate the credentials of personnel who provide instruction in various programs, to distribute the cost of personnel and other expenses to programs, and to compute the cost of any special program.

Special attention is called to Form VI, which was designed to show the numbers of pupils distributed to any possible combination of programs. This form permits collection of information on a format that can identify the progress of students from year to year. For example, as certain educational handicaps are remediated during the year, some pupils will appear in a lower category of cost in the following year. Other facts can be easily discerned from use of the forms, such as the extent of mainstreaming of handicapped pupils, the extent of participation of handicapped pupils in vocational programs, and the distribution of pupil time between vocational and regular programs.

This basic information system can provide the local districts not only with a system to record the progress of children among and through programs, but also a systematic basis for the continuous evaluation of the nature of educational opportunity afforded the youth of the district.

This comprehensive method of measuring educational needs provide a means for allocating instructional costs across programs in the public elementary and secondary schools in Illinois. Allocated costs include the salaries of teachers and of other support personnel, the costs of auxiliary services, and the cost of

FORM I

PUPIL DISTRIBUTION BY PROGRAMS

Item (1)	Pre-First Grade (2)			Elementary 1 to 8 (3)			High School 9 to 12 (5)			Grand Totals (6)		
1.00 Days Regular School Year (Exclude Summer School).												
2.00 Length Full-Day in School (Hrs. & Min.) . .												
	ADM	% TIME***	FTE	ADM	% TIME	FTE	ADM	% TIME	FTE	ADM	% TIME	FTE
3.00 Gross Total Pupils: ADM*, and FTE**.	394.87	50	197.44	5068.23	100	5068.23	2952.6	100	2952.6	8415.7	100	8218.27
4.00 Pre-Kindergarten: Total Basic (Regular).												
5.00 Kindergarten: Total Basic (Regular).												
6.00 Special Education & Related Programs: Total												
6.01 Pre-School												
6.02 Multiply Handicapped .												
6.03 Physically Handicapped												
6.04 Deaf												
6.05 Hearing Impaired . . .												
6.06 Blind.												
6.07 Partially Seeing . . .												
6.08 Language Development .												
6.09 Brain Injured.												
6.10 Home and Hospital. . .												
6.11 Residential.												
6.12 Social Adjust. School.												
6.13 Emotionally Disturbed.												
6.14 Family Maladjusted . .												
6.15 EMH.	30	60	18	160	60	96	5	60	3	195	60	117
6.16 TMH.												
6.17 Educationally Handicapped . . .												
6.18 Learning Disability. .												
6.19 Speech Correction. . .												
6.20 Compensatory (Title I)												
6.21 Bilingual.												
6.22 Gifted												
6.23 _____ . . .												
6.24 _____ . . .												
7.00 Vocational-Technical Education Programs Total:												
7.10 Agriculture Sub-total:.												
7.11 _____												
7.12 _____												
7.20 Home Economics Sub-total:												
7.21 _____												
7.22 _____												
7.30 Trade and Industrial Sub-total:												
7.31 _____												
7.32 _____												
7.40 Business and Distributive Sub-total:.												
7.41 _____												
7.42 _____												
7.50 Health Occupations Sub-total:												
7.51 _____												
7.52 _____												
7.60 _____ Sub-total:												
7.61 _____												
7.62 _____												
8.00 Total Number FTE Pupils in Basic (Regular) Day School Programs: Gross FTE in Item 3.00 minus FTE in Special and Vocational Programs 6.00 amd 7.00												

*Total Number of Persons in Average Daily Membership in Full-Day Programs.
** Full-Time Equivalents. (1 ADM = .65 FTE in Half-Day Pre-K and Kindergarten; 1 ADM = 1 FTE in Full-Day Attendance.
*** % Time = Average Percent of Full-Day in School spent in designated program.

FORM II

NUMBER ACADEMIC STAFF GRADE LEVEL_____ CODE_____ *
(Prepare duplicate copies as needed for designated grade levels)

Item No. (1)	Program (For Target Groups of Pupils in Section I) (2)	Teachers: FTE Regular Teachers (3)	Teachers: FTE Special Teachers (4)	Teachers: FTE Total Teachers (5)	Teachers: Ratio Pupil/FTE Teachers (6)	Non-teaching, Academic Supportive Staff (FTE): Adm. & Supv. (7)	Coun-selors (8)	Psy. & Soc. Workers (9)	Librar-ians (10)	Teacher Aides (11)	Other (12)	Total Non-Teach. Staff (13)	Grand Total Academic Staff FTE (14)
3.00	Gross Total Academic Staff (FTE)												
4.00	Pre-Kindergarten (Basic)												
5.00	Kindergarten (Basic)												
6.00	Special Education & Related Programs - Total:												
6.01	Pre-School												
6.02	Multiply Handicapped												
6.03	Physically Handicapped												
6.04	Deaf												
6.05	Hearing Impaired												
6.06	Blind												
6.07	Partially Seeing												
6.08	Language Development												
6.09	Brain Injured												
6.10	Home and Hospital												
6.11	Residential												
6.12	Social Adjust. School												
6.13	Emotionally Disturbed												
6.14	Family Maladjusted												
6.15	EMH	4.5	15.0	19.5	6.	1.48	1.0	1.5	.3	1.5		5.78	25.28
6.16	TMH												
6.17	Educationally Handicapped												
6.18	Learning Disability												
6.19	Speech Correction												
6.20	Compensatory (Title I)*												
6.21	Bilingual												
6.22	Gifted												
6.23	_____												
6.24	_____												
6.25	_____												
7.00	Vocational-Technical Education Programs Total:												
7.10	Agriculture Sub-total:												
7.11	_____												
7.12	_____												
7.20	Home Economics Sub-total:												
7.21	_____												
7.22	_____												
7.30	Trade and Industrial Sub-total:												
7.31	_____												
7.32	_____												
7.40	Business and Distributive Sub-total:												
7.41	_____												
7.42	_____												
7.50	Health Occupations Sub-total:												
7.51	_____												
7.52	_____												
7.60	_____ Sub-total:												
7.61	_____												
7.62	_____												
8.00	Basic Day School Programs - Grade Level _____ (Item 3.00 minus Items 4.00, 5.00, 6.00, and 7.00)												

*1 FTE = 1 person working full time, or combinations of fractions of full time in different programs, estimated to 0.1 of full work load.

FORM III

SALARIES OF ACADEMIC STAFF
GRADE LEVEL____ CODE_____
(Prepare duplicate copies as needed for designated grade levels)

Item No. (1)	Salaries for Personnel Prorated in Section II (2)	Teachers: Regular Teachers (3)	Teachers: Special Teachers (4)	Non-Teaching, Academic Supportive Staff: Adm. & Supv. (5)	Coun-selors (6)	Psy. & Soc. Workers (7)	Librar-ians (8)	Teacher Aides (9)	Other (10)	Total Non-Teach. Staff (11)	Grand Total Academic Staff (12)
3.00	Gross Total Academic Staff.										
4.00	Pre-Kindergarten.										
5.00	Kindergarten.										
6.00	Special Classes for Mentally & Physically Handicapped - Total:										
6.01	Pre-School.										
6.02	Multiply Handicapped.										
6.03	Physically Handicapped.										
6.04	Deaf.										
6.05	Hearing Impaired.										
6.06	Blind										
6.07	Partially Seeing.										
6.08	Language Development.										
6.09	Brain Injured										
6.10	Home and Hospital										
6.11	Residential										
6.12	Social Adjust. School										
6.13	Emotionally Disturbed										
6.14	Family Maladjusted.										
6.15	EMH	55,148*	183,825	30,441	8,325	12,490	2,496	12,490		66,242	305,215
6.16	TMH										
6.17	Educationally Handicapped										
6.18	Learning Disability										
6.19	Speech Correction										
6.20	Compensatory (Title I).										
6.21	Bilingual										
6.22	Gifted.										
6.23	_____										
6.24	_____										
6.25	_____										
7.00	Vocational-Technical Education Programs Total:										
7.10	Agriculture Sub-total:.										
7.11	_____.										
7.12	_____.										
7.20	Home Economics Sub-total:										
7.21	_____.										
7.22	_____.										
7.30	Trade and Industrial Sub-total:										
7.31	_____.										
7.32	_____.										
7.40	Business and Distributive Sub-total:. . . .										
7.41	_____.										
7.42	_____.										
7.50	Health Occupations Sub-total:										
7.51	_____.										
7.52	_____.										
7.60	_____Sub-total:										
7.61	_____.										
7.62	_____.										
8.00	Basic Day School Programs - Grade Level_____, Total Net Salaries - (Item 3.00 minus items 4.00, 5.00, 6.00, and 7.00)										

*State totals, 1975-1976.

FORM V

PROGRAM COST COMPUTATION
(with illustration)

1.	District Anytown		Year 1975	
2.	Special Program (and Vocational Education)	a. Title	ESEA	
		b. Grade Level	K-9	
3.	a. Number of Pupils Enrolled in Program (ADM) (use 1/2 ADM for half-day Kindergarten)		195	
	b. Average fractional time of full-day spent in Program.		.60	
4.	Number of FTE Pupils in Program (Item 3a times 3b average fractional time of full school day spent in Program.)		117	
5.	Number of FTE Pupils in Regular Program (Item 3a minus Item 4). Use number of pupils as a basis to determine the numbers of regular teachers in the program. Omit this item for vocational programs.		78	
			Number (FTE)	Total Salaries (Based on District Average)
6.	Special Teachers in Program (Including Vocational Education)		15.0	$183,825
7.	Regular Teachers in Program (Assigned to number of pupils (FTE) in Item 5 at average pupil-teacher ratio of the regular program in the district.) Omit this item for vocational programs.		4.5	55,148
8.	Total Teachers in the Program		19.5	238,973
9.	Total Academic Supportive Staff		5.78	66,242
	(1) Total Administrative and Supervisory		1.48	30,441
	a. Assigned		0.40	8,228
	b. Prorated on per teacher basis from school and district central offices		1.08	22,213
	(2) Counselors, psychologists, social workers, librarians, therapists, teacher aides, and others (separated by groups as illustrated for administrative and supervisory.)		4.30	$35,801
10.	Auxiliary Services (Clerical, stenographic, custodial, instructional supplies, other operational expenses)	Total		$99,318
	(1) Assigned			0
	(2) Unassigned: prorated on per teacher basis.			99,318
11.	Total Expenditures (Sum of Item 8 plus Item 9 plus Item 10.)			404,533
12.	Cost per Pupil (ADM) in Special Program (Divide Item 11 by Item 3a, for all programs except vocational education)			2,074
13.	a. Cost per Pupil in Regular Program, grades 1-8			981
	b. Cost per Pupil in Regular Program, grades 9-12			
14.	Special Program Cost Differential (Divide Item 12 by Item 13a or 13b as applicable.)			2.11
15.	Vocational Education, Cost per Pupil FTE. (Divide Item 11 by Item 4.)			
16.	Program Cost Differential per Vocational FTE (Divide Item 15 by Item 13a or 13b as applicable)			
17.	Program Cost Differential per Pupil (ADM) Enrolled in Vocational Program			
	Add: (1) Average fractional full-day FTE value of Vocational Program times Item 15, plus			
	(2) Average fractional full-day FTE value in Regular Program times per Pupil cost in Regular Program in grades as applicable in 13a or 13b.			

FORM VI

PUPIL DISTRIBUTION AMONG PROGRAMS
GRADE LEVEL____ CODE____
(Prepare duplicate copies as needed for designated grade levels).

A		B			C			D											
		Total No. Pupils Primary Assignments			No. Pupils in Primary Program Only			Number of Pupils Enrolled in Other Programs											
								Special Program				Vocational Program				Regular Program			
Code No.	Primary Program Assignment	ADM	% TIME	FTE	ADM	% TIME	FTE	CODE	ADM	% TIME	FTE	CODE	ADM	% TIME	FTE	CODE	ADM	% TIME	FTE
6.00	Special Programs																		
6.01	Pre-School																		
6.02	Multiply Handicapped																		
6.03	Physically Handicapped																		
6.04	Deaf																		
6.05	Hearing Impaired																		
6.06	Blind																		
6.07	Partial Seeing																		
6.08	Language Development																		
6.09	Brain Injured																		
6.10	Home and Hospital																		
6.11	Residential																		
6.12	Social Adjust. School																		
6.13	Emotionally Disturbed																		
6.14	Family Maladjusted																		
6.15	EMH	100	40	40	20	100	20	6.21	40	25	10	7.50	40	25	10	8.10	80	50	40
6.16	TMH																		
6.17	Educationally Handicapped																		
6.18	Learning Disability																		
6.19	Speech Correction																		
6.20	Compensatory (Title I)																		
6.21	Bilingual																		
6.22	Gifted																		
6.23	_____																		
6.24	_____																		
	Sub-Total:																		
7.00	Vocational Programs																		
7.10	Agriculture Sub-Total:																		
7.11	_____																		
7.12	_____																		
7.20	Home Economics Sub-Total:																		
7.21	_____																		
7.22	_____																		
7.30	Trade & Industrial Sub-Total:	100	47	47					12	25	3						100	50	50
7.31	_____	88	50	44												8.20	88	50	44
7.32	_____	12	25	3				6.17	12	25	3					8.20	12	50	6
7.40	Business & Distributive Sub-Total:																		
7.41	_____																		
7.42	_____																		
7.50	Health Occupations Sub-Total:																		
7.51	_____																		
7.52	_____																		
7.60	_____ Sub-Total:																		
7.61	_____																		
7.62	_____																		
	Sub-Total:																		
8.00	Regular Programs																		
4.00	Pre-Kindergarten																		
5.00	Kindergarten																		
8.10	Grades 1-8 or Other																		
8.20	Grades 9-12 or Other																		
8.30	Sub-Total:																		
9.00	GRAND TOTAL:																		

FORM IV

SUMMARY OF ALL INSTRUCTIONAL EXPENSES
GRADE LEVEL____ CODE____
(Prepare duplicate copies as needed for designated grade levels)

Item (1)	Auxiliary: Control, Security, Clerical (2)	Auxiliary: Instructional Supplies (3)	Auxiliary: Op. & Maint. of Plant (4)	Auxiliary: Fixed Charges, Soc. Sec. Retirement (5)	Summary: Total Auxiliary Expenses (6)	Summary: Total Academic Salaries (7)	Summary: Total Current Expenses (8)	Summary: Total Pupils (FTE) (9)	Summary: Expenditure Per Pupil FTE (10)
3.00 Total Current Expenses other than salaries in Section III.									
4.00 Pre-Kindergarten (Basic). . .									
5.00 Kindergarten (Basic).									
6.00 Special Education & Related Programs - Total:									
6.01 Pre-School.									
6.02 Multiply Handicapped.									
6.03 Physically Handicapped. . . .									
6.04 Deaf.									
6.05 Hearing Impaired.									
6.06 Blind									
6.07 Partially Seeing.									
6.08 Language Development.									
6.09 Brain Injured									
6.10 Home and Hospital									
6.11 Residential									
6.12 Social Adjust. School									
6.13 Emotionally Disturbed									
6.14 Family Maladjusted.									
6.15 EMH	15,761	30,522	7,253	45,782	99,318	305,215	404,533	117	2,074
6.16 TMH									
6.17 Educationally Handicapped . .									
6.18 Learning Disability									
6.19 Speech Correction									
6.20 Compensatory (Title I). . . .									
6.21 Bilingual.									
6.22 Gifted									
6.23 _____									
6.24 _____									
7.00 Vocational-Technical Education Programs Total:									
7.10 Agriculture Sub-total: . . .									
7.11 _____									
7.12 _____									
7.20 Home Economics Sub-total:. .									
7.21 _____									
7.22 _____									
7.30 Trade and Industrial Sub-total:									
7.31 _____									
7.32 _____									
7.40 Business and Distributive Sub-total:									
7.41 _____									
7.42 _____									
7.50 Health Occupations Sub-total:									
7.51 _____									
7.52 _____ Sub-total:. .									
7.60 _____									
7.61 _____									
7.62 _____									
8.00 Basic Day School Programs - Grade Level____. Total Net Auxilairy - (Item 3.00 minus items 4.00, 5.00, 6.00, and 7.00).									

Note: Expenditures for Capital Outlay and related debt service; and transportation, food service, and other general (public) services are excluded.

FORM VII

GENERAL SUMMARY OF CURRENT OPERATING EXPENSES
(Excluding Capital Outlay, Bonded Debt Service, and Summer School)
Fiscal Year_____
(Grades: K-12_____; 9-12_____; K-8_____)

I. Instructional Expenses

A. Salaries of Academic Staff

1. Teachers . . . . . $_____

(a) Regular . . . . . _____

(b) Special . . . . . _____

2. Nonteaching Supportive Staff . . . . . _____

(a) Administrators & Supervisors . . . . _____

(b) Counselors . . . . . _____

(c) Psychologists & Social Workers . . . _____

(d) Librarians . . . . . _____

(e) Teacher Aides . . . . . _____

(f) Other . . . . . _____

3. Total Academic Salaries . . . . . $_____

B. Auxiliary Services & Expenses

1. General Control, Security & Clerical . . . _____

2. Instructional Supplies & Consumable Equipment . . . . . _____

3. Operation & Maintenance of Plant . . . . . _____

4. Other-Health, Fixed Charges, Social Security, & Retirement . . . . . _____

5. Total Auxiliary Services & Expenses . . . . . _____

C. Total Instructional Expenses . . . . . _____

II. Public Services
(General Services not allocated to Instructional Programs)

A. Transportation . . . . . _____

B. Food Service (Gross Expenses minus Earned Income) . . . . . _____

C. Rehabilitation . . . . . _____

D. Subsistence (Day-Care Progarms) . . . . . _____

E. Total Public Services . . . . . _____

materials that can be identified with specific instructional programs. Those services that cannot be prorated or identified with specific instructional programs, such as transportation, community services, and capital facilities, are omitted.

These measures of need, identified as indexes, or weighted pupil units, in each school district, were shown in Table 1. This measurement procedure is an extension of the system of weighted average daily attendance currently in use, including weightings for pupils in special and vocational programs. All weightings are related to the basic cost of pupils in regular programs in grades 1-8.

Estimates of Special Needs - 1975-1976 Data

Estimates of special instructional needs as computed by the pupil weighting procedures described above were developed for all programs receiving special state and federal categorical aid in 1973-1974. These estimates, based on 1973-1974 school year expenditures, were applied to the best available data for 1975-1976 for each school district and other operating entity in the state.

Special needs were defined as the equivalencies of extra weighted pupil units. For example, using Table 1, the average instructional group of pupils in speech development programs had a weighting of 1.45 compared to the weighting of 1.00 for each instructional group of pupils in regular programs in grades 1-8. Thus, the average pupil in speech development received extra resources equivalent to 0.45 pupil. If the average expenditure per regular pupil in grades 1-8 in the district was $800, then the extra expenditure per pupil for the special needs of speech development was $360 (0.45 x $800). This weighting was found at varying expenditure levels, i.e., the extra cost in a district with average expenditure per regular pupil of $1,200 would be $540, or 0.45 x $1,200.

Table 4 shows the totals of extra weighted pupil units based on the 1975-1976 data for seven special program categories. Kindergarten was designated for

Table 4

Extra Weighted Pupil Units
(1975-1976 Data)

Educational Program	Downstate		Chicago		State Total	
	Extra	% of WADA	Extra	% of WADA	Extra	% of WADA
Kindergarten	8,826	0.53	2,591	0.55	11,417	0.53
Title I (ESEA)	79,230	4.72	99,546	21.01	178,776	8.30
Vocational Education	16,176[1]	0.96	24,504[2]	5.17	40,680	1.89
Special Education	188,726	11.24	54,404[2]	11.48	243,130	11.29
Gifted[3]	37,794	2.25	10,660	2.25	48,454	2.25
Bilingual	2,921	0.17	8,479	1.79	11,400	0.53
Other Special Needs Education Services			52,160	11.00	52,160	2.42
Total	333,673	19.87	252,344	53.26	586,017	27.21
Basic Pupil Units (WADA)	1,679,743		473,779		2,153,522	
Grand Total Weighted Pupil Units	2,013,416		726,123		2,739,539	
Aggregate Weighting	1.20		1.53		1.27	

1. 1974-75 data.
2. (1973-74 data) x 1.10.
3. Number of pupils in program estimated at 5 percent of WADA.

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special needs even though there is no supplementary aid available at the present time for kindergarten programs. Actual numbers of pupils generating extra pupil units are not shown in the table; totals of basic pupil units (WADA) used in the general state aid formula are shown at the bottom of the table. For example, all downstate districts have a total of 1,679,743 WADA. This figure is based on the average daily attendance in the best six months, with each kindergarten pupil in ADA counted as 0.5, pupils in grades 1-8 counted as 1.00 and pupils in grades 9-12 counted as 1.25. In downstate districts, the extra weightings for special needs amount to the equivalent of 333,673 pupil units in regular programs in grades 1-8. Since the overall weighting is 1.20, the extra costs of special needs are 20 percent of the regular programs. Chicago, with an extra weighting of .53, has a much higher ratio of special needs to regular programs.

The estimated total of extra weighted pupil units for the state is 586,017, or 27 percent of the total WADA (2,153,522) used in the general state aid formula. In other words, special needs for instructional programs and services above regular programs amount to 27 percent additional expense. It should be emphasized that this extra expense is based on the practice of diagnosing special needs and on the internal district allocations of resources for 1973-1974. There is evidence that special needs are not being met fully, but there is no estimate of the ultimate cost of such needs.

Table 5 contains a summary of estimated expenditures for special needs in 1975-1976. The estimated expenditures for downstate districts $302,413,000, is the aggregate of extra expenses obtained on a district by district basis. The average instructional cost per pupil of $906 is multiplied by the extra 333,673 units given in Table 4 to obtain the estimated expenditure of $302,413,000 for special needs.

Table 5

Extra Costs for Special Programs
Based on Average Cost Differentials, 1975-1976
(Dollars in Thousands)

Educational Program	Downstate			Chicago		State Totals		
	Alternative I Actual Expenditure Per Pupil	Alternative II $1,260 Per Pupil	Special State & Federal Aids	Alternative II $1,260 Per Pupil	Special State & Federal Aids	Alternative I Actual Expenditure Per Pupil	Alternative II $1,260 Per Pupil	Special State & Federal Aids
Kindergarten	$ 8,690	$ 11,121	$ 0	$ 3,264	$ 0	$ 11,954	$ 14,385	$ 0
Title I (ESEA)	75,489	99,830	Fed. 23,060 State 12,515	125,428	Fed. 59,499 State 79,885	200,917	225,258	Fed. 82,559 State 92,400
Vocational Education[1]	16,667	20,382	25,978	30,875	4,794	47,542	51,257	30,772
Special Education	159,400	237,795	79,434	68,549	30,941	227,949	306,344	110,375
Gifted[2]	38,724	47,620	1,382	13,432	616	52,156	61,052	1,998
Bilingual	3,443	3,680	2,857	10,684	5,192	14,127	14,364	8,049
Other Special Needs Educational Services				65,722	65,722	65,722	65,722	65,722
Total	302,413	420,428	145,226	317,954	246,649	620,367	738,382	391,875

1. 1974-75 data.
2. Number of pupils in program estimated at 5 percent of WADA.

Alternative I: Actual expenditure per pupil in basic (general) program, grades 1-8.
Alternative II: $1,260 per pupil in basic (general) program, grades 1-8.

Costs: Include all current operating expenses minus the following: transportation, food service, community services.

The alternative of $1,260 is shown to illustrate the estimated extra cost of special programs if all downstate districts had been spending $1,260 per regular pupil in 1975-1976. Only the alternative of $1,260 expenditure per pupil is shown for Chicago, since the estimated actual amount per regular pupil is $1,276.

These extra costs of programs and services for special needs may be compared with amounts of special supplementary state and federal aids currently provided on a categorical basis. The weighting for special needs that is computed from ESEA, Title I, eligible pupils is included in the column of special state aids. This variable weighting of Title I pupils under the general state aid formula is a revision of the former density correction for compensatory programs of various types without specificity of targeting the funds.

