Wealth Neutrality and Conditional Wealth Neutrality as Goals of Special Education Finance in Illinois

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Introduction

The concept of equity has been one of the major goals in public school funding. Recent court litigation, legislation, and financial reform have evolved from the extent to which equity has been achieved. Simple and conditional wealth neutrality are two concepts used to determine the presence of equity in public school funding.

Statement of Problem

The problem of this study was twofold. The first purpose was to determine the existence of simple wealth neutrality, the absence of a relationship between total revenue per exceptional student for special education and local school district wealth. The second purpose was to determine the existence of conditional wealth neutrality, the absence of a relationship between total special education revenue per exceptional student and local school district wealth after the influence of operating tax rate has been controlled.

Review of Literature

Past research in special education finance has generally focused upon expenditures for exceptional students. These studies have dealt with the excess costs associated with the education of special education pupils. Notable was the National Educational Finance Project special study conducted in 1970 by

Rossmiller, Hale, and Frohreich.(1) Other cost studies analyzed data from selected special education programs in Indiana, Illinois, and other states. (2) The National Center for Educational Statistics (Bureau of Education for the Handicapped) conducted an excess cost study primarily utilizing salary and transportation costs based upon information from nine states.(3)

National and state studies have focused upon the extent of services provided and the allocation of fiscal resources for special education. The two national studies included the 1972-73 study conducted by the Rand Corporation(4) and the research of M. Angele Thomas.(5) Garms(6) studied the financing systems used in Connecticut and New Mexico to ascertain both the extent to which wealth differences were equalized and the extent to which provision was made for differences in educational need. This latter purpose included the handicapped, disadvantaged, and bilingual students. Melvin and Clary(7) analyzed the expenditures for special and vocational education in Indiana, Wilken and Porter(8) sketched the flow of state, local, and federal funds for special education across the nation. Specific attention was focused upon special education funding provisions in Georgia and Massachusetts. In Illinois, Sorenson conducted a study which detailed special education program costs in selected school districts.(9) McLure, Burnham, and Henderson(10) focused upon instructional costs of 22 special programs in 23 Illinois school districts.

Research Questions

The specific research questions answered in this study were:

1) What was the relationship between wealth of a school district (assessed valuation per pupil) and total revenues per exceptional student?

2) Has there been movement toward simple wealth neutrality (absence of a relationship between local school district wealth and revenues) in special education funding over the two year period?

3) Has there been movement toward conditional wealth neutrality (absence of a relationship between local school district wealth and revenues after the influence of operating tax rate has been controlled) in special education funding over the two year period?

Research Design

Organizational Patterns for the Provision of Special Education Services

In Illinois, services were rendered to high prevalence exceptional students either through the local school district or special education joint agreement. Twenty districts acted as sole agent in providing special education services to resident students. The remaining districts in the state were organized into 67 special education joint agreements which provided services to exceptional students residing in the member districts.

The state was divided into thirteen low prevalence regional programs. These served children who are hearing impaired, visually impaired, orthopedically handicapped, or multiply handicapped. Revenue for these thirteen low prevalence programs was unobtainable. Thus, those programs were excluded from the study.

Types of Special Education Administrative Districts

Special education administrative districts coordinated programs and services for exceptional students. These administrative units were classified into four categories. The organizational structure of the special education service entity influenced the distribution of revenues.

Single District. The local school district acted independently of any other school districts in providing programs and services to eligible handicapped students within the district boundaries. The local school district itself served as the special education administrative agent. Revenues for special education were paid directly to the single district providing services.

Joint Agreement. A special education joint agreement was defined as two or more school districts cooperating to provide special education services to all eligible exceptional students residing within the joint agreement boundaries. There were three types of joint agreements.

a. Centralized. In a centralized joint agreement, the director was administratively responsible for implementation

and coordination of all special education programs and services provided by the joint agreement. All contributing local school districts were represented on a joint agreement council. The special education joint agreement director reported directly to this council in the same manner that a school district superintendent reports to the Board of Education. In this type of joint agreement, usually one of the cooperating local school districts was designated as the administrative district. This was usually a permanent arrangement.

Since the administrative district hired all or most of the personnel, the personnel reimbursement was paid to the administrative district for the joint agreement. Transportation was usually provided by member districts for their own students. Thus, the bulk of the transportation reimbursement was paid to local school districts. However, whenever the administrative district paid a portion of the transportation expenses (insurance, special equipment, etc.) transportation reimbursed was paid to the joint agreement by the state.

b. Centralized: Legal Entity. A legal entity joint agreement operated in a manner idential to a centralized joint agreement. However, the administrative district for a legal entity joint agreement was recognized by the state as a separate legal entity. This special education administrative district was given a unique local school district identification number. The five legal entity joint agreements in Illinois were:

1. Special Education District of Lake County
2. Northern Suburban Special Education District
3. Special Education Cooperative of South Cook County
4. Proviso Area for Exceptional Children

c. Decentralized. In a decentralized joint agreement, both the member school districts and the joint agreement agency provided personnel. Administrative responsibilities were rotated. The bulk of the transportation and personnel reimbursement was paid to each local school district.

Student Population

Data delineating the exact number of student recipients of special education revenues were unobtainable. Records for the special education personnel claim, the largest single special education claim in Illinois, did not indicate the number of pupils receiving services. A proxy measure of the number of exceptional pupils in each school district was used in the calculations.

Exceptional Child Count

The proxy measure used was obtained from the Illinois Exceptional Children Analysis. This was a census of all exceptional children in each local school district reported to the federal government as required by P.L. 94-142, The Education for All Handicapped Children Act. The figures reported were an enumeration of all served and unserved exceptional children in Illinois ranging from birth through age twenty-one