Under current procedures, special supplementary aids for downstate districts amount to $145,226,000. This total is 48 percent of the estimated expenditure of $302,413,000. Thus, the districts are drawing over half of these extra costs from general funds (local and state). If all of these districts were to be funded at the $1,260 per basic pupil in WADA level, then the special aids would amount to only 35 percent of the estimated extra costs of special needs programs.

In Chicago the special state and federal categorical aids plus the weighting based on Title I pupils amounted to $246,649,000 for 1975-1976, or 77.6 percent of the estimated $317,954,000 spent for the extra costs of special needs programs.

Over the whole state, special federal and state categorical aids and the weighting for Title I pupils amounts to 63 percent of the total extra costs of special needs instructional programs and services. The other 37 percent, $228,492,000, was drawn from general funds for these extra costs in 1975-1976. In effect, then, the state average instructional expenditure of $1,059 per pupil

in WADA was reduced $106 per pupil to provide the $228,492,000 for extra costs of special needs programs. If the state had funded every district at the $1,260 per pupil in WADA foundation level in 1975-1976, the actual level of expenditure would have been about $1,100 per pupil in WADA because an amount of $160 per pupil in WADA would have been needed to provide the deficit of $346,507,000 for the extra costs of special programs that were not met from special aids ($738,382,000 - $391,875,000 = $346,507,000).

It is evident from the recent studies of special programs in Illinois that the methods for funding do not reveal the true expenditures for these programs. The estimates made of these costs reveal that there is a fundamental problem in the financing of public education: a modern accounting system that provides information on pupil and resource allocation is needed. Such a system must provide sound methods of organizing and teaching students with variable needs.

This report has presented such a system of cost analysis that provides a reasonably accurate and workable method of estimating the extra costs of programs for pupils with special needs. Pupil weightings for these extra costs can be introduced into the current general state aid formula. Such a modification to the present formula would accomplish the following:

1. The state would have a clearer picture of the financial requirements of meeting the special needs of students.
2. The state would have a better measure of the basic foundation level of support.
3. These distinctions would provide a better basis for judging the overall adequacy of financial support of the public schools.

References

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2. Ibid.

3. William P. McLure, Fiscal Policies of the Great Cities in the United States (The Great Cities School Studies Group, 1961); William P. McLure and Audra May Pence, Early Childhood and Basic Elementary and Secondary Education (Urbana, Illinois: University of Illinois, 1970), Special Study Number 1 for the National Educational Finance Project.

THE ABILITY-TO-PAY AND EQUITY: AN ANALYSIS OF ALTERNATIVE MEASURES

Walter W. McMahon

In principle, income is generally regarded as a better measure of ability-to-pay than real property value. It is important to consider why this is so because it is the main rationale for seriously considering including income as a part of the measure of local ability-to-pay for school districts in the state aid formula. Any shift toward a better measure of true ability also has implications for the success of local tax referenda.

Unequal Treatment of Equals and Equity

The idea that "just taxation" must be based on ability-to-pay is rooted in the most widely accepted principle of taxation, which requires "equal treatment of equals."[1] In Elizabethan poor law, equality in the sense of equal ability-to-pay was measured in terms of ownership of real property, appropriate to the feudal, agrarian economy of the time. Since then the progress of industrial society has generated other sources of income that are now more important overall, such as salaries (or income from human capital), interest, and profits, as well as other types of financial assets. The result is that use of real property as the sole index of ability-to-pay, and the objective of flat rates in the property tax, results in unequal treatment of equals. The procedure thereby fails to meet accepted standards of equity.

Beyond this, there is additional unequal treatment of equals because of uneven assessment and lack of uniformity in valuation, resulting in different tax burdens on persons owning equivalent amounts of property. Innumerable

studies have shown this dispersion in assessments, even when efforts are made by assessors to do a careful job.[2]

Measures of School District Capacity to Pay

The problem is to reconcile the fact that income is the superior index of ability-to-pay with the fact that real property is the only tax available to local school districts. That is, the problem is to come up with a solution that not only meets generally accepted standards of equity more adequately, but also is practicable.

Real property will remain the major local tax source for the foreseeable future for the simple reason that real property cannot escape from local tax jurisdictions and can be discovered by local authorities to a greater extent than can other local tax bases. Yet income per capita (or per taxpayer) is the better measure of the school district's capacity-to-pay because it is the best measure of the ability to pay of the individuals who comprise the district and who pay the property taxes out of their income.[3] The district is the same as the individuals (and firms) who comprise it, irrespective of taxes, a philosophy held throughout the English-speaking world that goes back to John Locke and to the concept of a social contract.

Districts with higher income and less valuable property currently receive generous grants from the state, which, combined with the high actual local ability-to-pay, can lead to very high per pupil expenditures. This kind of grant also wastes state funds. On the other hand, districts with low income and with a heavier concentration of their assets in real property currently receive smaller grants from the state. Because property taxes are paid out of income, these voters will tend to resist vigorously higher property tax rates because their low income must cover competing needs. The result is mediocre schools. Somewhat higher property tax rates are likely to be more

acceptable in the higher income districts. Somewhat lower property tax rates combined with improved state grants in the lower income districts would be likely to reduce the current great inequality in expenditure per pupil among districts in the state.

Income data are available for each school district from the 1970 Census, and data are available for each year since then by county. The percent change in income per capita in the county in which the school district is located can be used to adjust the school district income from the 1970 Census to a current basis until the next census. For the purposes of the formula, income could be interpreted to include that fraction of the corporate income of those corporations operating in each school district that corresponds to the fraction of its property assessed in that district.[4]

Although this should be a sufficient measure of total income per district, the U.S. Office of Revenue Sharing, located in the Internal Revenue Service, now has annual income data by township that it will be publishing very soon.[5] The combined sources provide a more accurate measure of the ability-to-pay of each district than has previously been available.

Combining Income and Property

To combine income and equalized assessments of property into a single measure of ability-to-pay, the present-value-of-total-resources approach is conceptually correct and is convenient in that it is expressed in current dollars. Its objective is to integrate current and estimated future earnings and assets into one consistent measure of total resources, or total ability-to-pay.

To convert annual income flows into wealth, the average age of persons in the school district could be the starting point for obtaining the present value of expected income per capita to age 65, including the income for the

current year. The sum of current and expected income flows then could be added to the full market value per capita of assessed property to obtain a more comprehensive measure of wealth.

The concept of income involved is personal income before taxes--net of rental income of persons, but including interest and profits--rather than only wage and salary earnings. If earnings alone were to be used, financial assets would have to be added to assessed property.

An alternative approach that should produce essentially the same result is to use the full market value of assessed property per capita to purchase an annuity that would produce an annual income stream through age 65. The figure for current income from this conversion of real property into an annual income stream could then be added to annual personal income (net of rental income) to obtain a more comprehensive measure of ability-to-pay.

Using the present-value-of-total-resources approach, if the average age of earning adults in each school district is 45, the ratios of the present value of lifetime earnings to current earnings, assuming zero productivity increase and a 15 percent discount rate, are given in Table 1.

As shown in Table 1, the measure of ability-to-pay in a school district populated largely by whites who have an average of 13 years of education would be approximately six times current per capita income, plus the full market value of assessed property.

Table 1

Ratios of the Present Values of Lifetime Earnings to Current Earnings

	Ratios at age 45	
	Whites	Nonwhites
Elementary School Completed	5.91	5.58
High School Completed	5.98	5.49
College Completed	6.91	5.53

Source: U.S. Bureau of the Census, Technical Paper #16 (1967), annual data discounted by 15 percent and adjusted for survival rates as computed from mortality tables given in the Statistical Abstract.

The Local Contribution Based on Ability-to-Pay

Use of a combined measure of ability-to-pay gets away from any effort to force local property tax rates to be equal among districts. Although lower in some districts and higher in others, the local effort, as measured by the tax bill divided by the income of the district, should begin to move toward greater equality among districts.[6]

There is already wide variation in the educational tax rates among districts in Illinois, ranging at the widest extreme from 2.63 percent to .38 percent in elementary districts in 1974, a ratio of about 7 to 1. Shifting the index of ability-to-pay partly to income, state aid would be increased to the low income districts and reduced to the high income districts, and it would be desirable simultaneously to introduce "circuit breakers" to protect the lowest income families in those higher income districts. The higher tax rates cited adversely affect low income families currently. With some shifts to using

income as an index, tax rates could be expected to be relatively less in the low income districts (where the state aid would be greater) and relatively higher in the high income, low property districts.

Finally, since abrupt changes are undesirable, income should probably be given somewhat a smaller weighting in the combined income-property index of the district's ability-to-pay than that implied above for the first few years.

References

1. Equal treatment in taxation was extended by John Stuart Mill to mean equal sacrifice by each taxpayer. To interpret this, the usual solution for purposes of policy formulation in a democracy is to proceed as if individuals, and individual utility functions, were alike. (Lionel Robbins's nice statement of this is: "I do not believe and I have never believed that in fact men are necessarily equal or should always be judged as such. But I do believe that in most cases, political calculations which do not treat them as if they were equal are morally revolting." "Interpersonal Comparisons of Utility," Economic Journal, Vol. 48, No. 4, pp. 635-41, December 1938.) Using this approach gets past the problem of interpersonal comparisons of utility and subjective utility, and translates the analysis into social income. If then the objective of least aggregate sacrifice is chosen, not because of equity but because of the basic principle of maximum happiness for the society, this is the same as equal (marginal) sacrifice.

2. See, for example, D. Netzer, Economics of the Property Tax (Washington, D. C.: The Brookings Institution, 1966).

3. The term "individuals" is used for brevity, but it is meant to include corporations that also pay property taxes.

4. To be more precise, neutrality could be maintained by adding to income only that fraction of corporate income that is the same as that fraction of total corporate property assessed in the school district.

5. Income per capita is part of the measure of local capacity in the federal revenue sharing formula.

6. The use of tax rates to measure effort is also less desirable because the rates reflect bad assessments.

A COST-OF-LIVING INDEX FOR ILLINOIS COUNTIES AND SCHOOL DISTRICTS

Walter W. McMahon and Carroll Melton

Although it is generally understood that prices of goods and services vary from place to place in Illinois, there is currently no index for measuring the differences in the cost of living required to (1) attain the same level of satisfaction in different parts of the state, or (2) measure changes in living costs in each place over time. There is no way, therefore, to estimate the size of differences in the real ability-to-pay of taxpayers in different school districts.

The rapid increases in prices in recent years have put uneven strains on taxpayers. To correct the inequity that results, the most logical step is to move toward a broader measure of wealth, one that gives appropriate weight to income in addition to assessed real property, thereby achieving an equitable measure of the true ability-to-pay local taxes. A related step in adjusting to the strains imposed by extraordinary price and property value increases could be to adjust wealth by use of an appropriate cost-of-living index to obtain a more sensitive measure of local taxable capacity expressed in real terms.

The objective of this study was to develop a cost-of-living index for Illinois that could be used to appraise the size of differences in the cost of living among counties and school districts and could be used as part of the development of a more comprehensive wealth index. It also evaluated the rates of change in the cost of living in each place over

time. The objective, furthermore, was to develop methods for doing this that were less expensive than costly direct sampling in each area and methods that could be updated more easily as prices change.

The current state of knowledge on this subject is best summarized by the U.S. Bureau of Labor Statistics's standard budgets.[1] Sherwood has explored the effect of climatic differences on these measures of the cost of living, and Alonso and Fajans have explored the effect of city size.[2] But the only major effort to extend cost-of-living measures from sampled to nonsampled areas was a study by Simmons in Florida in which at considerable cost ($240,000) prices were sampled in twelve counties and then extended without budget weights to the rest of the state.[3]

A preliminary cost-of-living index for Illinois counties and school districts was developed in 1976 by the authors.[4] Since that time considerable additional work on this problem has made it possible to present an improved economic model to be estimated and more efficient estimates, which raised the percent of variation explained to over 94 percent. The improvement in methodology also included use of more powerful simultaneous equation estimating techniques. The paper concludes with a brief discussion of the size and pattern of differences in the cost of living in different parts of the state and of the relative changes in the cost of living in each place over time.

The Cost-of-Living Index: The Concept

The most widely used measure currently available for comparing geographic differences is the cost of living, and the one used in this study was the standard family budget prepared by the Bureau of Labor Statistics (BLS) at an "intermediate" level of living for a younger,

"four-person family." The Consumer Price Index cannot be used because it reports price changes over time within areas and does not reflect differences in either current year or base year levels. Although BLS standard budgets are reported for "lower" and for "higher" standards of living, as well as for "retired couples," it is the "intermediate" budget for a "four-person family" that is more typical of inter-area cost-of-living differences. It is available for forty metropolitan areas and for four nonmetropolitan regions (i.e., shopping places with populations of from 2,500 to 50,000).

The standard family budget is defined as that market basket of goods and services required to maintain the same level of satisfacation. The market basket is then priced by the BLS in each area. This market basket, however, does not and should not contain a list of items that have the same relative magnitude in each area. Instead, the objective is to report the income required to maintain the same nutritional, housing, and public service standards of living. For example, if heating costs are a larger fraction of the standard family budget in the colder, more northern part of the state, equal increases in oil, fuel, and electricity costs might be expected to lead to larger increases in the cost of living in the northern tier of school districts. A geographic price index differs from this in that it prices out an identical list of items in each area and in this situation would not report any differential impact on costs.

This cost-of-living index also should be clearly distinguished from a cost-of-education index. The former is relevant to the taxpayers who live in each school district and hence useful for adjustment of income or wealth to real terms and to the achievement of equal treatment of

equals (horizontal equity) on the tax side. For example, imagine that a family of four in District 1 has an income of $12,000 and another family of four in District 2 has an income of $10,000. If it is known that the cost of living index is 120 in District 1 and 100 in District 2, both families then have a "real" income of $10,000 and hence the same real ability to pay local school taxes. A cost-of-education index, on the other hand, refers to the cost of things school districts buy. It is relevant therefore to the expenditure side, and, for example, to comparisons of expenditures per pupil in real terms.

School districts do not buy exactly the same list of items that families buy. But wages and salaries do constitute about 70 percent of school district budgets, and school districts in the north are more affected by fuel costs, as are northern families. Consequently, for use as a cost-of-education index, adjustments must be made for the fact that teachers normally live in the same county in which their school district is located, but not necessarily in the same school district, as well as for the fact that fuel, paper, and custodial costs constitute a larger part in the total school district budget than they would in the budget of an average family of four. Until additional work adds these refinements, however, the cost-of-living index for the county in which the school district is located (excepting only Cook County where a somewhat wider area should be used) can serve as a reasonable first approximation of the real cost of education and the real purchasing power of state aid for education.

In summary, the cost-of-living index for each school district is the one appropriate to the tax side and tax equity, whereas a cost-of-education index (for which the cost of living by counties can serve as a first approximation) is the one that is relevant to expenditures per child and to the purchasing power of state funds in each school district.

The Economic Reasons for Geographical Price Differences

There is considerable merit in relying on the BLS cost-of-living studies as a starting point. They are a widely recognized national source, with weighting schemes that are likely to be revised periodically based on the latest nutritional standards, the new 1973-1974 Survey on Consumer Finances budget studies, and other microeconomic data. They can also be kept up to data by use of the Consumer Price Index, which requires a large federal investment in collection of price data at many pricing points around the country and which is available on a consistent and continuing basis.

A way to extend the cost-of-living index to areas not sampled by the BLS is through research into the causes of differences in prices, and differences in the cost of living, among different places. If the determinants are limited to things for which measures are available in all school districts and counties, then these determinants of the cost of living can be used to predict the cost of living in areas within which price data have not been collected.

The price collection points in Illinois are Chicago, Champaign-Urbana (for which Decatur is soon to be substituted), the area bordering St. Louis, and (for nonmetropolitan areas) Anna-Jonesboro. To develop a prediction equation, we expanded this sample to include all urban and nonmetropolitan areas for which the cost of living is reported in the North Central Region.

Economic theory suggests that prices will be higher in (1) those places where the demand for goods and services is higher and (2) where as prices are bid up, the quantity supplied fails for some reason to respond. The situation is illustrated in Figure 1 for food and other items that can be shipped easily, and in Figure 2 for housing, where

land costs and climate intercede as relatively unresponsive limiting factors.

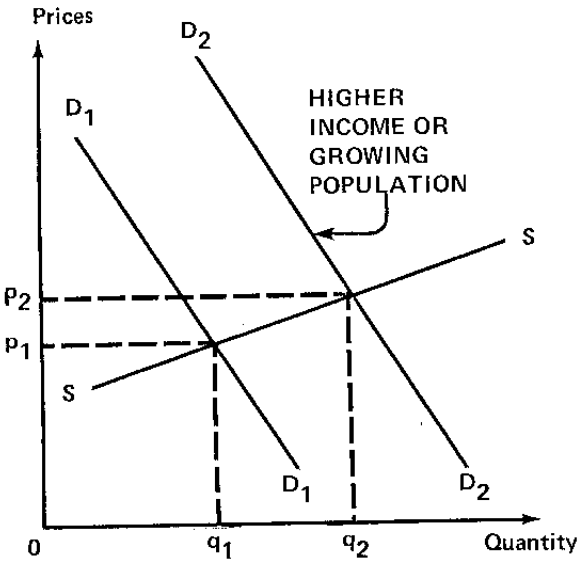


Fig. 1 Food, Clothing, and Transportation Prices

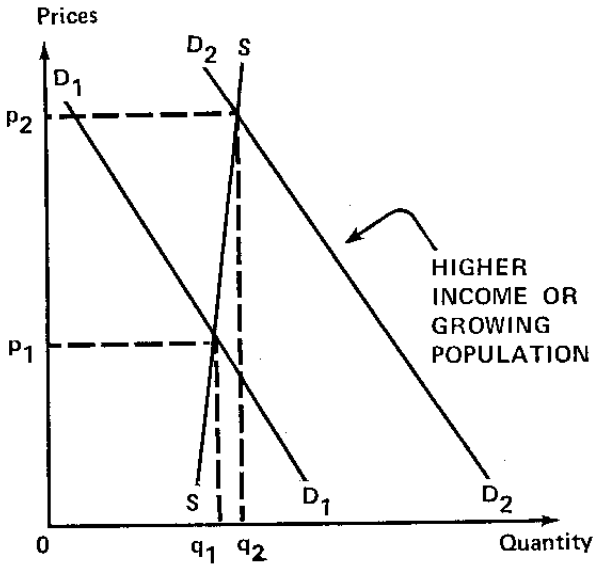


Fig. 2 Housing Prices

Consider an area in which demand for both kinds of products is higher, having risen from D_1D_1 to D_2D_2 at some time in the past due to larger Y (per capita personal income), and/or a larger ΔP (percentage change in the population). Prices could be expected to rise for both kinds of products, and on the reasonable assumption that most supplies are not perfectly responsive, they could be expected to stay higher. Alternatively, p_2 is greater than p_1 in both Figure 1 and Figure 2, where D_1D_1 for each product also could be thought of as relevant to a place where income and population have not increased. Measures were available for both of these demand-related variables for each place in which we were interested, so both were included in our prediction equation.

With respect to the response of supply, the hypothesis about rapid shipment of transportable items in reponse to price differences is consistent with the fact that differences in the prices of food and clothing

among geographical areas is small--only a 6 percent variation in the entire continental United States.[5]

However, supplies of land are relatively fixed, as is suggested in Figure 2, so for any given increase in demand, land costs are likely to rise and to stay higher. Land costs are an important part of housing costs, suggesting that V (the value of a standard house) would lead to higher rent and shelter costs. After testing, this determinant proved to be the third determinant of geographical price level differences that was added to the prediction equation.

The hypothesis that differences in the value of a house both persist and contribute importantly to cost-of-living differences is consistent with the fact that shelter costs vary by 80 percent among different places within the continental United States.[6] Since housing costs constitute 23 percent of the budget of a four-person family for the United States as a whole, this variation could be expected to exert a quite significant influence on living costs. It is not only that the land is more immobile, but the effect of climatic differences on building costs and the effect of the costs of shipping heavy building materials also contribute to the housing cost differences.

The problem, of course, is that it is very difficult to maintain the concept of a standard house, which then is priced out in each geographical area.[7] It is not only that a northern climate requires heavier construction, insulation, and heating equipment (although less air conditioning equipment), but also that differences in housing costs reflect differences in interest costs, property taxes, and fuel bills. Consequently, it was important that the budget study weights also be applied to the housing cost component.

These considerations, relating to differences in demand reflecting income and population growth, and relating to the relative inelasticities of some supplies, suggested that the following reduced form model be used for the purpose of predicting living costs outside of the sampled areas:

(1) $C = \alpha_0 + \alpha_1 Y + \alpha_2 \Delta P + \alpha_3 V = u.$ $\qquad \frac{\partial C}{\partial Y}, \frac{\partial C}{\partial \Delta P}, \frac{\partial C}{\partial V} > 0.$

where C = cost-of-living index,

Y = Personal income per capita, in thousands of dollars,

ΔP = percent change in population, 1960-1970,

V = value of a house measured as the value of the median housing that would reflect climatic, interest, and property tax differences, and

u = disturbances.

Measuring the value of a house at the median is not a perfect measure, but it has several advantages. It reflects differences in land values and construction costs needed to maintain the same level of satisfaction in each climate; it is near the "intermediate" standard; it is consistent with the Duesenberry-Davis relative (or interdependent) utility hypothesis; and it is available from the U. S. Census of Housing for each place in Illinois.[8] If median values overestimate true cost differences, they probably do so in response to income differences that also affect demands, and for which there is a separate rationale in Equation 1.

Estimating the Cost of Living

Method of Predicting a Cost-of-Living Index

The model given in Equation 1 was estimated using data for the North Central Region first by a one-stage least squares method with the results shown below in Equation 2.[9] The observations were partitioned into regions to gain the advantages of the greater homogeneity within regions and the

greater proximity of places that reduces the cost of transport and hence reduces price variation. This reduced the significance of each t-statistic by reducing the sample size, but by controlling for sources of price variation, it increased the accuracy of the predictions. The result explained 94 percent of the total variation in the cost of living within the North Central Region, a considerable improvement over the 54 percent explained in the earlier McMahon and Melton study:[10]

$$(2) \quad C = 72.6 + 1.0\,Y + 16.3\,\Delta P + 0.9\,V \qquad R^2 = .94$$
$$\qquad\qquad (12.2) \quad (1.1) \qquad (1.8) \qquad (5.3)$$

Results for estimating the model for this North Central Region as well as for the adjacent regions by one-stage least squares, the sources of all data, and a list of states included in each region are shown in Table 1.

As expected, variation in the value of a house (V) and hence of the cost of housing, was the most significant determinant of differences in the cost of living among places. It was repeatedly significant at the .01 level, and population change (ΔP) and per capita income (Y) were significant in the 75-90 percent range, although their standard errors were high due to the fact that a portion of their effect was picked up by V as mentioned earlier. The rule followed in this study was to retain a regression coefficient if it exceeded its standard error, providing its sign was theoretically correct, which was tantamount to minimizing the estimated variance of the prediction. All determinants in this model applied to the nation as a whole or to the North Central Region met this criterion.

Re-estimation of the Prediction Equation

To take into account additional cost factors not in Equation 1 that affect all regions simultaneously, the model was applied to all regions simultaneously and re-estimated using "seemingly unrelated regression" methods. These methods are appropriate for a situation in which there is

Table 1

Tests of the Determinants of Differences in the Cost of Living
by One-stage Least Squares
(t-Statistics are Shown below Each Coefficient in Parentheses)

Region	Per Capita Income α_1	Population Change α_2	Cost of a House α_3	Constant α_0	R^2
Northeast	2.33 (1.8)	37.92 (1.1)	1.21 (4.0)	59.57 (4.7)	.87
North Central*	0.99 (1.1)	16.28 (1.8)	0.86 (5.3)	72.60 (12.2)	.94
South	0.31 (0.3)	3.93 (0.2)	0.91 (4.4)	69.09 (13.5)	.94

Data Sources: Cost of living (C) used in basic regressions is from M. Sherwood, "Family Budgets and Geographic Differences in Price Levels," Monthly Labor Review (Washington, D. C.: U. S. Department of Labor, April 1975), and from "BLS Revised Estimates for Urban Family Budgets," U. S. Department of Labor News 77-369 (Washington, D. C.: U. S. Department of Labor, April 27, 1977). Per capita personal income (Y) by counties is from the Survey of Current Business (Washington, D. C.: U. S. Department of Commerce, April 1975), Tables 1 and 2. Income (Y) by school districts is from the 1970 Census of Population (Washington, D. C.: U. S. Bureau of the Census, 1973). The percent change in population (ΔP) from 1960 to 1970 is from Statistical Abstract (Washington, D. C.: U. S. Bureau of the Census, 1973), and the value of a house (V) is from 1970 Census of Housing, Tables 10 and 61 (Washington, D. C.: U. S. Bureau of the Census, 1973).

*The states included in the North Central Region are Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

an interdependence among regions, as evidenced by a correlation of the residuals among regions.[11] It is a simultaneous equation estimating method, or more specifically a two-stage Aitken estimator that should raise the R^2 above .94 (although the R^2 statistic is no longer appropriate to one of a set of simultaneous equations) since it is more efficient than ordinary one-stage least squares. The results for the North Central Region, which were the ones used to predict the cost-of-living index within Illinois, were as follows:

$$(3)\quad C = \underline{73.9} + .8\,Y + \underline{12.8}\,\Delta P + \underline{.9}\,V$$
$$\qquad\quad (12.7 \qquad (1.0) \qquad (1.6) \qquad\quad (6.4)$$

Standard Error = 1.4

The new specification of the model (again using ΔP rather than P) and the more efficient estimator resulted in a much lower standard error and a larger percentage of variation explained. All of the coefficients had the expected sign and were larger than their standard error, and the underlined coefficients had t-statistics that indicated that they were significant at least at the .10 level.[12]

The cost of living was predicted for each county and each school district in Illinois for October 1, 1973, just before the rapid increase in prices in late 1973 and 1974, based on values of each of the three determinants in each place at that date.[13] This 1973 cost-of-living index was then adjusted to March 1, 1977, by multiplying it for each place in Illinois by the percentage change from October 1, 1973, through March 1, 1977, in the Consumer Price Index for cities in the North Central Region of the same size class as that of the largest city in the county (or in the school district for Table 3).[14] Then, to arrive at an index showing

differences in the cost of living in Illinois, the resulting 1977 index was normalized by setting the state average, weighted by the number of persons in each area, equal to 100.

Differences in the Cost of Living in Illinois

Differences among Counties

Differences in the cost of living among Illinois counties are shown in Table 2 and illustrated in Figure 3. There was a 30.3 percent variation in 1977 in the cost of living among counties in Illinois, ranging from a high of 119.9 in DuPage county to a low of 89.6 in Alexander County. This compares to a 35 percent variation of prices taken alone (not the cost of living) found by Simmons within Florida and a 31 percent variation in the BLS standard budgets in 1973 as reported by Sherwood for the continental United States.

The map in Figure 3 shows that the higher cost of living was in the largely residential suburbs of the larger central cities typified by higher land costs and higher incomes that raise demand. The highest areas were those surrounding Chicago up to the Wisconsin border and over to Rockford, the Moline-Rock Island area, the Champaign-Urbana-Peoria area, and counties near St. Louis. The lowest cost of living areas tended to be in the less densely populated southeast corner of Illinois.

These data on the cost of living can be interpreted as a first approximation of the cost of education if interpreted with caution.[15] School districts do purchase mainly services of teachers and other school personnel who tend to live within the county. An exception must be made for Cook County where an index of 112.3 should be substituted. This index is a population-weighted mean of the cost-of-living indices of Cook, DuPage, Lake, Will, and Kendall counties, the area from which personal

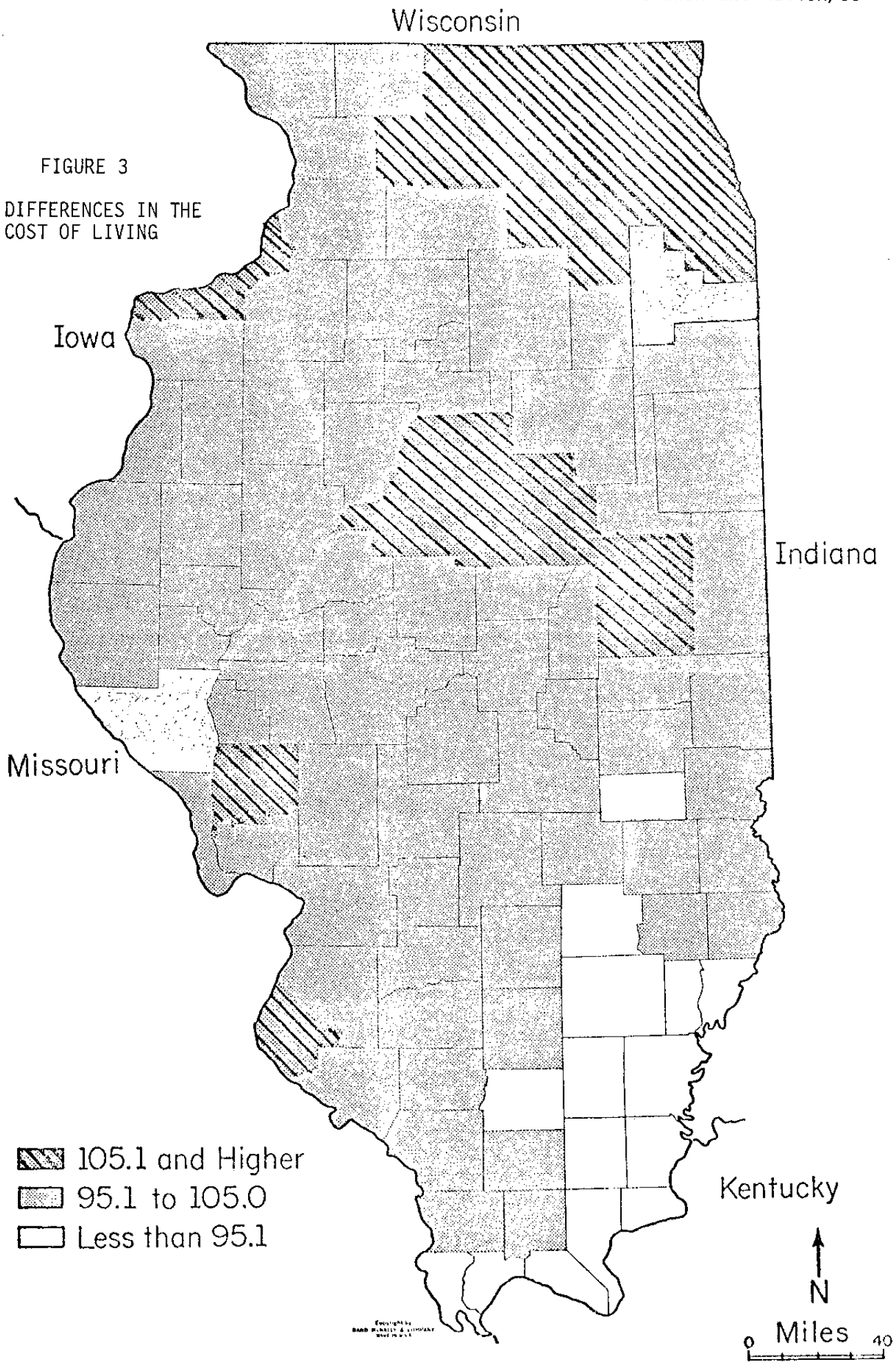


FIGURE 3

DIFFERENCES IN THE COST OF LIVING

Table 2

Differences in the Cost of Living within Illinois

County	1977 Index	County	1977 Index
Adams	102.6	Lee	101.7
Alexander	89.6	Livingston	101.8
Bond	97.3	Logan	101.0
Boone	111.9	McDonough	102.4
Brown	96.2	McHenry	112.3
Bureau	100.3	McLean	107.2
Calhoun	95.7	Macon	101.7
Carroll	99.2	Macoupin	97.1
Cass	96.9	Madison	98.9
Champaign	108.0	Marion	95.7
Christian	97.4	Marshall	100.6
Clark	97.2	Mason	100.0
Clay	93.9	Massac	95.0
Clinton	101.6	Menard	100.6
Coles	102.2	Mercer	99.3
Cook	108.5	Monroe	106.8
Crawford	97.0	Montgomery	95.7
Cumberland	94.7	Morgan	102.8
DeKalb	110.0	Moultrie	99.4
DeWitt	99.0	Ogle	106.6
Douglas	100.2	Peoria	102.9
DuPage	119.9	Perry	97.8
Edgar	97.5	Piatt	101.8
Edwards	93.1	Pike	95.1
Effingham	100.4	Pope	91.0
Fayette	95.2	Pulaski	89.6
Ford	101.1	Putnam	102.1
Franklin	93.4	Randolph	99.9
Fulton	98.0	Richland	98.0
Gallatin	93.0	Rock Island	106.2
Grundy	96.3	St. Clair	96.8
Greene	107.8	Saline	94.7
Hamilton	91.6	Sangamon	103.9
Hancock	96.2	Schuyler	97.7
Hardin	90.9	Scott	97.4
Henderson	98.3	Shelby	97.2
Henry	101.2	Stark	96.9
Iroquois	99.8	Stephenson	104.5
Jackson	103.7	Tazewell	105.0
Jasper	97.5	Union	95.2
Jefferson	96.5	Vermilion	97.6
Jersey	100.2	Wabash	95.0
Jo Daviess	98.9	Warren	99.3
Johnson	97.1	Washington	98.0
Kane	107.4	Wayne	94.8
Kankakee	103.3	White	93.6
Kendall	118.1	Whiteside	101.7
Knox	99.9	Will	104.9
Lake	112.4	Williamson	97.0
LaSalle	100.5	Winnebago	107.5
Lawrence	95.2	Woodford	106.4

services are purchased for the Chicago City schools. For the nonservice components of school budgets, land costs, although a true economic cost, are not explicitly reflected in school budgets. But in place of land costs, which tend to be higher in the northern part of the state, there are also total fuel costs, which are a more important component in the cost of education in the north.

Differences among School Districts

Differences in the cost of living faced by taxpayers in the various school districts in Illinois are shown in Table 3. The total variation was 35.1 percent, ranging from a high of 125.0 in DuPage District #53 to a low of 89.9 in Pulaski District #100. In general, the school districts in which the cost of living was high tended to be in the high cost-of-living counties.

The cost-of-living indices listed in Table 3 can be used to adjust the broadened measure of school district income and wealth. By simply dividing them into the measure of income and wealth for each school district, a measure of real income is obtained that is a more accurate measure of the real ability to pay in relation to people living in the other districts.

Changes in the Cost of Living over Time

The cost of living has risen in most counties in Illinois since 1973 by about 36 percent due to the rapid increases in prices that began in 1973. This can be seen in Table 4, together with the average annual increase over the three and one-half year period of 10.5 percent in Column 2 that tends to be a somewhat lower percentage increase in those counties where the base cost of living was already high.

This is a reasonably close approximation of what has happened to the cost of education in the districts in each of these counties. The approximate 10.5 percent increase per year in the cost of education of constant quality over the period as a whole has slowed down to a 6.4-6.9 percent increase for the year beginning in March 1976 and ending in March 1977.

The Bureau of Labor Statistics resamples prices at its price collection points and publishes a new Consumer Price Index for different places in the North Central Region quarterly.[16] The cost-of-education index for each county in Table 2 and the cost-of-living index for each school district in Table 3 can therefore be updated quarterly, if desired, using these changes in the Consumer Price Index in essentially the same fasion that the BLS updates its own standard budgets.

Table 3

Differences in the Cost of Living among School Districts in Illinois

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I*
Adams	1	0.11	.07	97.41
Adams	2	0.11	.07	96.96
Adams	3	0.11	.07	96.87
Adams	4	0.11	.07	96.83
Adams	172	0.11	.07	97.39
Alexander	1	0.11	.07	92.35
Alexander	5	0.11	.07	91.96
Bond	1	0.11	.07	92.72
Bond	2	0.11	.07	93.12
Boone	100	0.11	.07	105.54
Boone	200	0.11	.07	105.19
Brown	1	0.11	.07	93.95
Bureau	17	0.11	.07	95.33
Bureau	23	0.11	.07	95.16
Bureau	84	0.11	.07	94.80
Bureau	92	0.11	.07	95.25
Bureau	94	0.11	.07	95.39
Bureau	98	0.11	.07	95.54
Bureau	99	0.11	.07	95.07
Bureau	103	0.11	.07	94.89
Bureau	115	0.11	.07	95.81
Bureau	126	0.11	.07	94.92
Bureau	175	0.11	.07	94.48
Bureau	250	0.11	.07	94.62
Bureau	285	0.11	.07	95.56
Bureau	300	0.11	.07	95.56
Bureau	303	0.11	.07	94.92
Bureau	305	0.11	.07	95.06
Bureau	306	0.11	.07	95.30
Bureau	307	0.11	.07	94.90
Bureau	500	0.11	.07	95.75
Bureau	502	0.11	.07	95.14
Bureau	505	0.11	.07	95.33
Bureau	508	0.11	.07	95.48
Bureau	510	0.11	.07	94.90
Bureau	511	0.11	.07	94.81
Calhoun	37	0.11	.07	91.63
Calhoun	40	0.11	.07	91.27
Calhoun	41	0.11	.07	91.63
Carroll	300	0.11	.07	94.11
Carroll	301	0.11	.07	93.64
Carroll	303	0.11	.07	93.86
Carroll	304	0.11	.07	93.82
Carroll	305	0.11	.07	93.87
Carroll	312	0.11	.07	94.06
Carroll	399	0.11	.07	93.58

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Cass	15	0.11	.07	91.71
Cass	62	0.11	.07	91.14
Cass	64	0.11	.07	91.51
Cass	212	0.11	.07	91.70
Champaign	1	0.10	.07	104.71
Champaign	3	0.10	.07	105.57
Champaign	4	0.10	.07	105.43
Champaign	6	0.10	.07	105.69
Champaign	7	0.10	.07	105.19
Champaign	116	0.10	.07	105.31
Champaign	130	0.10	.07	104.99
Champaign	137	0.10	.07	104.35
Champaign	142	0.10	.07	105.27
Champaign	169	0.10	.07	105.52
Champaign	188	0.10	.07	104.98
Champaign	192	0.10	.07	105.42
Champaign	193	0.10	.07	104.45
Champaign	208	0.10	.07	105.42
Champaign	212	0.10	.07	104.48
Champaign	224	0.10	.07	104.92
Champaign	305	0.10	.07	105.50
Christian	1	0.11	.07	91.74
Christian	3	0.11	.07	92.60
Christian	4	0.11	.07	92.04
Christian	5	0.11	.07	91.75
Christian	7	0.11	.07	91.81
Christian	8	0.11	.07	91.68
Christian	9	0.11	.07	91.95
Christian	182	0.11	.07	92.54
Christian	183	0.11	.07	91.62
Christian	310	0.11	.07	92.36
Clark	1	0.11	.07	92.78
Clark	2	0.11	.07	92.68
Clark	3	0.11	.07	92.40
Clark	105	0.11	.07	92.04
Clark	201	0.11	.07	92.04
Clay	10	0.11	.07	89.67
Clay	25	0.11	.07	90.30
Clay	35	0.11	.07	90.17
Clinton	1	0.11	.07	96.32
Clinton	3	0.11	.07	96.48
Clinton	12	0.11	.07	96.42
Clinton	21	0.11	.07	96.44
Clinton	46	0.11	.07	96.44
Clinton	57	0.11	.07	96.00
Clinton	60	0.11	.07	96.60
Clinton	62	0.11	.07	96.40
Clinton	63	0.11	.07	95.92
Clinton	71	0.11	.07	96.29
Clinton	141	0.11	.07	95.33
Clinton	186	0.11	.07	96.23

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Coles	1	0.11	.07	97.22
Coles	2	0.11	.07	97.72
Coles	5	0.11	.07	97.05
Cook	15	0.08	.06	109.53
Cook	21	0.08	.06	108.96
Cook	23	0.08	.06	109.68
Cook	25	0.08	.06	109.75
Cook	26	0.08	.06	109.33
Cook	27	0.08	.06	110.43
Cook	28	0.08	.06	111.14
Cook	29	0.08	.06	112.00
Cook	30	0.08	.06	109.75
Cook	31	0.08	.06	109.74
Cook	34	0.08	.06	110.61
Cook	35	0.08	.06	114.48
Cook	36	0.08	.06	115.22
Cook	37	0.08	.06	112.91
Cook	38	0.08	.06	117.38
Cook	39	0.08	.06	112.01
Cook	54	0.08	.06	108.70
Cook	57	0.08	.06	109.86
Cook	59	0.08	.06	109.32
Cook	62	0.08	.06	109.39
Cook	63	0.08	.06	109.58
Cook	64	0.08	.06	110.61
Cook	65	0.08	.06	110.49
Cook	67	0.08	.06	110.26
Cook	68	0.08	.06	110.56
Cook	69	0.08	.06	110.12
Cook	70	0.08	.06	109.69
Cook	71	0.08	.06	109.46
Cook	72	0.08	.06	110.57
Cook	73	0.08	.06	110.47
Cook	73	0.08	.06	110.10
Cook	74	0.08	.06	112.41
Cook	76	0.08	.06	110.59
Cook	79	0.08	.06	109.43
Cook	80	0.08	.06	109.25
Cook	81	0.08	.06	109.15
Cook	83	0.08	.06	109.13
Cook	84	0.08	.06	108.94
Cook	84	0.08	.06	109.18
Cook	85	0.08	.06	109.43
Cook	86	0.08	.06	109.60
Cook	87	0.08	.06	108.83
Cook	88	0.08	.06	109.02
Cook	89	0.08	.06	108.74
Cook	90	0.08	.06	112.73
Cook	91	0.08	.06	109.51
Cook	92	0.08	.06	109.32

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Cook	92	0.08	0.06	110.05
Cook	93	0.08	0.06	108.89
Cook	94	0.08	0.06	109.41
Cook	95	0.08	0.06	109.32
Cook	96	0.08	0.06	110.73
Cook	97	0.08	0.06	110.20
Cook	98	0.08	0.06	109.29
Cook	99	0.08	0.06	108.99
Cook	100	0.08	0.06	109.33
Cook	101	0.08	0.06	111.02
Cook	102	0.08	0.06	110.29
Cook	103	0.08	0.06	108.97
Cook	104	0.08	0.06	108.30
Cook	105	0.08	0.06	109.94
Cook	106	0.08	0.06	111.22
Cook	107	0.08	0.06	109.79
Cook	108	0.08	0.06	109.24
Cook	109	0.08	0.06	108.65
Cook	110	0.08	0.06	108.53
Cook	111	0.08	0.06	108.43
Cook	113	0.08	0.06	108.49
Cook	117	0.08	0.06	108.86
Cook	118	0.08	0.06	110.08
Cook	122	0.08	0.06	108.50
Cook	123	0.08	0.06	109.19
Cook	124	0.08	0.06	109.40
Cook	125	0.08	0.06	109.00
Cook	126	0.08	0.06	108.51
Cook	127	0.08	0.06	108.79
Cook	127	0.08	0.06	108.15
Cook	128	0.08	0.06	109.56
Cook	130	0.08	0.06	108.69
Cook	132	0.08	0.06	108.84
Cook	133	0.08	0.06	108.70
Cook	135	0.08	0.06	108.90
Cook	140	0.08	0.06	108.13
Cook	142	0.08	0.06	108.58
Cook	143	0.08	0.06	108.16
Cook	143	0.08	0.06	107.75
Cook	144	0.08	0.06	108.19
Cook	145	0.08	0.06	108.28
Cook	146	0.08	0.06	108.64
Cook	147	0.08	0.06	108.03
Cook	148	0.08	0.06	109.19
Cook	149	0.08	0.06	108.90
Cook	150	0.08	0.06	109.29
Cook	151	0.08	0.06	108.62
Cook	152	0.08	0.06	108.42
Cook	152	0.08	0.06	108.49

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Cook	153	0.08	0.06	109.94
Cook	154	0.08	0.06	108.32
Cook	154	0.08	0.06	108.63
Cook	155	0.08	0.06	108.49
Cook	156	0.08	0.06	108.71
Cook	157	0.08	0.06	108.67
Cook	158	0.08	0.06	108.96
Cook	159	0.08	0.06	108.58
Cook	160	0.08	0.06	108.40
Cook	161	0.08	0.06	110.86
Cook	162	0.08	0.06	109.74
Cook	163	0.08	0.06	109.02
Cook	167	0.08	0.06	108.64
Cook	168	0.08	0.06	107.95
Cook	169	0.08	0.06	106.81
Cook	170	0.08	0.06	108.33
Cook	171	0.08	0.06	109.02
Cook	172	0.08	0.06	108.68
Cook	194	0.08	0.06	108.46
Cook	200	0.08	0.06	110.64
Cook	201	0.08	0.06	109.10
Cook	202	0.08	0.06	110.49
Cook	203	0.08	0.06	113.34
Cook	204	0.08	0.06	110.36
Cook	205	0.08	0.06	108.70
Cook	206	0.08	0.06	108.23
Cook	207	0.08	0.06	109.82
Cook	208	0.08	0.06	110.01
Cook	209	0.08	0.06	109.11
Cook	210	0.08	0.06	108.77
Cook	211	0.08	0.06	109.22
Cook	212	0.08	0.06	109.16
Cook	214	0.08	0.06	109.42
Cook	215	0.08	0.06	108.79
Cook	217	0.08	0.06	108.57
Cook	218	0.08	0.06	108.71
Cook	219	0.08	0.06	110.48
Cook	220	0.08	0.06	108.44
Cook	225	0.08	0.06	110.62
Cook	227	0.08	0.06	109.23
Cook	228	0.08	0.06	108.36
Cook	229	0.08	0.06	108.85
Cook	230	0.08	0.06	109.06
Cook	231	0.08	0.06	109.40
Cook	233	0.08	0.06	110.47
Cook	234	0.08	0.06	109.35
Cook	299	0.08	0.06	108.58
Cook	401	0.08	0.06	109.61
Crawford	1	0.11	0.07	92.49
Crawford	2	0.11	0.07	92.86
Crawford	3	0.11	0.07	92.00
Crawford	4	0.11	0.07	92.32

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Cumberland	3	0.11	0.07	90.83
Cumberland	77	0.11	0.07	91.00
DeKalb	424	0.10	0.07	106.45
DeKalb	425	0.10	0.07	105.98
DeKalb	426	0.10	0.07	106.86
DeKalb	427	0.10	0.07	106.78
DeKalb	428	0.10	0.07	106.22
DeKalb	429	0.10	0.07	106.45
DeKalb	430	0.10	0.07	106.67
DeKalb	431	0.10	0.07	106.30
DeKalb	432	0.10	0.07	106.54
DeKalb	433	0.10	0.07	105.82
DeWitt	5	0.11	0.07	94.70
DeWitt	15	0.11	0.07	94.67
DeWitt	17	0.11	0.07	94.34
Douglas	301	0.11	0.07	95.50
Douglas	302	0.11	0.07	95.28
Douglas	303	0.11	0.07	94.84
Douglas	305	0.11	0.07	94.92
Douglas	306	0.11	0.07	95.26
DuPage	2	0.08	0.06	119.56
DuPage	4	0.08	0.06	119.40
DuPage	7	0.08	0.06	119.42
DuPage	10	0.08	0.06	120.17
DuPage	11	0.08	0.06	119.84
DuPage	12	0.08	0.06	119.52
DuPage	13	0.08	0.06	119.35
DuPage	15	0.08	0.06	119.04
DuPage	16	0.08	0.06	118.69
DuPage	20	0.08	0.06	118.53
DuPage	25	0.08	0.06	119.69
DuPage	27	0.08	0.06	119.07
DuPage	33	0.08	0.06	119.55
DuPage	34	0.08	0.06	119.60
DuPage	41	0.08	0.06	120.80
DuPage	44	0.08	0.06	119.74
DuPage	45	0.08	0.06	119.66
DuPage	48	0.08	0.06	120.02
DuPage	53	0.08	0.06	125.04
DuPage	58	0.08	0.06	120.41
DuPage	60	0.08	0.06	120.06
DuPage	61	0.08	0.06	119.96
DuPage	62	0.08	0.06	120.11
DuPage	63	0.08	0.06	120.68
DuPage	65	0.08	0.06	120.10
DuPage	66	0.08	0.06	120.32
DuPage	68	0.08	0.06	119.85
DuPage	69	0.08	0.06	119.97
DuPage	86	0.08	0.06	121.59
DuPage	87	0.08	0.06	119.92

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
DuPage	88	0.08	0.06	119.59
DuPage	89	0.08	0.06	120.46
DuPage	93	0.08	0.06	119.07
DuPage	94	0.08	0.06	119.56
DuPage	99	0.08	0.06	120.22
DuPage	100	0.08	0.06	119.51
DuPage	108	0.08	0.06	119.68
DuPage	180	0.08	0.06	120.26
DuPage	181	0.08	0.06	122.16
DuPage	200	0.08	0.06	120.00
DuPage	201	0.08	0.06	119.55
DuPage	202	0.08	0.06	119.90
DuPage	203	0.08	0.06	120.13
DuPage	204	0.08	0.06	119.63
DuPage	205	0.08	0.06	120.58
Edgar	2	0.11	0.07	92.37
Edgar	3	0.11	0.07	92.11
Edgar	4	0.11	0.07	92.64
Edgar	6	0.11	0.07	92.81
Edgar	95	0.11	0.07	92.82
Edwards	1	0.11	0.07	91.58
Effingham	10	0.11	0.07	95.89
Effingham	20	0.11	0.07	94.78
Effingham	30	0.11	0.07	94.79
Effingham	40	0.11	0.07	95.62
Effingham	50	0.11	0.07	95.25
Fayette	201	0.11	0.07	91.11
Fayette	202	0.11	0.07	90.94
Fayette	203	0.11	0.07	91.37
Fayette	204	0.11	0.07	91.04
Fayette	206	0.11	0.07	91.16
Ford	1	0.11	0.07	95.76
Ford	2	0.11	0.07	95.60
Ford	4	0.11	0.07	95.14
Ford	8	0.11	0.07	94.93
Franklin	32	0.11	0.07	88.76
Franklin	34	0.11	0.07	89.42
Franklin	37	0.11	0.07	89.18
Franklin	38	0.11	0.07	89.28
Franklin	47	0.11	0.07	89.27
Franklin	62	0.11	0.07	88.44
Franklin	91	0.11	0.07	88.55
Franklin	103	0.11	0.07	89.18
Franklin	110	0.11	0.07	88.62
Franklin	112	0.11	0.07	88.46
Franklin	115	0.11	0.07	89.15
Franklin	168	0.11	0.07	89.15
Franklin	188	0.11	0.07	89.14
Franklin	196	0.11	0.07	88.87

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Fulton	1	0.11	0.07	92.76
Fulton	2	0.11	0.07	92.79
Fulton	3	0.11	0.07	92.95
Fulton	4	0.11	0.07	93.16
Fulton	66	0.11	0.07	93.40
Fulton	87	0.11	0.07	92.80
Fulton	88	0.11	0.07	92.70
Fulton	141	0.11	0.07	93.15
Fulton	176	0.11	0.07	92.92
Fulton	324	0.11	0.07	93.61
Fulton	330	0.11	0.07	92.81
Fulton	340	0.11	0.07	93.00
Fulton	341	0.11	0.07	93.05
Gallatin	1	0.11	0.07	89.46
Gallatin	2	0.11	0.07	89.13
Gallatin	4	0.11	0.07	89.27
Greene	1	0.11	0.07	94.29
Greene	3	0.11	0.07	94.07
Greene	10	0.11	0.07	94.19
Grundy	1	0.11	0.07	99.94
Grundy	2	0.11	0.07	100.00
Grundy	7	0.11	0.07	100.37
Grundy	24	0.11	0.07	99.79
Grundy	35	0.11	0.07	99.50
Grundy	40	0.11	0.07	98.66
Grundy	54	0.11	0.07	100.12
Grundy	60	0.11	0.07	100.13
Grundy	72	0.11	0.07	100.27
Grundy	73	0.11	0.07	100.04
Grundy	74	0.11	0.07	100.49
Grundy	75	0.11	0.07	99.31
Grundy	101	0.11	0.07	100.11
Grundy	111	0.11	0.07	100.06
Grundy	201	0.11	0.07	99.94
Hamilton	10	0.11	0.07	91.30
Hancock	316	0.11	0.07	93.68
Hancock	319	0.11	0.07	93.52
Hancock	325	0.11	0.07	94.00
Hancock	328	0.11	0.07	94.07
Hancock	335	0.11	0.07	93.79
Hancock	336	0.11	0.07	93.70
Hancock	337	0.11	0.07	93.92
Hancock	338	0.11	0.07	94.11
Hardin	1	0.11	0.07	91.27
Hardin	2	0.11	0.07	91.13
Henderson	115	0.11	0.07	93.39
Henderson	120	0.11	0.07	93.74
Henry	190	0.10	0.07	97.43
Henry	223	0.10	0.07	97.98

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Henry	224	0.10	0.07	97.64
Henry	225	0.10	0.07	97.55
Henry	226	0.10	0.07	97.56
Henry	227	0.10	0.07	97.51
Henry	228	0.10	0.07	97.92
Henry	229	0.10	0.07	97.25
Henry	230	0.10	0.07	97.94
Henry	233	0.10	0.07	97.25
Iroquois	1	0.11	0.07	94.59
Iroquois	2	0.11	0.07	94.51
Iroquois	3	0.11	0.07	94.07
Iroquois	4	0.11	0.07	95.06
Iroquois	5	0.11	0.07	94.45
Iroquois	6	0.11	0.07	94.35
Iroquois	7	0.11	0.07	95.43
Iroquois	8	0.11	0.07	94.80
Iroquois	9	0.11	0.07	95.17
Iroquois	233	0.11	0.07	94.87
Iroquois	252	0.11	0.07	94.54
Iroquois	253	0.11	0.07	93.75
Iroquois	275	0.11	0.07	94.52
Iroquois	280	0.11	0.07	95.05
Iroquois	284	0.11	0.07	94.31
Jackson	86	0.10	0.07	100.78
Jackson	95	0.10	0.07	100.77
Jackson	130	0.10	0.07	100.21
Jackson	140	0.10	0.07	100.13
Jackson	160	0.10	0.07	100.84
Jackson	165	0.10	0.07	100.63
Jackson	166	0.10	0.07	100.66
Jackson	176	0.10	0.07	100.35
Jackson	186	0.10	0.07	100.68
Jackson	196	0.10	0.07	100.26
Jasper	1	0.11	0.07	93.34
Jefferson	1	0.11	0.07	91.45
Jefferson	2	0.11	0.07	91.67
Jefferson	3	0.11	0.07	92.27
Jefferson	4	0.11	0.07	91.32
Jefferson	5	0.11	0.07	91.33
Jefferson	6	0.11	0.07	91.29
Jefferson	7	0.11	0.07	91.52
Jefferson	8	0.11	0.07	91.50
Jefferson	12	0.11	0.07	91.87
Jefferson	50	0.11	0.07	91.79
Jefferson	79	0.11	0.07	91.85
Jefferson	80	0.11	0.07	92.31
Jefferson	82	0.11	0.07	91.77
Jefferson	99	0.11	0.07	90.80
Jefferson	114	0.11	0.07	91.11

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Jefferson	201	0.11	0.07	92.11
Jefferson	204	0.11	0.07	91.01
Jefferson	205	0.11	0.07	91.30
Jersey	100	0.11	0.07	95.06
Jo Daviess	119	0.11	0.07	93.88
Jo Daviess	120	0.11	0.07	94.13
Jo Daviess	205	0.11	0.07	94.23
Jo Daviess	206	0.11	0.07	93.94
Jo Daviess	208	0.11	0.07	94.06
Jo Daviess	211	0.11	0.07	93.60
Jo Daviess	212	0.11	0.07	94.81
Johnson	18	0.11	0.07	92.87
Johnson	32	0.11	0.07	92.53
Johnson	43	0.11	0.07	92.97
Johnson	55	0.11	0.07	93.00
Johnson	64	0.11	0.07	92.50
Johnson	71	0.11	0.07	92.89
Johnson	133	0.11	0.07	92.78
Kane	46	0.09	0.07	106.47
Kane	101	0.09	0.07	106.59
Kane	129	0.09	0.07	106.92
Kane	131	0.09	0.07	106.10
Kane	300	0.09	0.07	106.48
Kane	301	0.09	0.07	106.41
Kane	302	0.09	0.07	106.42
Kane	303	0.09	0.07	106.99
Kane	304	0.09	0.07	107.21
Kankakee	1	0.10	0.07	99.17
Kankakee	2	0.10	0.07	99.69
Kankakee	3	0.10	0.07	99.70
Kankakee	5	0.10	0.07	98.46
Kankakee	6	0.10	0.07	99.22
Kankakee	53	0.10	0.07	99.56
Kankakee	61	0.10	0.07	99.67
Kankakee	111	0.10	0.07	99.91
Kankakee	256	0.10	0.07	99.12
Kankakee	258	0.10	0.07	99.74
Kankakee	259	0.10	0.07	97.81
Kankakee	262	0.10	0.07	99.10
Kankakee	302	0.10	0.07	98.46
Kankakee	307	0.10	0.07	99.62
Kendall	18	0.11	0.07	110.57
Kendall	66	0.11	0.07	110.70
Kendall	88	0.11	0.07	110.55
Kendall	90	0.11	0.07	110.35
Kendall	115	0.11	0.07	110.99
Kendall	308	0.11	0.07	111.28
Knox	202	0.10	0.07	96.51
Knox	205	0.10	0.07	96.61

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Knox	207	0.10	0.07	96.26
Knox	208	0.10	0.07	96.31
Knox	210	0.10	0.07	96.30
Knox	217	0.10	0.07	96.33
Lake	1	0.08	0.06	111.72
Lake	3	0.08	0.06	112.18
Lake	6	0.08	0.06	111.37
Lake	10	0.08	0.06	111.59
Lake	11	0.08	0.06	112.24
Lake	24	0.08	0.06	111.72
Lake	33	0.08	0.06	111.75
Lake	34	0.08	0.06	112.00
Lake	36	0.08	0.06	112.18
Lake	37	0.08	0.06	111.60
Lake	38	0.08	0.06	112.14
Lake	41	0.08	0.06	111.68
Lake	46	0.08	0.06	112.47
Lake	47	0.08	0.06	111.79
Lake	50	0.08	0.06	111.93
Lake	56	0.08	0.06	112.06
Lake	60	0.08	0.06	112.17
Lake	64	0.08	0.06	110.88
Lake	65	0.08	0.06	114.52
Lake	67	0.08	0.06	116.25
Lake	68	0.08	0.06	113.07
Lake	70	0.08	0.06	113.15
Lake	72	0.08	0.06	115.82
Lake	73	0.08	0.06	112.16
Lake	75	0.08	0.06	112.12
Lake	76	0.08	0.06	112.09
Lake	79	0.08	0.06	112.32
Lake	95	0.08	0.06	112.56
Lake	96	0.08	0.06	113.64
Lake	102	0.08	0.06	113.59
Lake	103	0.08	0.06	114.14
Lake	106	0.08	0.06	114.12
Lake	107	0.08	0.06	114.79
Lake	108	0.08	0.06	117.24
Lake	109	0.08	0.06	114.22
Lake	110	0.08	0.06	113.93
Lake	111	0.08	0.06	113.25
Lake	113	0.08	0.06	115.05
Lake	114	0.08	0.06	111.96
Lake	115	0.08	0.06	115.52
Lake	116	0.08	0.06	111.52
Lake	117	0.08	0.06	111.93
Lake	118	0.08	0.06	111.81
Lake	120	0.08	0.06	112.11
Lake	121	0.08	0.06	111.95

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Lake	123	0.08	0.06	110.88
Lake	124	0.08	0.06	111.81
Lake	125	0.08	0.06	113.48
Lake	126	0.08	0.06	111.63
Lake	127	0.08	0.06	112.11
Lake	128	0.08	0.06	113.13
Lake	220	0.08	0.06	113.92
LaSalle	1	0.10	0.07	97.36
LaSalle	9	0.10	0.07	97.03
LaSalle	25	0.10	0.07	96.28
LaSalle	40	0.10	0.07	96.82
LaSalle	43	0.10	0.07	97.21
LaSalle	45	0.10	0.07	96.83
LaSalle	56	0.10	0.07	96.41
LaSalle	65	0.10	0.07	96.54
LaSalle	79	0.10	0.07	96.75
LaSalle	82	0.10	0.07	96.94
LaSalle	95	0.10	0.07	96.71
LaSalle	120	0.10	0.07	96.90
LaSalle	122	0.10	0.07	96.86
LaSalle	124	0.10	0.07	97.03
LaSalle	125	0.10	0.07	96.70
LaSalle	129	0.10	0.07	97.52
LaSalle	135	0.10	0.07	96.59
LaSalle	140	0.10	0.07	97.05
LaSalle	141	0.10	0.07	97.10
LaSalle	155	0.10	0.07	97.09
LaSalle	160	0.10	0.07	97.12
LaSalle	170	0.10	0.07	97.11
LaSalle	175	0.10	0.07	96.86
LaSalle	185	0.10	0.07	96.97
LaSalle	195	0.10	0.07	96.86
LaSalle	201	0.10	0.07	96.68
LaSalle	210	0.10	0.07	97.20
LaSalle	230	0.10	0.07	97.17
LaSalle	235	0.10	0.07	95.79
LaSalle	245	0.10	0.07	96.47
LaSalle	265	0.10	0.07	96.28
LaSalle	272	0.10	0.07	96.95
LaSalle	280	0.10	0.07	95.80
LaSalle	289	0.10	0.07	96.87
LaSalle	360	0.10	0.07	96.74
LaSalle	390	0.10	0.07	96.62
LaSalle	400	0.10	0.07	96.27
Lawrence	10	0.11	0.07	90.64
Lawrence	20	0.11	0.07	90.87
Lee	8	0.11	0.07	96.84
Lee	170	0.11	0.07	96.55
Lee	220	0.11	0.07	96.90

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Lee	271	0.11	0.07	96.53
Lee	272	0.11	0.07	96.48
Lee	275	0.11	0.07	96.84
Livingston	1	0.11	0.07	96.79
Livingston	2	0.11	0.07	96.87
Livingston	3	0.11	0.07	96.65
Livingston	4	0.11	0.07	96.15
Livingston	5	0.11	0.07	96.17
Livingston	6	0.11	0.07	97.00
Livingston	6	0.11	0.07	96.61
Livingston	70	0.11	0.07	96.50
Livingston	90	0.11	0.07	96.68
Livingston	160	0.11	0.07	96.08
Livingston	230	0.11	0.07	96.70
Livingston	232	0.11	0.07	96.77
Livingston	425	0.11	0.07	96.40
Livingston	426	0.11	0.07	96.52
Livingston	429	0.11	0.07	96.78
Livingston	430	0.11	0.07	95.54
Livingston	431	0.11	0.07	95.79
Livingston	434	0.11	0.07	96.48
Livingston	435	0.11	0.07	96.09
Logan	17	0.11	0.07	96.15
Logan	21	0.11	0.07	95.59
Logan	22	0.11	0.07	95.89
Logan	23	0.11	0.07	96.55
Logan	27	0.11	0.07	95.89
Logan	61	0.11	0.07	96.33
Logan	68	0.11	0.07	94.15
Logan	72	0.11	0.07	95.83
Logan	404	0.11	0.07	95.79
Macon	1	0.10	0.07	95.68
Macon	2	0.10	0.07	96.09
Macon	3	0.10	0.07	95.90
Macon	5	0.10	0.07	96.11
Macon	6	0.10	0.07	95.74
Macon	10	0.10	0.07	95.80
Macon	11	0.10	0.07	96.06
Macon	61	0.10	0.07	96.32
Macoupin	1	0.11	0.07	103.14
Macoupin	2	0.11	0.07	103.38
Macoupin	3	0.11	0.07	103.15
Macoupin	4	0.11	0.07	103.17
Macoupin	5	0.11	0.07	103.05
Macoupin	6	0.11	0.07	103.24
Macoupin	7	0.11	0.07	103.08
Macoupin	8	0.11	0.07	102.91
Macoupin	9	0.11	0.07	102.97
Madison	1	0.09	0.07	102.07

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Madison	2	0.09	0.07	101.66
Madison	3	0.09	0.07	101.02
Madison	4	0.09	0.07	101.46
Madison	5	0.09	0.07	101.67
Madison	7	0.09	0.07	102.09
Madison	8	0.09	0.07	101.48
Madison	9	0.09	0.07	101.85
Madison	10	0.09	0.07	102.02
Madison	11	0.09	0.07	101.95
Madison	12	0.09	0.07	101.04
Madison	13	0.09	0.07	102.03
Madison	14	0.09	0.07	101.99
Madison	15	0.09	0.07	101.94
Madison	16	0.09	0.07	101.38
Marion	1	0.11	0.07	96.51
Marion	2	0.11	0.07	96.39
Marion	7	0.11	0.07	96.29
Marion	10	0.11	0.07	96.49
Marion	100	0.11	0.07	96.56
Marion	111	0.11	0.07	96.70
Marion	122	0.11	0.07	96.08
Marion	133	0.11	0.07	96.90
Marion	135	0.11	0.07	97.06
Marion	200	0.11	0.07	96.93
Marion	301	0.11	0.07	96.36
Marion	501	0.11	0.07	96.11
Marion	600	0.11	0.07	96.57
Marion	700	0.11	0.07	96.07
Marshall	1	0.11	0.07	92.45
Marshall	2	0.11	0.07	92.15
Marshall	3	0.11	0.07	91.87
Marshall	4	0.11	0.07	92.39
Marshall	20	0.11	0.07	92.21
Marshall	35	0.11	0.07	92.23
Mason	121	0.11	0.07	98.25
Mason	122	0.11	0.07	98.32
Mason	123	0.11	0.07	97.52
Mason	124	0.11	0.07	97.26
Mason	125	0.11	0.07	97.43
Mason	126	0.11	0.07	97.36
Massac	5	0.11	0.07	90.75
Massac	7	0.11	0.07	90.74
Massac	17	0.11	0.07	90.11
Massac	20	0.11	0.07	90.71
Massac	21	0.11	0.07	90.08
Massac	35	0.11	0.07	90.72
Massac	36	0.11	0.07	90.62
Massac	38	0.11	0.07	90.49
Massac	39	0.11	0.07	90.36

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
McDonough	165	0.11	0.07	98.48
McDonough	170	0.11	0.07	98.98
McDonough	175	0.11	0.07	98.80
McDonough	180	0.11	0.07	98.68
McDonough	185	0.11	0.07	98.79
McHenry	3	0.10	0.07	98.85
McHenry	8	0.10	0.07	98.13
McHenry	11	0.10	0.07	98.74
McHenry	12	0.10	0.07	98.48
McHenry	13	0.10	0.07	98.60
McHenry	15	0.10	0.07	98.68
McHenry	17	0.10	0.07	99.10
McHenry	18	0.10	0.07	97.88
McHenry	19	0.10	0.07	98.42
McHenry	26	0.10	0.07	99.04
McHenry	36	0.10	0.07	98.55
McHenry	46	0.10	0.07	98.57
McHenry	47	0.10	0.07	99.29
McHenry	50	0.10	0.07	98.41
McHenry	140	0.10	0.07	98.62
McHenry	154	0.10	0.07	98.49
McHenry	155	0.10	0.07	99.14
McHenry	156	0.10	0.07	98.63
McHenry	157	0.10	0.07	98.64
McHenry	158	0.10	0.07	98.48
McHenry	200	0.10	0.07	98.88
McLean	2	0.10	0.07	94.52
McLean	3	0.10	0.07	94.74
McLean	4	0.10	0.07	94.91
McLean	5	0.10	0.07	95.06
McLean	7	0.10	0.07	95.11
McLean	8	0.10	0.07	94.91
McLean	9	0.10	0.07	95.12
McLean	10	0.10	0.07	94.70
McLean	11	0.10	0.07	94.74
McLean	16	0.10	0.07	95.00
McLean	87	0.10	0.07	95.43
McLean	88	0.10	0.07	95.46
McLean	311	0.10	0.07	95.46
Menard	200	0.11	0.07	94.89
Menard	202	0.11	0.07	95.11
Menard	213	0.11	0.07	95.00
Mercer	200	0.11	0.07	94.56
Mercer	201	0.11	0.07	94.35
Mercer	202	0.11	0.07	94.50
Mercer	203	0.11	0.07	94.07
Monroe	3	0.11	0.07	101.19
Monroe	4	0.11	0.07	101.69
Monroe	5	0.11	0.07	101.26
Montgomery	2	0.11	0.07	90.99
Montgomery	3	0.11	0.07	90.97

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Montgomery	12	0.11	0.07	90.88
Montgomery	22	0.11	0.07	90.70
Montgomery	66	0.11	0.07	90.05
Morgan	1	0.11	0.07	97.24
Morgan	6	0.11	0.07	97.29
Morgan	11	0.11	0.07	96.99
Morgan	27	0.11	0.07	97.20
Morgan	117	0.11	0.07	97.38
Moultrie	300	0.11	0.07	94.26
Moultrie	301	0.11	0.07	94.60
Moultrie	303	0.11	0.07	94.86
Ogle	144	0.11	0.07	101.26
Ogle	161	0.11	0.07	100.42
Ogle	212	0.11	0.07	101.17
Ogle	220	0.11	0.07	101.09
Ogle	221	0.11	0.07	100.67
Ogle	222	0.11	0.07	100.82
Ogle	223	0.11	0.07	100.68
Ogle	226	0.11	0.07	101.28
Ogle	231	0.11	0.07	101.21
Ogle	261	0.11	0.07	101.58
Ogle	269	0.11	0.07	101.66
Ogle	270	0.11	0.07	100.39
Peoria	62	0.10	0.07	99.00
Peoria	63	0.10	0.07	98.24
Peoria	66	0.10	0.07	99.03
Peoria	68	0.10	0.07	98.32
Peoria	69	0.10	0.07	98.77
Peoria	70	0.10	0.07	99.21
Peoria	150	0.10	0.07	99.38
Peoria	152	0.10	0.07	98.85
Peoria	309	0.10	0.07	98.66
Peoria	310	0.10	0.07	98.72
Peoria	316	0.10	0.07	98.57
Peoria	321	0.10	0.07	99.23
Peoria	322	0.10	0.07	98.93
Peoria	323	0.10	0.07	99.58
Peoria	325	0.10	0.07	100.15
Peoria	326	0.10	0.07	98.98
Peoria	327	0.10	0.07	98.82
Peoria	328	0.10	0.07	98.54
Perry	5	0.11	0.07	92.21
Perry	50	0.11	0.07	92.85
Perry	101	0.11	0.07	92.82
Perry	102	0.11	0.07	92.19
Perry	204	0.11	0.07	92.82
Perry	211	0.11	0.07	92.17
Perry	212	0.11	0.07	92.78
Perry	300	0.11	0.07	92.78

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Piatt	5	0.11	0.07	96.13
Piatt	25	0.11	0.07	96.56
Piatt	39	0.11	0.07	96.45
Piatt	57	0.11	0.07	96.78
Piatt	100	0.11	0.07	96.51
Pike	1	0.11	0.07	90.24
Pike	2	0.11	0.07	90.20
Pike	3	0.11	0.07	89.87
Pike	4	0.11	0.07	90.02
Pike	10	0.11	0.07	90.44
Pike	57	0.11	0.07	89.80
Pike	172	0.11	0.07	89.90
Pope	1	0.11	0.07	87.24
Pulaski	100	0.11	0.07	89.92
Pulaski	101	0.11	0.07	89.94
Putnam	534	0.11	0.07	96.33
Putnam	535	0.11	0.07	96.44
Randolph	1	0.11	0.07	94.99
Randolph	122	0.11	0.07	94.83
Randolph	124	0.11	0.07	93.79
Randolph	132	0.11	0.07	95.04
Randolph	134	0.11	0.07	95.11
Randolph	138	0.11	0.07	95.37
Randolph	139	0.11	0.07	94.48
Randolph	140	0.11	0.07	95.26
Richland	1	0.11	0.07	93.45
Richland	2	0.11	0.07	93.11
Rock Island	29	0.09	0.07	102.45
Rock Island	30	0.09	0.07	102.23
Rock Island	34	0.09	0.07	102.29
Rock Island	36	0.09	0.07	101.93
Rock Island	37	0.09	0.07	102.26
Rock Island	40	0.09	0.07	102.78
Rock Island	41	0.09	0.07	102.61
Rock Island	100	0.09	0.07	102.19
Rock Island	300	0.09	0.07	102.20
St. Clair	9	0.09	0.07	96.24
St. Clair	19	0.09	0.07	96.24
St. Clair	30	0.09	0.07	96.25
St. Clair	40	0.09	0.07	96.31
St. Clair	60	0.09	0.07	96.43
St. Clair	70	0.09	0.07	96.58
St. Clair	77	0.09	0.07	96.51
St. Clair	85	0.09	0.07	96.66
St. Clair	90	0.09	0.07	96.66
St. Clair	104	0.09	0.07	96.20
St. Clair	105	0.09	0.07	96.82
St. Clair	110	0.09	0.07	97.16
St. Clair	113	0.09	0.07	96.90

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
St. Clair	115	0.09	0.07	97.45
St. Clair	116	0.09	0.07	97.08
St. Clair	118	0.09	0.07	96.85
St. Clair	119	0.09	0.07	97.66
St. Clair	130	0.09	0.07	96.43
St. Clair	160	0.09	0.07	96.54
St. Clair	175	0.09	0.07	97.94
St. Clair	181	0.09	0.07	98.63
St. Clair	187	0.09	0.07	96.13
St. Clair	188	0.09	0.07	95.16
St. Clair	189	0.09	0.07	95.70
St. Clair	196	0.09	0.07	96.69
St. Clair	201	0.09	0.07	97.15
St. Clair	203	0.09	0.07	96.65
Saline	1	0.11	0.07	90.03
Saline	2	0.11	0.07	90.26
Saline	3	0.11	0.07	90.41
Saline	4	0.11	0.07	90.21
Sangamon	1	0.10	0.07	99.66
Sangamon	3	0.10	0.07	100.12
Sangamon	5	0.10	0.07	100.88
Sangamon	8	0.10	0.07	100.02
Sangamon	10	0.10	0.07	99.62
Sangamon	11	0.10	0.07	99.73
Sangamon	12	0.10	0.07	99.39
Sangamon	13	0.10	0.07	99.44
Sangamon	14	0.10	0.07	99.84
Sangamon	15	0.10	0.07	99.79
Sangamon	16	0.10	0.07	99.45
Sangamon	186	0.10	0.07	100.18
Schuyler	1	0.11	0.07	93.26
Scott	1	0.11	0.07	92.01
Scott	2	0.11	0.07	91.82
Shelby	1	0.11	0.07	92.42
Shelby	2	0.11	0.07	92.36
Shelby	4	0.11	0.07	92.59
Shelby	5	0.11	0.07	92.95
Shelby	6	0.11	0.07	92.80
Shelby	10	0.11	0.07	92.08
Shelby	11	0.11	0.07	91.88
Shelby	185	0.11	0.07	92.08
Shelby	188	0.11	0.07	91.88
Stark	1	0.11	0.07	91.81
Stark	2	0.11	0.07	92.31
Stark	27	0.11	0.07	92.32
Stark	45	0.11	0.07	92.05
Stark	71	0.11	0.07	92.27
Stephenson	145	0.11	0.07	99.18
Stephenson	200	0.11	0.07	98.98
Stephenson	201	0.11	0.07	98.61
Stephenson	202	0.11	0.07	98.67
Stephenson	203	0.11	0 07	98.06

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Tazewell	50	0.10	0.07	100.75
Tazewell	51	0.10	0.07	100.71
Tazewell	52	0.10	0.07	101.37
Tazewell	76	0.10	0.07	100.82
Tazewell	85	0.10	0.07	101.85
Tazewell	86	0.10	0.07	101.31
Tazewell	98	0.10	0.07	100.90
Tazewell	102	0.10	0.07	100.77
Tazewell	108	0.10	0.07	101.27
Tazewell	137	0.10	0.07	100.70
Tazewell	303	0.10	0.07	101.17
Tazewell	306	0.10	0.07	101.14
Tazewell	308	0.10	0.07	100.98
Tazewell	309	0.10	0.07	101.26
Tazewell	606	0.10	0.07	101.25
Tazewell	622	0.10	0.07	101.14
Tazewell	695	0.10	0.07	101.15
Tazewell	701	0.10	0.07	100.91
Tazewell	702	0.10	0.07	101.07
Tazewell	703	0.10	0.07	101.04
Tazewell	709	0.10	0.07	101.76
Union	16	0.11	0.07	90.51
Union	17	0.11	0.07	90.61
Union	37	0.11	0.07	90.78
Union	43	0.11	0.07	90.55
Union	66	0.11	0.07	90.79
Union	81	0.11	0.07	90.70
Union	84	0.11	0.07	90.38
Vermilion	1	0.11	0.07	94.70
Vermilion	2	0.11	0.07	94.42
Vermilion	3	0.11	0.07	94.34
Vermilion	5	0.11	0.07	94.48
Vermilion	7	0.11	0.07	94.36
Vermilion	8	0.11	0.07	94.60
Vermilion	9	0.11	0.07	94.22
Vermilion	10	0.11	0.07	94.23
Vermilion	11	0.11	0.07	94.56
Vermilion	12	0.11	0.07	94.55
Vermilion	61	0.11	0.07	94.60
Vermilion	109	0.11	0.07	94.70
Vermilion	118	0.11	0.07	94.75
Vermilion	130	0.11	0.07	94.75
Vermilion	132	0.11	0.07	94.74
Vermilion	135	0.11	0.07	94.03
Vermilion	223	0.11	0.07	94.61
Vermilion	225	0.11	0.07	94.65
Vermilion	227	0.11	0.07	94.51
Wabash	17	0.11	0.07	90.23
Wabash	348	0.11	0.07	90.69

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Warren	38	0.11	0.07	94.14
Warren	200	0.11	0.07	93.86
Warren	222	0.11	0.07	94.45
Warren	225	0.11	0.07	93.93
Warren	400	0.11	0.07	94.12
Washington	1	0.11	0.07	93.46
Washington	10	0.11	0.07	93.30
Washington	11	0.11	0.07	93.29
Washington	15	0.11	0.07	92.91
Washington	29	0.11	0.07	93.75
Washington	49	0.11	0.07	94.08
Washington	99	0.11	0.07	93.74
Wayne	6	0.11	0.07	93.32
Wayne	14	0.11	0.07	92.93
Wayne	17	0.11	0.07	92.80
Wayne	19	0.11	0.07	93.69
Wayne	100	0.11	0.07	92.58
Wayne	112	0.11	0.07	93.60
Wayne	200	0.11	0.07	93.01
Wayne	225	0.11	0.07	93.47
White	1	0.11	0.07	91.78
White	2	0.11	0.07	92.03
White	3	0.11	0.07	91.59
White	4	0.11	0.07	91.70
White	5	0.11	0.07	92.27
White	18	0.11	0.07	91.65
White	229	0.11	0.07	91.94
Whiteside	1	0.10	0.07	97.91
Whiteside	2	0.10	0.07	97.83
Whiteside	3	0.10	0.07	97.88
Whiteside	4	0.10	0.07	97.42
Whiteside	5	0.10	0.07	98.18
Whiteside	6	0.10	0.07	98.11
Whiteside	12	0.10	0.07	99.05
Whiteside	13	0.10	0.07	97.76
Whiteside	14	0.10	0.07	98.34
Whiteside	145	0.10	0.07	97.74
Whiteside	301	0.10	0.07	97.95
Will	17	0.08	0.06	105.76
Will	30	0.08	0.06	106.05
Will	33	0.08	0.06	105.91
Will	70	0.08	0.06	105.63
Will	81	0.08	0.06	105.44
Will	84	0.08	0.06	105.41
Will	86	0.08	0.06	105.77
Will	88	0.08	0.06	105.32
Will	88	0.08	0.06	104.64
Will	89	0.08	0.06	105.06
Will	90	0.08	0.06	105.45

Table 3 Continued

County	District	Average Annual % Change 1973-77	% Change 1976-77	Cost-of-Living Index 1977-I
Will	91	0.08	0.06	106.04
Will	92	0.08	0.06	105.43
Will	114	0.08	0.06	105.50
Will	122	0.08	0.06	105.92
Will	157	0.08	0.06	105.80
Will	159	0.08	0.06	105.58
Will	161	0.08	0.06	105.66
Will	200	0.08	0.06	105.66
Will	201	0.08	0.06	106.01
Will	202	0.08	0.06	105.79
Will	203	0.08	0.06	106.20
Will	204	0.08	0.06	105.78
Will	205	0.08	0.06	105.35
Will	207	0.08	0.06	105.61
Will	209	0.08	0.06	105.78
Will	210	0.08	0.06	105.71
Will	255	0.08	0.06	105.35
Will	365	0.08	0.06	105.19
Williamson	1	0.11	0.07	92.34
Williamson	2	0.11	0.07	92.51
Williamson	3	0.11	0.07	92.16
Williamson	4	0.11	0.07	92.58
Williamson	5	0.11	0.07	92.46
Winnebago	140	0.10	0.07	103.72
Winnebago	122	0.10	0.07	103.64
Winnebago	131	0.10	0.07	103.92
Winnebago	133	0.10	0.07	103.91
Winnebago	134	0.10	0.07	104.17
Winnebago	205	0.10	0.07	104.00
Winnebago	207	0.10	0.07	103.88
Winnebago	320	0.10	0.07	103.22
Winnebago	321	0.10	0.07	103.36
Winnebago	322	0.10	0.07	103.15
Winnebago	323	0.10	0.07	103.75
Woodford	1	0.10	0.07	100.64
Woodford	2	0.10	0.07	101.11
Woodford	21	0.10	0.07	100.86
Woodford	60	0.10	0.07	100.71
Woodford	69	0.10	0.07	101.50
Woodford	108	0.10	0.07	100.52
Woodford	122	0.10	0.07	100.97
Woodford	140	0.10	0.07	100.97
Woodford	375	0.10	0.07	100.70

*The Standard Error is 1.22.

Table 4

Increases in the Cost of Living in Each County, 1973-77 and 1976-77

County Names	% Change 1973-77	Average Annual % Change 1973-77	% Change 1976-77	County Names	% Change 1973-77	Average Annual % Change 1973-77	% Change 1976-77
Adams	36.8	10.5	6.7	Lee	36.8	10.5	6.7
Alexander	36.8	10.5	6.7	Livingston	36.8	10.5	6.7
Bond	36.8	10.5	6.7	Logan	36.8	10.5	6.7
Boone	36.8	10.5	6.7	McDonough	36.8	10.5	6.7
Brown	36.8	10.5	6.7	McHenry	34.5	9.9	6.9
Bureau	36.8	10.5	6.7	McLean	34.5	9.9	6.9
Calhoun	36.8	10.5	6.7	Macon	34.5	9.9	6.9
Carroll	36.8	10.5	6.7	Macoupin	36.8	10.5	6.7
Cass	36.8	10.5	6.7	Madison	30.7	8.8	6.9
Champaign	34.5	9.9	6.9	Marion	36.8	10.5	6.7
Christian	36.8	10.5	6.7	Marshall	36.8	10.5	6.7
Clark	36.8	10.5	6.7	Mason	36.8	10.5	6.7
Clay	36.8	10.5	6.7	Massac	36.8	10.5	6.7
Clinton	36.8	10.5	6.7	Menard	36.8	10.5	6.7
Coles	36.8	10.5	6.7	Mercer	36.8	10.5	6.7
Cook	28.9	8.3	6.4	Monroe	36.8	10.5	6.7
Crawford	36.8	10.5	6.7	Montgomery	36.8	10.5	6.7
Cumberland	36.8	10.5	6.7	Morgan	36.8	10.5	6.7
DeKalb	34.5	9.9	6.9	Moultrie	36.8	10.5	6.7
DeWitt	36.8	10.5	6.7	Ogle	36.8	10.5	6.7
Douglas	36.8	10.5	6.7	Peoria	34.5	9.9	6.9
DuPage	28.9	8.3	6.4	Perry	36.8	10.5	6.7
Edgar	36.8	10.5	6.7	Piatt	36.8	10.5	6.7
Edwards	36.8	10.5	6.7	Pike	36.8	10.5	6.7
Effingham	36.8	10.5	6.7	Pope	36.8	10.5	6.7
Fayette	36.8	10.5	6.7	Pulaski	36.8	10.5	6.7
Ford	36.8	10.5	6.7	Putnam	36.8	10.5	6.7
Franklin	36.8	10.5	6.7	Randolph	36.8	10.5	6.7
Fulton	36.8	10.5	6.7	Richland	36.8	10.5	6.7
Gallatin	36.8	10.5	6.7	Rock Island	34.5	9.9	6.9
Grundy	36.8	10.5	6.7	St. Clair	39.8	8.8	7.0
Greene	36.8	10.5	6.7	Saline	36.8	10.5	6.7
Hamilton	36.8	10.5	6.7	Sangamon	34.5	9.9	6.9
Hancock	36.8	10.5	6.7	Schuyler	36.8	10.5	6.7
Hardin	36.8	10.5	6.7	Scott	36.8	10.5	6.7
Henderson	36.8	10.5	6.7	Shelby	36.8	10.5	6.7
Henry	34.5	9.9	6.9	Stark	36.8	10.5	6.7
Iroquois	36.8	10.5	6.7	Stephenson	36.8	10.5	6.7
Jackson	34.5	9.9	6.9	Tazewell	34.5	9.9	6.9
Jasper	36.8	10.5	6.7	Union	36.8	10.5	6.7
Jefferson	36.8	10.5	6.7	Vermilion	34.5	9.9	6.9
Jersey	36.8	10.5	6.7	Wabash	36.8	10.5	6.7
Jo Daviess	36.8	10.5	6.7	Warren	36.8	10.5	6.7
Johnson	36.8	10.5	6.7	Washington	36.8	10.5	6.7
Kane	30.7	8.8	6.9	Wayne	36.8	10.5	6.7
Kankakee	34.5	9.9	6.9	White	36.8	10.5	6.7
Kendall	36.8	10.5	6.7	Whiteside	34.5	9.9	6.9
Knox	34.5	9.9	6.9	Will	28.9	8.3	6.4
Lake	28.9	8.3	6.4	Williamson	36.8	10.5	6.7
LaSalle	34.5	9.9	6.9	Winnebago	34.5	9.9	6.9
Lawrence	36.8	10.5	6.7	Woodford	36.8	10.5	6.7

References

1. United States Department of Labor, Bureau of Labor Statistics, "BLS Revises Estimates for Urban Family Budgets" (Washington, D. C.: 76-759, May 5, 1976, and 77-369, April 27, 1977).

2. Mark Sherwood, "Family Budgets and Geographic Differences in Price Levels," Monthly Labor Review (April 1975), pp. 8-15; W. Alonso and M. Fajans, "Cost of Living and Income by Urban Size," Working Paper 128 (Berkeley, California: Institute of Urban and Regional Development, 1970).

3. James C. Simmons, et al., Florida Cost of Living Research Study (Tallahassee, Florida: Board of Regents, State University of Florida, 1973).

4. Walter W. McMahon and Carroll Melton, "A Cost-of-Living Index for Illinois," unpublished paper (Springfield, Illinois: Illinois Office of Education, 1976).

5. Sherwood, op. cit., p. 12, col. 2.

6. Ibid.

7. The Bureau of Labor Statistics is conducting research on the development of measures of interarea shelter cost differentials based on stronger conceptual and statistical foundations.

8. United States Department of Commerce, Bureau of the Census, 1970 Census of Housing (Washington, D. C.: 1973), Tables 6 and 9.

9. Variables other than those shown in equation (1) and nonlinear forms both were tried and the results compared to those for equation (1) for the entire BLS sample of forty-four cities and nonmetropolitan areas. But the results were inferior to those for equation (1). For example, logarithmic forms were tried, and P, P^2, and other variables that remain within the range of those on which data are available in nonsampled regions were also tried but did not improve upon the explanation of $R^2 = .72$ obtained for equation (1) when estimated for the entire BLS sample. This in turn is inferior to the results obtained as shown in equation (2) where the R^2 is higher after partitioning by region.

10. McMahon and Melton, op. cit.

11. Correlations among the residuals are given below:

	Northeast	North Central	South	West
Northeast	1.00			
North Central	- .05	1.00		
South	- .46	- .16	1.00	
West	- .62	.56	.17	1.00

For properties of the seemingly unrelated regression estimator, see Arnold Zellner, "An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias," Journal of the American Statistical Association, 57: 348-68, 1962; and J. Kmenta and R. F. Gilbert, "Small Sample Properties of Alternative Estimators of Seemingly Unrelated Regressions," Journal of the American Statistical Association, 63: 1180-1200, 1968.

12. The negative relation of population change to the cost of living in the West may be due to the fact that the cost of living is lower there in most areas outside of San Francisco and Los Angeles and this acts as one factor attracting business and more rapid population growth. When this is investigated, those areas in the West that have the highest rates of growth of population are also those areas with lower living costs as expected. The four fastest growing areas, for example, San Diego, Seattle, Denver, and the nonmetropolitan areas in the Western Region, have living costs less than or equal to the national average.

Area	Growth Rate of Population	Living Costs
San Diego	43%	97
Seattle-Everett	43%	100
Denver	30%	96
Nonmetropolitan Areas	33%	90
San Francisco	24%	106

The highest living cost area in California, San Francisco, has a slower growth rate.

13. The advantage of using the 1973 budgets is the comparability retained to Sherwood's study and to the components of the budget considered there. As one check, however, the revised standard budgets for 1977 given by BLS were compared to the 1973 budgets for the same forty-four cities and nonmetropolitan areas after the latter were adjusted by the change in the Consumer Price Index to 1977. There was no significant difference.

14. The BLS also uses the Consumer Price Index to update its budget since 1969 when the last direct pricing took place. See "Three Standards of Living for an Urban Family of Four Persons," Bulletin No. 1570-5 (Washington, D. C.: Bureau of Labor Statistics, 1969), and "BLS Revised Estimates for Urban Family Budgets," op. cit., p. 2.

15. Chambers, Odden, and Vincent have recently produced a cost-of-education index for Missouri by a market price approach, an alternative to the cost-of-living approach for dealing with teachers' salaries and other budget components. See Jay G. Chambers, Allan Odden, and Phillip E. Vincent, "Cost of Education Indices among School Districts with a State Result for Missouri," (Denver, Colorado: Education Commission of the States, 1976).

16. The underlying regression equation probably should be re-estimated when the new 1980 census data become available.

ILLINOIS REVENUE RESOURCES FOR EDUCATION

Committee on Revenue Resources

Technical Task Force on School Finance

The Property Tax

One of the objectives of the Committee on Revenue Resources for Education of the Technical Task Force on School Finance was to analyze the Illinois tax system to determine revenue potential for education. Probably the most important tax in this system is the property tax.

Local Property Tax

Property can be divided into two classes, real and personal. Real property is land and anything permanently attached to the land, and some examples are buildings, fixtures permanently attached to the building, trees, and mines. Personal property is all property that is not real, and includes such things as automobiles, trucks, livestock, money, and office furniture. Personal property is further divided into tangible and intangible property. Tangible personal property includes property that one can touch or see, such as automobiles, cattle, and office furniture. Intangible personal property is the value of property for what it represents, such as money, mortages, stocks and bonds.

The most important process in determining what the property tax will yield is that of placing a value on property for taxation purposes by the local assessors. Value is a complicated process with many definitions, and, in general, value is the relationship between a thing desired and a potential purchaser.

The amount of a particular taxpayer will pay in property taxes depends on the assessed value of the property and the prevailing tax rates in the area.

The 1974 total property tax extension (extended and collected in 1975) for the entire State of Illinois was $3,395,038,886, or about $305 per person. Since the process of computing the amount that a taxpayer owes is called extending the tax, the total taxes that are billed to taxpayers within the boundaries of a given governmental unit are called the property tax extensions. Such extensions are made by the county clerk in each county. All schools in Illinois for the 1974 levy year received 57.2 percent of the total 1975 property tax extensions.

The property tax is the major source of tax revenue for local governments, with approximately 80 percent of the total tax revenue raised by local governments in Illinois coming from the property tax. As mentioned above, the 1975 property tax extension was $3,395,038,886. The importance of the local prperty tax in the financial system in Illinois can be seen when it is compared to the two major state taxes collected. For the fiscal period 1976, the State income tax produced $1.677 billion, and the sales tax and use taxes were right on the heels of the income tax, producing $1.666 billion. The property tax raises more revenue than these two state taxes combined.

The Property Tax Cycle

The property tax cycle from the assessment of property to the collection of the taxes takes nearly two years. It can be divided into the following steps: (1) assessment, (2) review, (3) equalization, (4) levy, (5) extension, and (6) collection and distribution.

Assessment. The assessment of property is the act of officially determining the value of property for the purposes of taxation. In Illinois the taxable value of property is not the actual market value, which is the price that the property would bring at a voluntary sale by an owner. Rather, the assessed value placed on property as mandated by the State Constitution and

the Revenue Act of 1939 is 33-1/3 percent of full, fair cash value. For example a house that would sell for $24,000 should have an assessed value of $8,000 according to the statute. As the present statute reads, all counties are to be at the 33-1/3 percent level by 1977.

A few specialized types of property are assessed by the state, and these include the operating property of railroads and private car line companies, the capital stock of certain types of domestic corporations, and pollution control facilities that have previously been approved by the Illinois Environmental Protection Agency.

Counties over 200,000 population are allowed by the Constitution and statute to classify property for purposes of assessment and to assess the various classes at different percentages of full market value. As of this writing, Cook is the only county that has adopted such a classification system.

Most property is locally assessed, and in all except the seventeen commission organized counties, township assessors have primary assessment responsibility. The township assessors are elected for four-year terms, but their duties in most instances do not require full-time work. The Revenue Act does not establish qualifications for these officials, but recent legislation before the 1976 General Assembly attempted to establish general qualifications for local assessors. The state encourages local assessors to take special courses and training in assessment techniques to improve their status, and assessors who take such courses and pass an examination receive a state stipend of $300 a year. Approximately 500 assessors have passed such tests in recent years. In commission organization counties the assessment of property is performed at the county level. The work of the township assessors is subject to supervision and review by the County Supervisor of Assessments. This official is appointed by the county board, must have two years of relevant experience, and

must pass a qualifying examination administered by the Department of Local Government Affairs. Cook County elects a county assessor, and the County of St. Clair has an elected board of assessors consisting of five members. In the seventeen commission counties the county assessor, who is appointed, has the primary assessing responsibility and thus controls local assessment directly.

In Illinois all real property is supposed to be viewed, inspected, and revalued every four years; this is called the quadrennial assessment. In the intervening years the assessors are supposed to revalue those properties whose conditions have been altered in the past year because of improvements, damages, or incorrect assessment. Real estate in commission counties was reassessed for the quadrennial year in 1974, and in township counties the last quadrennial assesment occured in 1975. The assessment date for real estate is January 1 and the assessment date for personal property is April 1.

It should be remembered that because of an amendment proposed by the General Assembly to the Revenue Article of the State Constitution of 1870, and approved by the electorate, plus the Court cases thereon (Lehnhausen v. Lakeshore Auto Parts Co., 411 U.S. 910, and the supplemental opinion of the Illinois Supreme Court following remand, 54 Ill. 2d 237), the personal property tax on individuals is abolished. The personal property thus left subject to ad valorem taxation includes the following categories: partnerships, limited partnerships, joint ventures, professional associations, professional service corporations, trustees and certain fiduciaries, whether corporate or not that do not own property as natural persons, and bank stock when not owned by a natural person.

Review of Assessments. If a taxpayer feels that an assessment is unfair or unjust, a complaint may be filed. In Cook County, the dissatisfied taxpayer's first step is to file a complaint with the county assessor, and, if not satisfied

with the assessor's ruling on the complaint, the case may be taken to the County Board of Appeals. If not satisfied with the Board's ruling, the taxes can be paid under protest and the case taken to the Circuit Court of Cook County.

If a taxpayer in any of the downstate counties is unsatisfied with his assessment, a complaint may be made to the County Board of Review. If unsatisfied with the Board's ruling on the complaint, the complaint may be taken to the State Property Tax Appeals Board, a board consisting of three property tax administrators appointed by the governor. The State Board's decision is subject to the Administrative Review Act and can be appealed in court.

Although by statute the assessed value should be 33-1/3 percent of full, fair cash value, actual assessment practices have varied widely because of the large number of local assessing officials with different opinions about value, the inherent difficulty of the assessment process, and pressures on the part of taxpayers to keep assessments low. In addition there is a lack of time and resources for the assessors to do a thorough job. When the 33-1/3 percent assessment statute was passed in 1975, the state countywide average for the assessment of property was approximately 33-1/3 percent of actual value.

Variation in assessment levels creates problems for both the assessor and the taxing body. For example, if two houses next door to each other with a market value of $24,000 were assessed at different levels of their actual value, 30 percent and 20 percent, one house would have an assessed value of $7,200 and the other $4,800. Under a tax rate of $5.00 per $100 of assessed value, the first home owner would pay a property tax bill of $360 and the second would be asked to pay $240, even though the houses have the same market value.

Inequities often arise because of differences in assessment levels among different assessing jurisdictions. If one township in a county assesses at an

average level of 20 percent of full value and another assesses at 40 percent, and both townships are located in the same school district, the property owner in the township that is assessing at the higher level would be paying twice as much in school taxes as the property owner in the other township. In addition, uniformity among county average assessment levels is important, because the distribution formulae for state grants-in-aid for education, highways, and public assistance include assessed valuation as a component. A uniform level of assessment helps to insure an equal basis for applying tax rates and bonded indebtedness limitations for units of local governments.

Equalization. Since January 1, 1946, there has been a statute that has for its purpose the equalization of property by the state to promote the equitable distribution of the property tax at the county level. Equalization is the process of adjusting assessed values to a single average level of actual value. In other words, this means that the assessed values of all properties are adjusted so that on the average they will be at the same percentage of the full, fair cash value of the property. Equalization of assessed values is important at each level of government--the township, the county, and the state.

It is the duty of the local assessing officials to insure uniformity of assessments within counties. Of course, the quality of assessments depends largely on the original work done by the local assessors as guided and aided by the supervisor of assessments or county assessor. However, if assessments show many inequitable variations, the county boards of review have the authority and the duty to review the assessments presented to them and to equalize among the township within a county. This may be done on complaint of a taxpayer or taxing body on the board's own initiative.

Intercounty equalization, or adjusting county average levels of assessments to the same level (set by statute at 33-1/3 percent of full, fair cash value) is

the state's responsibility, and this function has been assigned to the State Department of Local Government Affairs. The state does not have the authority to adjust individual assessments, but only to raise the aggregate or total of all assessments in a county by a certain percentage to bring the county average assessment level into line with the statutory standard.

The "equalization factor" is the method used by the state to adjust average assessment levels in the various counties to the 33-1/3 percent level. For example, if one county is assessing property at a level of 16.7 percent of full, fair cash value, 16.7 percent would be the equalization factor, and it would be necessary for the state to assign a multiplier of 2 to the county to bring the average assessment level up to 33-1/3 percent of full, fair cash value. The equalization factor and its reciprocal, the "multiplier," are computed by the Department of Local Government Affairs from data obtained in yearly statewide studies of the selling price of property as compared to the assessed values put on such property by the assessors. Such a survey is called a "sales ratio" study. For example, if a property sells for $30,000, and its assessed value at the time of the sale is $10,000, the ratio of its assessment to sales value would be 33-1/3 percent. This 33-1/3 percent is called its assessment ratio. The equalization factor and its corresponding multiplier are computed by the state for each county based on data from sales ratio studies, using statistical procedures which have been developed over a number of years. It should be remembered that equalization factors are not computed and certified to the counties until the board of review has finalized assessments and adjourned. This is the reason that most counties receive their multipliers late in the assessment year or early in the following year.

The county clerk must multiply the assessed value on each piece of property locally assessed in the county by the multiplier. The result of this process

is the equalized assessed value of the property. The 1975 multipliers are shown in Table 1.

The Levy. The governing body of each taxing unit determines how much money is needed to operate during the coming year and how much must be raised from the property tax. These levies, after being approved by the governing board, are certified to the county clerk. School districts must certify their levies annually to the county clerk on or before the last Tuesday in December. However, if a school district increases its tax rate for a taxable fund by an election held after the adoption of the annual school budget for any fiscal year, it may file a supplemental budget.

Tax levies are made for the various activities of government, and money allocated separately for an activity is called a fund. The two most important funds levied by common school districts are the educational fund and the building fund. Levies for such funds are made in dollar amounts, and the tax rate limit to be applied to assessments is set at the level necessary to raise the amount of the levy. The county clerk will extend that amount against the property of the taxpayers in the district, providing it does not exceed the statutory limit applicable to the specific fund as established by the School Code. In other words, if the rate necessary to raise the amount of the levy is greater than the maximum legal rate limitation, the legal rate limitation is applied and the amount of the levy is scaled accordingly. In most cases the base tax rate limits for the funds of school districts may be increased by referendum.

Collection and Distribution. After the county clerk extends the property tax in the county, the county treasurer taxes the books and bills the taxpayers

Table 1

Final Multipliers 1975

County	Multiplier	County	Multiplier	County	Multiplier
Adams	.8903	Hardin	1.2459	Morgan	1.0000
Alexander	2.9752	Henderson	1.4167	Moultrie	1.2700
Bond	.9678	Henry	1.3752	Ogle	.9071
Boone	1.0000	Iroquois	1.0000	Peoria	1.0000
Brown	1.1073	Jackson	1.0194	Perry	1.3785
Bureau	1.4687	Jasper	.9829	Piatt	.9655
Calhoun	1.3581	Jefferson	1.0800	Pike	2.5403
Carroll	1.1010	Jersey	1.4030	Poper	1.8557
Cass	.9177	JoDaviess	1.0247	Pulaski	1.1636
Champaign	.9767	Johnson	1.0000	Putnam	3.8135
Christian	1.0797	Kane	1.0000	Randolph	1.6482
Clark	1.5420	Kankakee	1.0000	Richland	1.0000
Clay	1.0603	Kendall	.9155	Rock Island	1.0248
Clinton	1.0302	Knox	1.0000	St. Clair	1.1596
Coles	1.1329	Lake	.9865	Saline	1.0653
Cook	1.4483	LaSalle	1.0776	Sangamon	1.0000
Crawford	1.0804	Lawrence	1.7732	Schuyler	1.0803
Cumberland	1.4959	Lee	.9455	Scott	4.0354
DeKalb	.9526	Livingston	1.1065	Shelby	2.0766
DeWitt	.9247	Logan	.9365	Stark	.8005
Douglas	1.0000	McDonough	.8574	Stephenson	1.0172
DuPage	1.0000	McHenry	.9873	Tazewell	.9387
Edgar	.9473	McLean	1.0000	Union	1.3933
Edwards	1.1877	Macon	.9882	Vermilion	1.0867
Effingham	1.0238	Macoupin	1.0177	Wabash	1.0000
Fayette	1.7011	Madison	1.0000	Warren	.9267
Ford	1.0552	Marion	1.0000	Washington	1.0341
Franklin	.9805	Marshall	1.3497	Wayne	1.6066
Fulton	.8832	Mason	1.0484	White	1.4328
Gallatin	1.2702	Massac	5.0983	Whiteside	.9730
Greene	.9487	Menard	1.0000	Will	.9846
Grundy	1.0657	Mercer	.8505	Williamson	1.0198
Hamilton	1.4919	Monroe	1.0714	Winnebago	1.0000
Hancock	1.0606	Montgomery	1.1695	Woodford	.9271

for their shares of the property tax bills. All personal property bills are due on June 1, and real estate property tax bills are due in two installments, the first on June 1 and the second on September 1. Cook County and possibly one other county follow the accelerated statute, with one half of the estimated bill due March 1 and the corrected remaining part due August 1. If bills are not ready by the above due dates, they are due and delinquent 30 days after the date of mailing by the collector.

The county treasurer is also collector of property taxes (in a few counties township collectors assist the county treasurer), and the collector makes distribution to the taxing districts according to tax rates extended. Under normal circumstances, the greatest distributions are made in late June and late September.

Table 2 shows the growth of the property tax for the most recent five-year period for which total statistics are available at this writing, the amounts extended for schools during those years, and the growth of property tax revenues for school purposes.

Income Tax

The Illinois income tax made its debut in Fiscal Year 1970. In its first year (actually 11 month's collection) the tax generated about $748 million to the state's General Revenue Fund. As provided by law, 1/12 of the annual receipts from the tax are allocated to municipal governments for their operations. School districts do not receive an earmarked share of the income tax. Currently the income tax is the state's largest single revenue source generating some 35 percent of the general revenue funds compared to 33 percent for the sales tax, the next largest revenue source.

The income tax rate levied is 2 1/2 percent on individuals and 4 percent on corporations. The higher rate on corporations was established to achieve the

Table 2

Total Taxes Extended and
Amounts for Schools

Year of Extension	Total Taxes Extended	Amount Extended for Schools (Includes Junior Colleges)	% of Total for Schools	% of Increase for Schools over Previous Year
1975	$3,395,038,886	$1,996,283,000*	58.80*	4.1%
1974	3,270,366,997	1,918,867,206	58.67	3.9
1973	3,137,483,030	1,847,673,875	58.89	3.8
1972	3,034,640,418	1,779,762,469	58.65	9.7
1971	2,708,400,132	1,621,640,296	59.87	6.9

*Estimated.

maximum rate permissible in relation to individual rates as provided in the Revenue Article of the Illinois Constitution, which states Article IX, Section 3): (a) "A tax on or measured by income shall be at a non-graduated rate. At any one time there may be no more than one such tax imposed by the State for State purposes on individuals and one such tax so imposed on corporations. In any such tax imposed upon corporations the rate shall not exceed the rate imposed on individuals by more than a ratio of 8 to 5."

Because individual and corporate incomes have continued to grow, the revenue yield from this tax will increase by a projected $235 million for Fiscal Year 1977, the largest annual growth since the tax was established.

A positive attribute of the income tax, as well as the sales tax, has been its ability to generate additional revenues to more than offset inflation without the necessity of increasing its rate. Table 4 shows the growth rates of the income tax since 1971. Between 1971 and Fiscal Year 1975 revenue from the income tax growth averaged 14 percent, compounded annually. This elasticity of the income tax to expand with a growing economy applies equally in reverse during an economic slowdown. Consequently the slower upward spiral of the economy for Fiscal Year 1976 suggests the revenue from the income tax will grow about 6.6 percent.

In contrast, a 13.9 percent increase in revenues from the income tax is projected for Fiscal Year 1977. The great fluctuations in additional dollars to be generated by the income tax from one year to the next suggests it be treated with caution in any long range projections of the tax as a predictable source of additional revenues. Unlike revenue from the property tax which is relatively unaffected by short term ups and downs of the economy, the income tax tends to be more "speculative" and thus less dependable for school budgets.

Table 4

Annual Dollar and Percentage
Growth in the State Income Tax
(Dollars in Millions)

Fiscal Year	Dollar	Increase From Previous Year		Increase From 1971[3]	
1977	$1,920[2]	$235	13.8%	$911	90.3%
1976	1,687	107	6.6	678	67.2
1975	1,580	167	11.8	571	56.6
1974	1,413	162	12.9	404	40.0
1973	1,251	120	10.6	242	24.0
1972	1,131	122	12.1	122	12.1
1971	1,009	261	34.9		
1970	748[1]				
Average (Estimated)		$152[3]	11.3%[3]		

[1]Collection for eleven months.

[2]Projections by Dr. A. J. Heins, Department of Economics, University of Illinois.

[3]Excludes Fiscal Year 1970 as a base for computation since it was less than a 12-months collection.

Source: Education Department, Illinois State Chamber of Commerce.

Retailers' Occupation Tax and Use Tax

Although there are four separate taxes included in this classification, they are quite similar in purpose and exactly the same in rate. Therefore, after the initial technical differences they will all be treated as "sales tax" in further discussion.

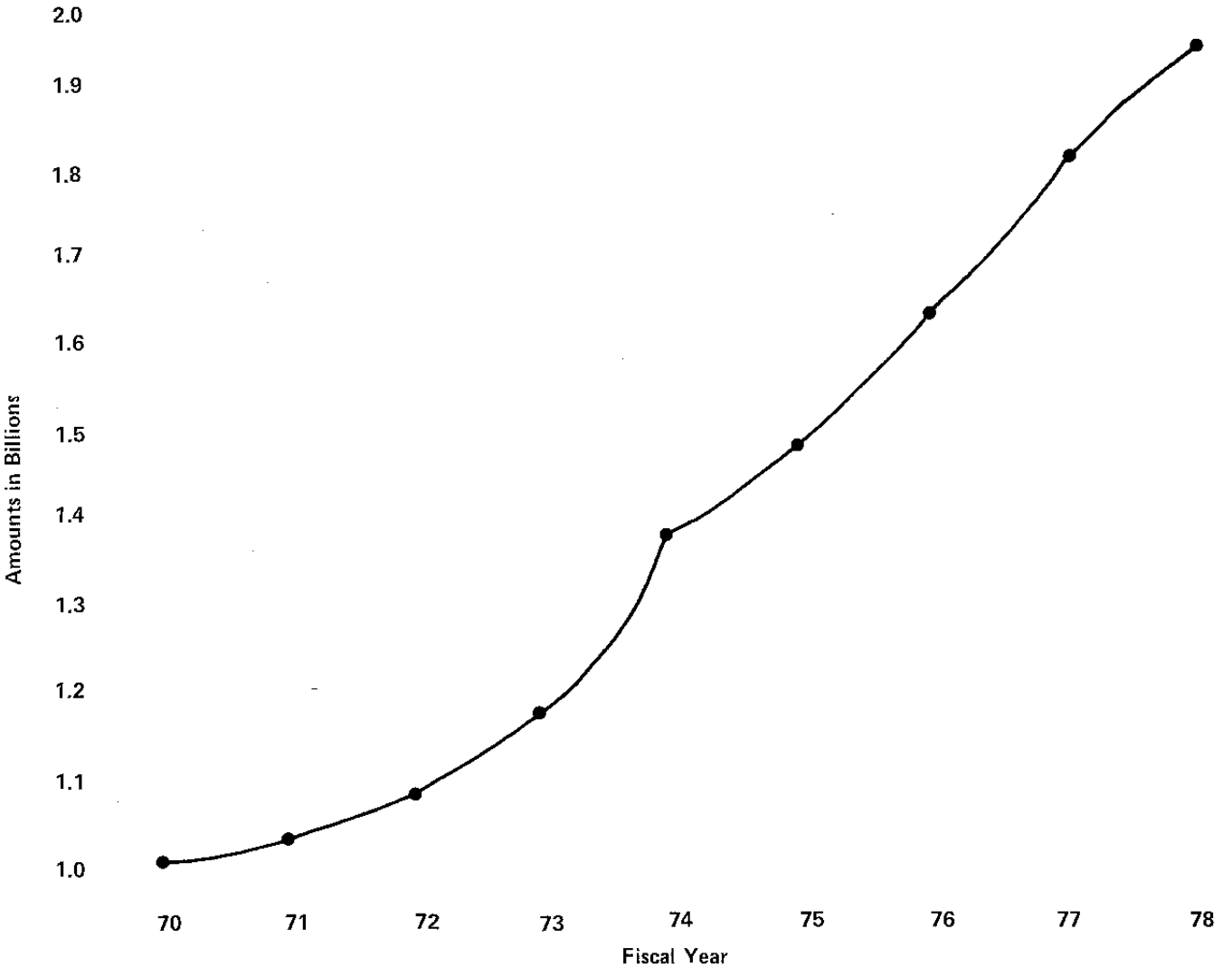
1. Retailers' Occupation Tax - Enacted by SB 665 in 1933, this tax is imposed on persons selling tangible personal property at retail in the state.
2. Use Tax - Enacted by SB 510 in 1955, this tax is collected for the privilege of using tangible personal property sold at retail.
3. Service Occupation Tax - Enacted by SB 558 in 1961, this tax is imposed on all persons engaged in the business of making sales of service.
4. Service Use Tax - Enacted by SB 559 in 1961, this tax is imposed on the privilege of using real or personal tangible property which was acquired as an incident to the purchase of a service.

In Illinois, as in other states that collect sales taxes, the sales tax is one of the largest producers of revenue. Figure 1 clearly demonstrates its power to generate state resources. The projections shown for Fiscal Year 1977 and 1978 are subject to revision as the economic picture is more clearly in focus.

This is a very elastic tax--in some respects more elastic than the income tax--for sheer optimism or pessimism of the buying public can affect their inclinations to buy retail commodities. In addition, it is directly proportional to inflation.

Figure 1

Illinois Sales Tax Collections since 1970



The sales tax is very regressive tax. There is considerable debate as to whether or not it is more regressive than the property tax. Earlier studies indicate that for some areas of the state and for some income brackets, it is indeed more regressive. Because of this there are few who advocate increasing the rate beyond the present four percent.

Miscellaneous Revenues in the General Revenue Fund

In any discussion of state revenues it is soon obvious that the income and sales taxes account for a great majority of that revenue. Depending on one's definition of revenues, however, the state takes in one-and-three-quarters to two billion dollars annually from sources other than the income and sales taxes. To better understand this piece of the revenue picture it is necessary to remember three key points:

1) Many of the state's cash receipts are not true revenues.
2) Many revenues are restricted as to fund and purpose.
3) Many revenues are not taxes.

The difference between a receipt and a revenue is that a revenue increases the state's assets without a corresponding increase in liabilities, while a receipt increases both assets and liabilities. For example, in Fiscal Year 1976, the state recovered over $15 million in fraudulent welfare payments. This money was a receipt, but not a revenue, since it had to be paid back to the federal government.

In Fiscal 1976 the state collected over $400 million in motor fuel taxes. This money was truly a revenue, but it is unavailable for educational purposes. It is deposited in the Motor Fuel Tax Fund and available only for state and local government road improvement projects. Since general state aid for schools is paid from the Common School Fund, and the Common School Fund is composed largely of transfers from the General Revenue Fund, most revenues not deposited in the

General Revenue Fund do not add to the amount available for supporting elementary and secondary education. If motor fuel taxes doubled in some future year, we would have more money for building roads, but not for financing education.

A tax is a compulsory payment imposed on an individual by government to help pay for the cost of governmental activities. Almost all citizens are compelled to pay income taxes or other forms of taxes. Many types of taxes are available, such as the cigarette or liquor taxes. But for people who choose to smoke or drink, these taxes are compulsory. There are, in addition to taxes, other unrestricted revenues to the General Revenue Fund. Examples of such revenues are license fees, and interest on state funds and investments.

Briefly stated, aside from the income and sales taxes there are very few unrestricted taxes and revenue sources that could have any significant impact on increasing revenue available for the schools.

Table 5 lists the miscellaneous taxes and revenues which apply to the General Revenue and Common School Funds and indicates amounts received for Fiscal Year 1975 and Fiscal Year 1976. Also shown are estimated receipts for Fiscal Year 1977, based on figures supplied by the Illinois Bureau of the Budget.

Table 6 indicates aggregate increases estimated for the same miscellaneous revenue sources during the next five years. Because of the unpredictable and fluid nature of individual sources of revenue in this category it would be misleading to project them on an individual basis. However, by assuming an aggregate growth factor similar to those applied to the sales and income taxes by the Illinois Economic and Fiscal Commission, the State Comptroller and the

Table 5

General Revenue and Common School
Fund Miscellaneous Revenues
(Dollars in Millions)

Source	Actual FY 1975	Actual[1] FY 1976	Estimated[2] FY 1977
Public Utility Tax	$242	$274	$316
Cigarette Tax	158	167	167
Liquor Tax	78	77	80
Inheritance Tax	76	72	76
Insurance Tax and Fees	60	70	75
Corporate Franchise Tax and Fees	26	26	28
Interest on State Funds and Investments	95	57	50
Other Sources[3]	112	118[4]	123
Total	$847	$861	$915

1. State of Illinois, Office of the Comptroller, Report 507.
2. State of Illinois, Bureau of the Budget, Quarterly Report, July-September, 1977.
3. Bingo Tax, Hotel Tax, Real Estate Transfer Tax, Auto Title Tax, Illinois Central Railroad Tax, etc.
4. Estimated.

Table 6

Projections of Estimated Growth of Miscellaneous Revenues
in the General Revenue and Common School Funds
(Dollars in Millions)

ACTUAL	FY 75	FY 76	FY 77	FY 78	FY 79	FY 80	FY 81	FY 82
Low	$847	$861	$880	$911	$946	$ 988	$1,032	$1,084
High			926	958	994	1,035	1,082	1,136

Table 7

Rate of Change of Miscellaneous Revenues

Source	FY 72-73	FY 73-74	FY 74-75	FY 75-76	FY 76-77
Public Utility Tax	8.7%	8.6%	19.8%	14.9%	11.9%
Cigarette Tax	(5.2)	(3.1)	---	3.8	---
Liquor Tax	2.7	1.4	4.0	(1.3)	5.1
Insurance Tax	(3.6)	---	13.2	---	16.7
Inheritance Tax	35.4	(7.9)	(6.2)	7.9	(2.4)
Corporate Franchise Tax	(8.0)	13.0	---	7.7	7.1
Interest	34.2	47.1	26.7	(31.6)	7.7

Source: Illinois State Chamber of Commerce.

State Bureau of the Budget, we can develop an estimate of potential increases in revenue available for funding public schools.

To emphasize the relative volatility of projecting future yields of individual educational revenue sources, Table 7 illustrates the percentage changes, year to year, for several of the miscellaneous revenue sources.

Tax expert John F. Due of the University of Illinois, writing on Alternative Tax Sources for Education for the National Educational Finance Project, recommended the following:

- there are no major untapped tax sources. Major revenue increases must come from the sales and income taxes.
- a broad based 5 percent sales tax, with no food and clothing exemption, is reasonable.
- the corporate income tax should be the major business levy.
- annual state tax burdens should be comparable to their neighboring states.
- most states can make more effective use of income taxation, by the use of higher rates.

Illinois fits Due's description quite closely. While we can look forward to some revenue growth from miscellaneous sources we should not expect any panacea in this area.

Finally, educators tend to assume that politicians are serious when they say, "education will be my top priority." This statement has seldom translated into dollars for schools. Competition among government functions for revenue growth proceeds will continue to increase. Given choices between spending for the environment, public safety, transportation, health, welfare, and schools, how and where the taxpayers decide to use their resources will be critical to the future of school finance.

A STUDY OF THE RELATIONSHIP BETWEEN SELECTED SOCIOECONOMIC VARIABLES AND LOCAL TAX EFFORT TO SUPPORT PUBLIC SCHOOLS IN ILLINOIS

Thomas Wei-Chi Yang and Ramesh Chaudhari

Introduction

School districts in the State of Illinois exhibit widely varying local tax effort to support their educational program. In Illinois, the operational money available to schools is obtained from a large number of funds with independent taxing powers. Local districts have authority to levy, by action of the school board and/or by vote of the people, additional taxes so that the quality of education may be improved. The exercise of local independent taxing power is well established and commonly considered important in the maintenance of local control of education. However, this local taxing power has recently raised significant questions with regard to equalization of educational opportunity. Many educators and legislators feel that the level of district tax effort in support of public education is closely associated with the local social, economic, or political conditions. These conditions have sometimes worked to the disadvantage of worthwhile education. The citizens of some communities have, without due consideration to the consequences, deprived their own children of a good education.[1]

Most studies dealing with the problem of equity in educational opportunity, particularly in the State of Illinois, have focused on fiscal neutrality as a measure of equity. There has not been much research published in the area of tax effort distribution. One problem contributing to this lack of publication in the past has been the lack of interest in the dispersion of

district tax effort. Often there is concern that certain districts are being favored or short-changed, but seldom is there discussion of the impact of adopting certain funding programs on equal educational opportunity. A state funding system that is designed to offer incentive grants to school districts levying higher local taxes must address the problems created by wide variations in district tax effort. A child's education may be seriously impaired or restricted if local aspiration levels inhibit school district authorities from utilizing resources that are present in the tax base of the local school district.[2]

In addition to the local aspiration factor, the study will also call attention to some variables that are important in the process of local decision making with regard to tax effort. Not all locally imposed taxes are truly local in nature. Some local taxes may be exported to other communities. The taxes on industrial and commercial business properties, for example, may be transferred outside the taxing jurisdiction through forward shifting to consumers and backward shifting to the non-resident suppliers. Local taxing power is increased in high commercial and business areas while it is reduced in low commercial and business areas because a large proportion of non-residential property would mean that voters' tax dollars would be supplemented by the much larger contributions of commercial and industrial property owners.[3]

Local spending decisions on education could also be affected if the educational benefits are extended to an area larger than the decision-making local school district. This seems to be likely because local school districts cannot close their borders to the citizens of the other school districts. Such school districts have little control over the flow of education benefits beyond their boundaries. Where the local school district that makes decisions concerning spending on education services cannot completely internalize costs and benefits, it may underspend or overspend.[4]

If one or more factors, such as local aspiration, benefit spillover, or cost spillover, has a significant impact on local public school spending levels, then the adoption of a District Power Equalization system (providing local incentives while equalizing per-pupil district tax base) would not lead to substantial equality of educational opportunity. In such circumstances, the desirability of continuing to grant each local district independent education taxing power would be doubtful.

Thus, this study focuses on the relationship between selected socioeconomic characteristics of local school districts and tax effort and seeks answers to questions concerning the determinants of local tax effort. Some questions that might be answered are as follows:

Is local tax effort a positive (or negative) function of local wealth or fiscal ability?

Do socioeconomic characteristics of the local school districts appear to influence the decision of the local tax effort?

Can a generalized profile of tax effort in relation to socioeconomic characteristics be developed from this study?

The answers to these questions may provide a better understanding of the complex nature of local tax effort. From the results of the analysis, underlying factors affecting the determination of local tax effort may be identified. The identification of such factors could provide valuable information for improving the degree of equal educational opportunity among school districts.

Related Literature

The study intended to examine the relationship between school district tax effort and selected socioeconomic variables. The purpose of this section is to review relevant literature and research that both focuses directly and exclusively upon school tax effort, and looks at local tax referenda for the

educational fund in conjunction with other types of local referenda. The local tax effort generally is related to local fiscal ability and demand for public education. The selected literature and research in this section, therefore, are divided into two parts. The first examines factors affecting the local fiscal ability; the second examines factors affecting the local demand for education.

Factors Affecting the Local Fiscal Ability

Assessed Property Valuation per Pupil. A measure of local district fiscal ability to support education normally includes real property values. From the standpoint of the taxing school district, assessed values are more important than are market values. Together with the tax rate, the district's ability to raise tax revenue is determined by local assessed values. For this reason, assessed values, instead of real values, is selected as a measure of local fiscal ability.

With a fixed amount of school budget, a school district with high assessed property valuation per pupil is able to generate relatively high revenues per pupil with a relatively low tax rate. A school district with a relatively low assessed valuation of real property per pupil is only able to generate relatively low revenues, even with a considerably higher tax rate. Thus, a negative relationship between assessed property valuation per pupil and tax rate would be expected.

Share of Residential Property. Many studies put their emphasis on the total property tax base per pupil and seldom give proper attention to the composition of the local property tax base that also influences local decisions to provide educational services. In general, the school tax base can be divided into local and non-local components. Not all locally imposed taxes

are truly local in nature. A school district with a high percentage of commercial and industrial property may exert a high tax rate simply because a small portion of taxes raised by residents of the local district would be compounded by the much larger contributions of commercial and industrial property owners in the district. This variable may be a measure of cost spillout. This cost spillout variable might be negatively correlated with the level of tax rate. The 1973 study of cost and benefits spillouts as factors affecting local taxation for public schools in West Virginia by Bowman clearly revealed that access to a tax base that enables voters to impose taxes for local use while exporting part of the burden outside the taxing jurisdiction was significantly and positively related to the level of local taxes per pupil.[5]

Income. In many respects, income provides a better measure not only of capacity but also of the ability to pay the taxes that have been levied since the true capacity of a local district is determined by flow of resources as well as by the taxable resources available.[6] Many studies have indicated a positive relationship between income and the school tax referenda election outcome. Milstein and Jennings' study of success or failure on bond referenda in western New York during 1968-69 found that districts with a high percentage of low income families were more likely to perceive the school bill as excessive.[7] Gallup's study of adults' attitudes toward school referenda further supports Milstein and Jennings' findings that higher income people were more favorable toward school tax increases than were lower income people.[8]

Population Density. Because of the overlap of local school districts and local governmental units, both must look at the same tax base for their support. City government's expansion is utilizing local resources, for example,

could affect the ability and willingness of citizens to support public school taxes. It is possible that an area with high expenditures for other government services would have less resources available for the support of public schools. The existence of such disparity between local fiscal ability and actual ability to raise revenue is labeled "municipal overburden."[9]

Since the data on other government taxes is not readily available, a proxy measure of municipal overburden could be utilized. Through the effect of population density the impact of municipal overburden on school support may be examined because of the close linkage of density to urban problems. Another proxy variable for municipal overburden is percentage of low income families. The predominance of low income families could indicate a high degree of fiscal inability.

Growth Rate of Assessed Property Valuation. Assessed property valuation is one measure of district fiscal ability. There is a relationship between the growth rate of district tax capacity and tax rate. Education is considered a normal good on the theory that demand for education is expected to increase as the district fiscal ability increases. A 1961 study of financing government in metropolitan areas by Sacks and Hellmuth included 32 school systems for the period 1950-58.[10] Hickrod and Sabulao revealed that changes in assessed valuation was the most significant single variable accounting for the variation of school expenditures.

Ratio of Local Revenue to Total Revenue. Local school districts receive large amounts of financial aid from state government. A state aid funding system that provides incentive grants (reward for effort) for school districts levying higher taxes tends to have some influence on local tax rate determinations. It is expected that such incentive schemes induce more local

dollars to be spent for public education. A 1974 study of voter behavior on local taxes by Alexander and Bass revealed that this price-related variable was positively correlated with the school tax election outcome. However, the coefficient on this price-related variable exhibited considerable fluctuations in both absolute value of significance depending on the form of equations.[11]

Factors Affecting Demand for Education

Variables related to this fiscal ability of local school districts affect public demand for education, at least indirectly. The factors affecting the direct measure of the demand for education includes presence of children, nonwhite population, educational attainment, urban residence, ratio of owner-occupied housing units to total units, occupation and enrollment change. The assumption is that these variables capture the extent to which people view public education as important or unimportant because of the relationship of formal education to their work, to perceived paths of social mobility, to their lifestyles, or merely because they have no children in public schools and do not care to support the education of others.[12] Literature related to these factors is as follows.

Presence of Children. Both theoretical considerations and some previous empirical studies suggest that presence of children should have some impact on voter behavior. In a 1964 study of voter participation patterns in three Oregon school districts, Parnell found that a group of citizens having children in school was more likely to participate in school budget elections than non-parents.[13] Nelson, in studying the outcome of school bond elections in 1968, also found that parents who had children in school tended to approve school tax increases.[14]

Nonwhite Population. According to a number of previous empirical studies, the percentage of nonwhite populations seems to be positively associated with tax referenda outcomes. A 1967 study of patterns of white and nonwhite school referenda participation and support by Masotti revealed that nonwhite citizens were less active participants in school financial elections. Of interest is that nonwhites who participated in the voting, voted in favor of school tax increases.[15] Friedman also noted the existence of distinctive subcultural voting. Jewish and Negro populations were found to support virtually all referenda with a low level of turnout rate.[16]

Educational Attainment. It is frequently assumed that the higher an individual's educational level, the more likely he or she will appreciate the value of education. This assumption has been supported by numbers of empirical studies. McKelvey, in the study of voting behavior in two coterminous sytems of local government found that individuals who had at least some college education were more likely to vote in favor of these school tax elections than individuals with less education, regardless of their ranking on other dimensions.[17] In 1968, Boozer's study of the voting public in Grand Rapids, Michigan, also supported this finding.[18] Gallup reported that 50 percent of the college graduates polled favored tax increases for schools while only 27 percent of the people with only elementary educations approved.[19] However, negative relationships between educational attainment and the level of appreciation of the advantages of education were present in the McMahan, Jordan, and Davison studies.[20] This negative relationship might suggest that persons with low levels of education might have high demand for education for their children so their children might have better lives through better education.

Urban Residence. The use of urban residence measures is in line with the assumption that persons residing in urban areas have more of a demand for

education than residents of non-urban areas. Therefore, the rural or urban nature of the school district might have some influence on voting behavior. In a 1974 study based on more than 1,600 school district property tax elections held in California from the mid-1950s to 1972, Alexander and Bass found a positive correlation between percentage of urban population and election outcome, but this correlation was not significant.[21]

Ratio of Owner-occupied Housing Units to Total Units. This variable is intended to reflect the strength of the level of commitment that the property tax payers in the community exhibit. This variable primarily serves as a proxy variable of benefit spillout. Theoretically, owner-occupants are more attached to the community than renters. A high percentage of owner-occupants would indicate either (1) strong attachment to the community or (2) high population stability. Both of these factors are expected to be positively associated with the tax rate level. In a 1974 study of 1970 school district property tax elections in California, Alexander and Bass examined the relationship of a large number of variables to election results.[22] The dependent variable was dichotomous, taking on the value of one if the tax referendum passed and zero if it failed. Alexander and Bass found that the coefficients of percentage of owner-occupied housing was positively related to the referendum outcome; however, the coefficient was not statistically significant.

Occupation. Occupation also tended to measure taste or demand for public education. Occupation has been found to have a strong relationship to education attainment. Since education theoretically and empirically was found to be positively associated with the high value of the advantage of education, occupation therefore is expected to have a relationship with education. Many studies have attempted to correlate voting outcomes with occupational status. Gallup, in his

annual survey of attitudes toward education across the nation in 1969, found that individuals in business and professional occupations were more likely to vote than were individuals in other occupational categories.[23] Hamilton and Cohen, in their study of school referenda, also found that social status was highly related to percentage of favorable vote. They found that in Ithaca and Corning, New York, persons employed in professional or managerial occupations were more supportive of education tax referenda than were persons employed in other occupations.[24]

Enrollment Change. The school district expenditure level is, to some degree, dependent upon the demand for education. A school district with a high percentage of declining enrollment is less likely to increase its tax rate than are increasing enrollment districts. This expectation presumably follows the assumption that the demand for education decreases as enrollment declines. In a 1965 study of voting behavior in referenda elections in Illinois, Johnson found that bond issues were approved at a higher ratio in school districts that had a rate of growth in average daily attendance above the median rate of growth for all school districts in the sample.[25]

Context of the Study

Background

School districts in Illinois can be of three basic types: elementary, high school, or unified. In 1974-75 there were 476 elementary school districts, 134 high school districts, and 442 unified school districts. There is no legal relationship between elementary and high school districts. Frequently, their boundaries are not coterminous. A single high school district will frequently overlie all, or part of, many elementary districts. Tax rates in a unified district will generally be higher than in either elementary or secondary

districts. The main reason for giving attention to these structual differences is that property value per pupil and many other characteristics frequently depend upon the type of school district.

Maximum tax rates for general operating expense, a building fund, capital improvement, and some other specific purposes are also prescribed for each type of school district by statute in Illinois. Voter approval is required to exceed the limits, and such authorizations are of indefinite duration. Special levies may be imposed without referendum for a variety of purposes, such as building maintenance funds, retirement, working cash fund, junior college tuition, and special education. A distinctive aspect of the Illinois tax system is "the back-door referendum." A "back-door referendum" describes the circumstances under which the public may force the school board to have a referendum on some action taken by the board. This is accomplished by a petition submitted by the appropriate number of persons. This applies to a number of tax rates which boards of education levy. Funds subject to the back-door referendum include bond issues for the working cash fund and the educational fund for dual school districts.

In 1973, Illinois amended its old foundation program. Districts under this amended funding system have the option of being reimbursed under several formulas. The major formula change provides reimbursement under the "resource equalizer" principle. A district's entitlement is based on three major factors: (1) the concentration of Title I eligible pupils, (2) the district's assessed property value, and (3) the district's operating tax rate. Under the Resource Equalizer Formula, districts with operating tax rates for unit, elementary, and high school districts equal to or in excess of 3.00 percent, 1.95 percent, and 1.05 percent, respectively, have a state guaranteed foundation level of $1,260 per pupil in Title I Weighted Average Daily Attendance

(TWADA.)[26] If districts under this plan have operating tax rates in excess of the maximum rates specified for each type of district (3.00 percent for unit, 1.05 percent for high school, 1.95 percent for elementary districts), such districts must reduce their tax rate gradually or proportionately to the share received of the state aid entitlement during the following consecutive three-year period. The operating tax rate for these "roll-back districts," however, can be maintained at a level not to exceed a certain limit as defined by statute.[27]

Because of the complicated structure of formula funding systems, and differences of geographic and demographic nature among unit, high, and elementary school districts, the analysis of data was made for each type of district. The results, however, were reported in a consistent form.

Research Approach

For the purpose of finding tax effort structure characterized in terms of socioeconomic variables of school districts in the State of Illinois, the operating tax rate, that is the tax rate exerted by local school districts for basic educational fund or funds, was employed as a measure of tax effort. School districts were ranked in ascending order according to the level of the tax rate, and then were evenly divided into four groups--low, low medium, high-medium and high tax rate group. The purpose of this categorization was to determine if a profile of the nature of local tax effort existed. This profile then provides insight into the nature of tax effort and, consequently, helps identify some of the determinants of high and low effort. Low tax rate groups were as follows: 0.564-1.345 elementary; 0.983-1.275 secondary; 1.128-2.116 unified. Low medium tax rate groups were as follows: 1.348-1.627 elementary; 1.286-1.456 secondary; 2.117-2.301 unified. High medium tax rate groups were as follows: 1.627-1.928 elementary; 1.464-1.704 secondary; 2.302-2.600 unified.

The high tax rate groups were as follows: 1.931-3.336 elementary; 1.705-2.441 secondary; 2.603-3.605 unified. These tax rate ranges were used throughout the study.

Multiple discriminant analysis was used for the exploration of the structure of tax effort. The distinguishing feature of the multiple discriminant analysis is to provide a geometric model of the similarities and differences among groups in a reduced measurement space. Groups can be located with respect to the reference vectors.[28]

Variables Used in the Study

Seventeen socioeconomic variables were used in the multiple discriminant analysis. Each was selected because it had been shown to be of some significance in previous studies or because, theoretically, it was expected to be related to tax effort in some way. Following are the descriptions of the 17 selected socioeconomic variables:

1.	Income, less than $5,000	percent of population with annual income less than $5,000.
2.	Income, greater than $25,000	percent of population with annual income greater than $25,000.
3.	Average income	average income per capita.
4.	Education, college	percent of population 25 years old or over with four or more years of college education.
5.	Education, elementary	percent of population 25 years old or over with education less than elementary level.
6.	Occupation Professional & managerial	percent of employed persons in professional and managerial occupation.
7.	Occupation, blue collar	percent of employed persons in operatives, transport equipment operatives and laborers (except farm).

8.	Nonwhite	percent of nonwhite in membership.
9.	Children	percent of population age 6 to 18.
10.	Urban living	percent of population living in urban areas.
11.	Owner-Occupied housing	ratio of owner-occupied housing units to total units.
12.	Population density	number of people per square mile.
13.	Assessed property Valuation per ADA (AV per ADA)	ratio of equalized assessed property value to number of pupils in average daily attendance (ADA) in 1973.
14.	Assessed Valuation Growth Rate (AV growth rate)	ratio of 1974 equalized assessed valuation to 1972 minus one.
15.	Residential housing	ratio of aggregate value of owner-occupied housing value to four times the equalized assessed value.
16.	Enrollment Growth	ratio of 1974 enrollment to 1972, minus one.
17.	Price	ratio of local revenue to total in 1974.

Data Resources

Data for variables one to twelve and the residential housing value were obtained from the 1970 census. Data for variables thirteen to seventeen, plus school operating tax rates for 1974, were provided by Illinois Office of Education. For the 1975 operating tax rate, it should be noted that since it was not available at the time the study was in process, the 1974 tax rate plus tax referendum data for educational fund at 1974 was used to approximate the 1975 operating tax rate.

Study Population

The initial population was the 1,052 school districts in Illinois as of 1974-75 (476 elementary, 134 high, 442 unit). Since some missing values were

found in residential housing data and some school districts were not identified because of consolidations after July 1, 1974, the study was restricted to the population of 430 elementary, 127 high, and 381 unit school districts.

Limitations

The study attempted to relate the results to characteristics of the school districts and of their tax efforts. Since the data were aggregated by school districts, the results of this study could not be used to draw any conclusions about individual behavior, but must be confined to statements about the specific aggregate characteristics of these school districts. It is not appropriate to say, for example, that high education individuals vote for higher school taxes but rather that school districts with greater percent of populations of high education attainment have a greater probability of exerting higher tax rates.

The Results

Unit School Districts

Three hundred and eighty-one unified school districts were studied. Table 1 shows the coefficients for the three discriminant functions obtained in the multivariate discriminant analysis. Bartlett's V statistic was used to determine the significance of overall group differences. It was found that the total discriminable variance of 125 was distributed as chi-square with 51 degrees of freedom, indicating at least one significant function among the three functions of the table. To test the signficance of each individual discriminant function, the successive chi-square tests of Bartlett's V statistic were applied. The results of the tests indicated that the first two discriminant functions were significant, while the third function appeared to provide little additional group discrimination.

To test whether this discriminant procedure is significantly better than a purely random partitioning of the measurement space, the classification matrix for 17 variates, which provides a convenient method of summarizing the number of correct and incorrect classifications made by the discrimination procedure, was used. A chi-square test found the differences between the means among the four groups to be significant at the .01 critical level. Thus, the discrimination procedure satisfactorily separated the low and high tax effort districts.

Table 1

Multiple Discriminant Coefficients
for Unit School Districts

	Function 1	Function 2	Function 3
Income, greater than $25,000	2.13	-9.96	3.05
Income, less than $5,000	0.17	+8.30	-4.25
Education, college	12.17	+14.56	3.91
Education, elementary	0.24	+5.55	6.32
Occupation, professional	3.82	-4.79	-2.38
Occupation, blue collar	6.82	+0.68	-2.14
Average income	0.00	+0.00	-0.00
Nonwhite	1.56	-0.09	-4.72
Children	-5.93	+37.57	-27.31
Urban living	-0.35	-0.00	-0.26
Owner occupied housing	0.67	-2.38	-4.20
Assessed valuation per ADA	-0.09	+0.60	0.02
Residential housing	0.01	+0.60	0.02
Density	0.08	+0.01	0.23
Enrollment change	-0.05	+0.01	0.04
Assessed valuation growth	-0.03	-0.03	-0.04
Price	0.03	+0.02	-0.00

Bartlett's V Statistic = 125 Significant at 0.01 level.
Degree of Freedom = 51.

From the classification matrix for the 17 variates, a normalized classification matrix is presented as Table 2. The elements of the normalized classification matrix are fractions of correct and incorrect classifications, which are

derived from the raw misclassification counts obtained by dividing each by its row total. The normalized classification matrix provides some indication of the similarities and differences among the four groups. Districts in the low tax effort group have strongly differentiated characteristics, as indicated by the 50.5 percent on its diagonal. They are somewhat different from the districts in the high tax effort group and, to a lesser extent, are different from those of the other tax effort categories, as indicated by the correspondingly "off diagonal" elements. Districts in the high medium tax effort group appear to be similar to districts in the low medium tax effort group; its diagonal element of 41 percent is only two times as large as its "off diagonal" element of 20 percent with respect to low medium group. However, this relationship between the high medium tax effort group and the low medium group is not reciprocal; the diagonal element of 51 percent with respect to low medium tax effort group is almost four times as large as the "off diagonal" element of 14.6 percent of misclassification to the high medium tax effort group. Like the other three groups, the high tax effort group has a fairly distinct profile; it tends to be disproportionately associated with both the low medium tax effort group and the high medium tax effort group rather than with the low tax effort group. The relationship between the high tax effort group and the low medium tax effort group appears to be less reciprocal than does that between the high medium tax effort group and the high tax effort group.

Some evidence of the similarities and differences among groups has been shown in the normalized classification matrix. Certain prominent socioeconomic characteristics related to each tax effort group can be observed by inserting variable vectors into the configuration of tax effort groups, so that they tend to point toward the groups having the highest mean levels,

and away from the groups having the lowest mean levels. The length of the variable vector is determined by multiplying the simple "between-groups" correlations by the ratio of between-groups variance to "within-groups" variance for the particular socioeconomic variable. The length of the variable vector can be used to represent its potency as a discriminator among the groups.

Table 2

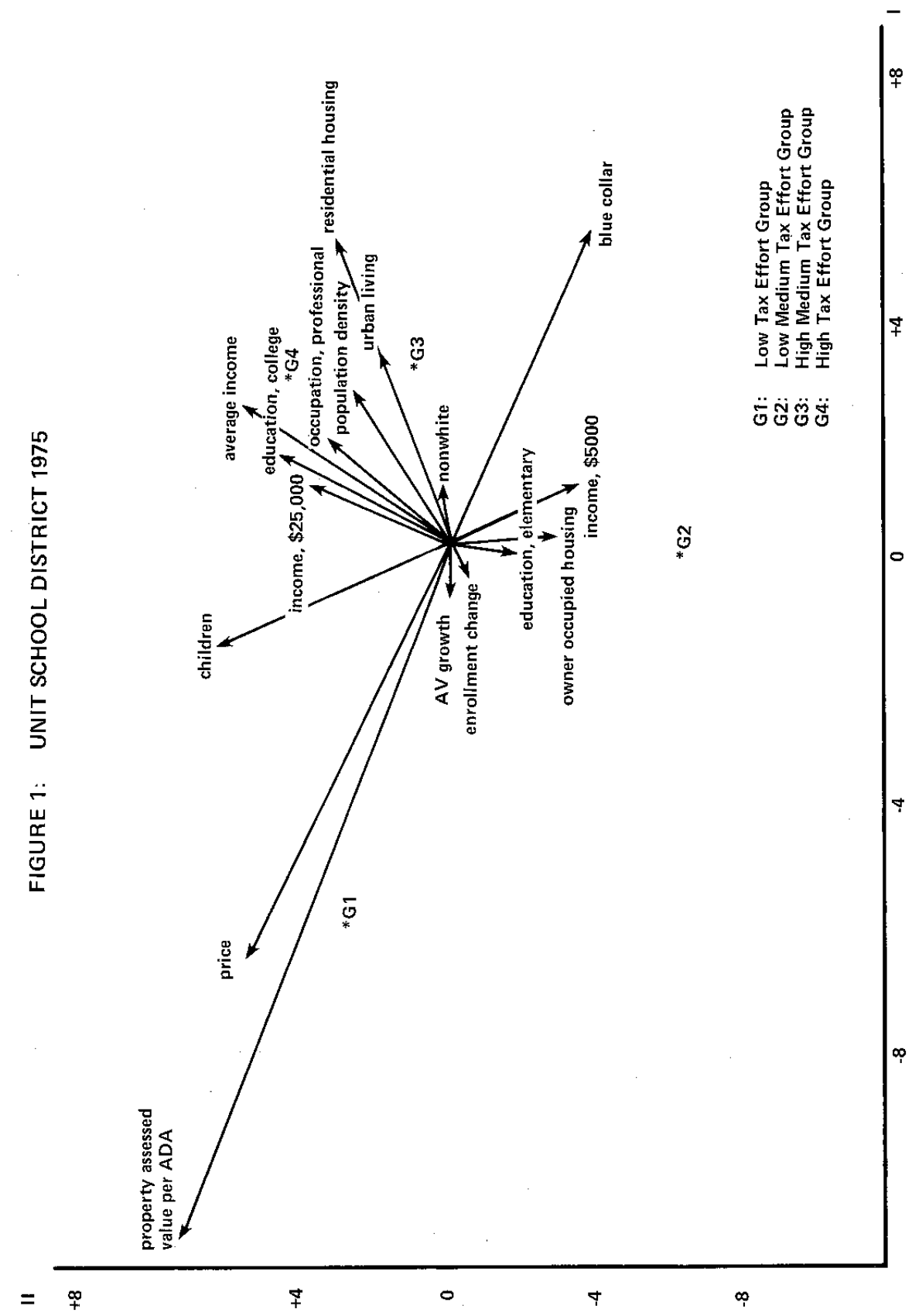
Normalized Classification Matrix for Unit School Districts

Actual Group	Number of Cases	Group 1 Low Tax Effort	Group 2 Low Medium Tax Effort	Group 3 High Medium Tax Effort	Group 4 High Tax Effort
GROUP 1 Low Tax Effort	95	50.5%	17.9%	24.2%	7.4%
GROUP 2 Low Medium Tax Effort	96	17.7%	53.1%	14.6%	14.6%
GROUP 3 High Medium Tax Effort	95	16.8%	21.1%	43.2%	18.9%
GROUP 4 High Tax Effort	95	13.7%	22.1%	21.1%	43.2%

Percent of grouped cases correctly classified 47.5%.
Chi-square = 102.93.

Figure 1 shows the profile of tax effort groups in unit school districts with socioeconomic variable vectors projected into the model. The picture indicates that the low tax effort groups differed from the other groups (particularly the high tax effort group) by having relatively high assessed property valuations and high price level. The high tax effort group tends to have a relatively higher percentage of people with income over $25,000, higher percentage of people living in urban areas, higher percentage of people with four years or more college education, higher percentage of people in professional and managerial

FIGURE 1: UNIT SCHOOL DISTRICT 1975



occupations, higher average income per capita, higher percentage of residential housing value, and higher population density. Conversely, the low medium tax effort group appeared to have a higher percentage of people with less than an elementary level, education and incomes of less than $5,000. In examining the difference of average assessed property valuation per ADA, it was found that the mean level of assessed property valuation for the low medium tax effort group was little different from that of the high tax effort group.

Thus, it is evident that factors associated with educational attainment, occupational status, and per capita income tended to be the major discriminators of local tax effort in unit districts.

High School Districts

One hundred twenty-seven high school districts were included in the study. Table 3 reports the structure for the three discriminant functions among which two discriminant functions were revealed to be significant by the results of the successive chi-square tests of Bartlett's V statistic. They accounted for .87 discriminable variance.

The accuracy with which the school districts could be classified as belonging to either of the criterion groups was also tested by chi-square to determine if the proportion of correct and incorrect classifications were significantly different from those expected if only chance factors were operating. The results of the test of the precision of classification are presented in Table 4. The chi-square value of 93.75 is significant beyond the .01 level, indicating that the classification provided by the discriminant function was highly accurate.

Table 3

Multiple Discriminant Coefficients
for High School Districts

	Function 1	Function 2	Function 3
Income, greater than $25,000	-0.03	+4.29	-1.86
Income, less than $5,000	4.03	-2.77	-1.11
Education, college	1.22	-2.85	23.03
Education, elementary	-2.77	+0.71	6.93
Occupation, professional	3.68	-8.29	-33.01
Occupation, blue collar	0.88	-10.11	-4.00
Average income	-0.00	-0.00	-0.00
Nonwhite	-0.33	+3.06	-2.32
Children	-2.03	-0.83	23.49
Urban living	-0.92	-0.82	2.52
Owner occupied housing	2.95	-1.88	-3.12
Assessed valuation per ADA	-0.01	+0.01	0.00
Residential housing	0.04	+0.02	0.00
Density	0.20	+0.05	-0.08
Enrollment change	0.00	-0.03	-0.01
Assessed valuation growth	-0.00	+0.06	0.04
Price	0.04	-0.01	-0.02

Bartlett's V Statistic = 135 Significant at 0.01 level.
Degree of Freedom = 51.

Table 4

Normalized Classification Matrix for High School Districts

Actual Group	Number of Cases	Predicted Group Membership: Group 1 Low Tax Effort	Group 2 Low Medium Tax Effort	Group 3 High Medium Tax Effort	Group 4 High Tax Effort
GROUP 1 Low Tax Effort	32	59.4%	31.3%	6.3%	3.1%
GROUP 2 Low Medium Effort	32	12.5%	71.9%	12.5%	3.1%
GROUP 3 High Medium Tax Effort	32	3.1%	25.0%	50.0%	21.9%
GROUP 4 High Tax Effort	31	12.9%	6.5%	12.9%	67.7%

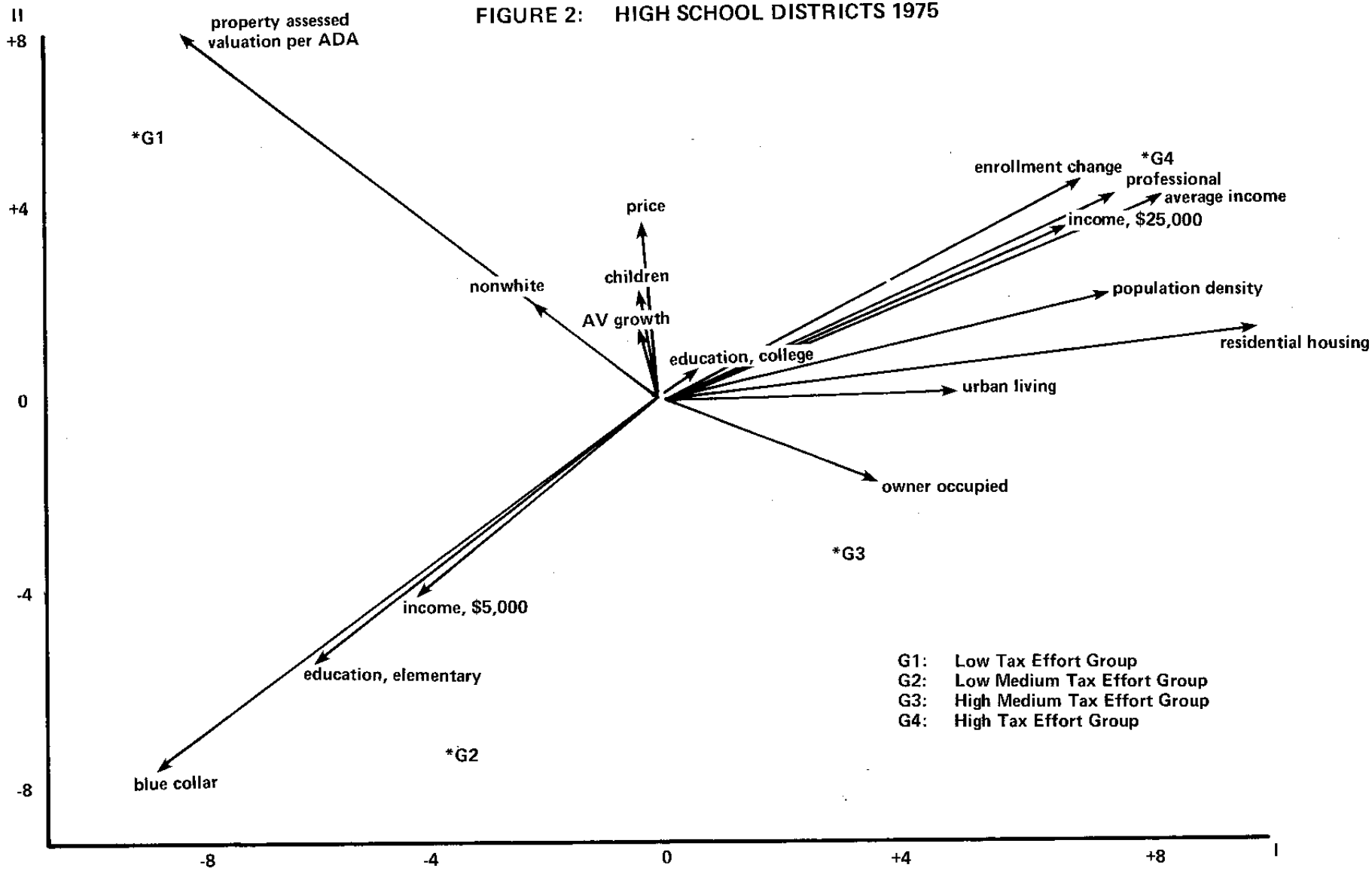
Percent of grouped cases correctly classified 62.2%.
Chi-square = 93.75, significant at 0.01 level.

A normalized classification matrix can be formed in the same manner as described in the unit school district section. From the normalized classification matrix shown in Table 2, all tax effort groups have fairly distinct socioeconomic profiles, as indicated by the values on the diagonal. The low tax effort group is similar to the low medium tax effort group, while the high medium tax effort group seems to be somewhat associated with the low medium tax effort group; the relationships between these three groups, however, are not reciprocal. That is, if districts of one group tend to be misclassified in a second group, districts of the second group are, in turn, likely to be misassigned to the first group. The low tax effort group is strongly differentiated from the high tax effort group; its corresponding value on its off-diagonal is 3.1 percent.

This remarkable differentiation among groups resulted from the classification analysis, which suggested that the socioeconomic profile could be distinctly identified and that this profile could be discriminated effectively among the four tax effort groups. As noted, only two discriminant functions are significant. Differences between the tax effort groups can then be represented in a two dimensional configuration. The four group centroids and socioeconomic variable vectors were plotted on a two-dimensional space and are displayed in Figure 2.

The configuration, with a socioeconomic characteristics vector projected into the model for high school districts, identifies the fairly distinct characteristics associated with each tax effort group. The low tax effort group differed substantially from the other groups by having a relatively high level of assessed property valuation. Average assessed valuation per ADA was computed for each group. They were $102,804

FIGURE 2: HIGH SCHOOL DISTRICTS 1975



for low tax effort group, $62,829 for low medium tax effort group, $69,375 for high medium tax effort group, and $64,122 for high tax effort group. It was expected that low tax effort was inversely correlated with high property assessed valuation. Of surprise is that the mean level of property valuation per ADA in the low medium tax effort group is little different from that of the high tax effort group. By inspecting the socioeconomic variable vectors in Figure 2, characteristics related to education attainment, income level, occupational status, residential housing, and urban living appear to be of considerable importance in determining the amount of local tax effort.

The configuration presented in Figure 2 also reveals a strong relationship between tax effort and the percentage of owner-occupied houses, as an indirect measure of benefit spillover, in the high medium tax effort group. This implies that if educational benefit spillover is large, an increase in educational expenditures necessitating a rise in property taxes would be met with considerable resistance from local residents.

Elementary School Districts

Four hundred thirty elementary school districts were studied. The coefficients for the three discriminant functions for elementary districts are presented in Table 5. To test the significance of overall discriminations among the groups, Bartlett's V Statistic distributed as chi-square was applied. The chi-square value of 335 for the 51 degrees of freedom is significant beyond the 0.01 critical level, suggesting that there exists at lease one significant function among the three. The results of successive tests of chi-square revealed that the first two discriminant functions were found to be significant. The third discriminant function also appears to provide some additional group discrimination; however, since it accounts

for less than six percent of the sum of all three roots, differences between the tax effort groups can be explained by the first two discriminant functions.

Table 5

Multiple Discriminant Coefficients
for Elementary School Districts

	Function 1	Function 2	Function 3
Income, greater than $25,000	-1.83	7.20	-6.51
Income, less than $5,000	-0.26	-3.48	2.19
Education, college	4.73	5.06	-2.10
Education, elementary	-2.00	3.48	0.15
Occupation, professional	-2.14	-6.15	16.07
Occupation, blue collar	0.64	-7.04	5.95
Average income	0.00	-0.00	-0.00
Nonwhite	2.03	1.50	6.44
Children	-0.66	0.65	1.17
Urban living	0.11	-0.81	-1.09
Owner occupied housing	0.20	2.49	5.11
Assessed valuation per ADA	-0.00	0.01	-0.00
Residential housing	0.02	0.00	0.02
Density	0.08	0.11	0.11
Enrollment change	0.00	-0.00	-0.00
Assessed valuation growth	-0.00	0.00	0.00
Price	0.00	0.00	0.04

Bartlett's V Statistic = 335 Significant at 0.01 level.
Degree of Freedom = 51.

The test of the precision of classification was applied. The results of the precision test are reported in Table 6. The chi-square value of 40.45 is significant beyond the 0.01 significance level, indicating that this function accurately separates the four tax effort groups.

A normalized classification matrix in which the diagonal elements denote the percentage of correct classifications and the off-diagonal elements denote the percentage of incorrect classification can be developed and therefore reported in Table 6.

Table 6

Normalized Classification Matrix for Elementary School Districts

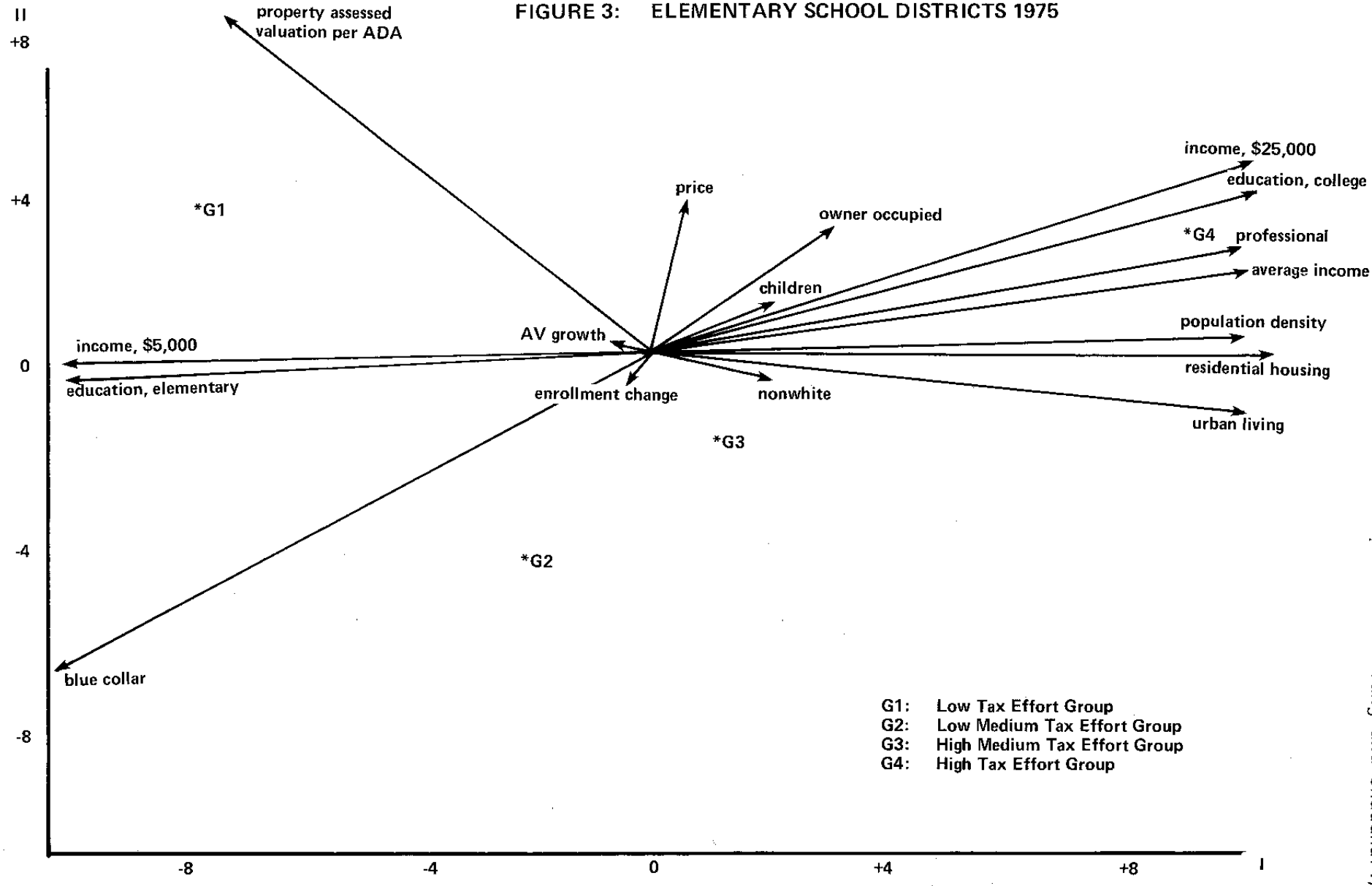
Normal Group	Number Of Cases	Group 1 Low Tax Effort	Group 2 Low Medium Tax Effort	Group 3 High Medium Tax Effort	Group 4 High Tax Effort
GROUP 1 Low Tax Effort	107	70.1%	22.4%	7.5%	0.0%
GROUP 2 Low Medium Tax Effort	108	21.3%	46.3%	24.1%	8.3%
GROUP 3 High Medium Tax Effort	108	13.9%	26.9%	34.3%	25.0%
GROUP 4 High Tax Effort	107	5.6%	14.0%	17.8%	62.6%

Percent of grouped cases correctly classified 53.2%.
Chi-square = 40.45, significant at 0.01 level.

The low tax effort group and the high tax effort group have strongly differentiated profiles; the diagonal element corresponding to these two groups are 70.1 percent and 62.6 percent, respectively, and the off-diagonal indicates that misclassification percentages are zero percent and 5.6 percent. The low medium tax effort group has a fairly distinct profile, and is most similar to the low tax effort group, followed by the high medium group. The high medium tax effort group appears to be less differentiated, particularly from the low medium tax effort group and the high tax effort group; its diagonal element of 34 percent is less than 1.5 times as large as the misclassification in the low medium and the high tax effort groups.

Inspection of Table 6 suggests that certain socioeconomic characteristics are found to be mostly clearly associated with each individual tax effort group. Figure 3 presents the two-dimensional configuration with four centroids and socioeconomic variables plotted into the space. The axes are corresponding to the most significant discriminant functions. Figure 3 demonstrates that the low tax effort group differs substantially from all of the other groups in that it has relatively high property assessed valuation per ADA. The mean levels of average assessed valuation per ADA were computed for each tax effort group. The low tax effort group appears to have the highest average assessed value of $38,231, followed by the high medium tax effort group of $36,741; the high tax effort group has $33,957, and finally the low medium tax effort group has $33,152. As was expected a priori, the inverse relationship between the tax effort and property assessed valuation was found in both the low tax effort group and in the high tax effort group. The attention, however, should be focussed on the differences between the high tax effort group and the low medium tax effort group when they have almost the same size of property valuation per ADA. The socioeconomic variable vectors indicate that the difference between these two groups seems to be evident. The separation of the low medium tax effort group and the high tax effort group was mainly due to the differences in education attainment, income level, occupation status, residential housing, population density, and owner-occupied housing. The factors affecting the districts' ability and demand for education seem to play an important role in determining the amount of local tax effort.

FIGURE 3: ELEMENTARY SCHOOL DISTRICTS 1975



Summary and Policy Implications

It is evident from this study of tax effort in relation to seventeen selected socioeconomic variables that a generalized profile of the nature of tax effort can be developed for all types of school districts by taking only the most consistently prominent variables into account. Before describing the profile, it should be stressed that, in each case, the prominence of a socioeconomic factor is represented relative to the prominence of that same factor in other groups, and not relative to the prominence of other socioeconomic factors in the same group. For example, educational attainment may be very prominent in all tax effort group profiles. It, however, appears as a distinct characteristic in the high tax effort group because the prominence of this variable is relatively great in the high tax effort group as compared with the other groups. This does not mean that the high tax effort group should be characterized as having higher levels of education attainment than it does of the other socioeconomic characteristics. Table 7 presents the profile containing only the most consistently prominent variables particularly associated with a tax effort group as compared with the other groups.

The generalized profile in Table 7 demonstrates an important relationship between tax effort and the factors that are related to the social and economic conditions of local school districts. That the differences in the level of fiscal capacity and local aspiration among school districts contribute to differences in local tax effort was generally confirmed by the research. The low tax effort group differed substantially from the other groups in that it had a relatively high level of assessed property valuation per ADA. Conversely, the average assessed property valuations per ADA in all of the other groups (in all three types of districts) were relatively low compared

with that of the low tax effort group, and were surprisingly similar to each other. The profile shows that the high tax effort group tends to have high education attainment, high occupation status, high average income, high residential housing value, and high population density. The low medium tax group, while having almost an equal amount of tax base as does the high tax group, tends to have relatively low educational attainment and a high concentration of families at the low income level. While this profile was applicable for all types of school districts, the normalized classification tables show that it was especially appropriate for dual school districts. Thus, variables related to fiscal capacity are of considerable importance in local spending decisions related to public education.

Table 7

A Generalized Profile

Low	Low Medium	High Medium	High
High Assessed Valuation of Property per ADA	Low Education Attainment Low Income	Urban Living	High Education Attainment High Occupation Status High Income High Residential Housing Value Population Density

As noted, residential housing value should be inversely correlated to local tax effort. Since local revenues are raised largely through property taxes, an increase in expenditures requiring a rise in property taxes would be

expected to meet with considerable resistance from local residents. Contrary to what was expected a priori, high residential housing value areas consistently, in all types of districts, tended to tax themselves proportionately more than did low residential districts. A possible explanation may be that tax effort was positively correlated with per capita income, education attainment, and occupational status. This implies that residential housing may also serve as a proxy for the personal wealth or permanent income. A positive correlation existed between tax effort and residential housing value. A possible reason for this might be that its income effect was greater than its price effect. That is, the effect on tax effort through its partial correlation with family income across districts could be larger than the effects of its being a price variable on local tax effort.

Population density was expected to be negatively correlated with tax effort. The presence of its positive association with tax effort may indicate that it might be acting as a necessity factor, rather than as a proxy measure of municipal overburden. That is, population density may serve as an index of the range of special interests and the need for diverse educational programs which should be met by offering a relatively complicated package of educational services to benefit all types of students, whether career or vocational in orientation. This complex package of programs tends to generate support from a wider range of parents and taxpayers.

The study generally indicated that the degree of tax effort for education was rather closely dependent on social and economic conditions which tend to place the higher social and economic level districts in a favored position. That is, districts with high income level, high occupation status, high education attainment, high population density, and high residential

housing value tended to tax themselves relatively higher than their counterpart districts. So, a state funding system permitting optional local tax effort while also providing incentive grants to the districts who help themselves by raising high taxes for education must address the problems of wide variations in school expenditures created by variations in tax effort.

An adoption of a simple tax base equalization formula would be an inadequate remedy for existing variations in school expenditures because of wide variations in tax effort. The most advantageous approach to the solution of this dilemma is to implement a full state funding system so that inter-district differences in fiscal ability, local demand for education, and other determinants of educational taxation could be neutralized. Under this approach, tax rates would be equalized at the state level. The possibility of unequal education opportunity would thus be diminished. However, full state funding is not without drawbacks. One of the primary costs of this approach would be loss of local control. Local residents cannot exercise discretionary financial control over their public schools. In order to preserve the essence of local promotion of some innovative or experimental programs, a local incentive system may be added to the full state funding approach. Small variations could then be created and limited by this added feature.

Recognizing the political and financial restrictions and implications of full state funding with its attendant reduction in local control of school finances, partial solutions which result in more equalization of educational opportunity among the school districts should be considered. Analysis of the two-dimensional configuration figure generated by this study indicates the difference in socioeconomic characteristics particularly between the low/medium

tax effort group and the high/medium tax effort group. Including in the present school aid formula the variables found to be important in this study, given in the configuration, should help to improve equalization among school districts. An income variable may be introduced in the present formula as a measure of the ability to expend funds for education. Extensive research and numerous simulations would be required to construct an exact formula that would meet the political and economic constraints of the state government while alleviating the problems of disparate expenditures for education created by the current system with its wide variation in tax effort. This may be a realistic compromise for policy makers attempting to balance the seemingly conflicting ideals of equal opportunity and local control.

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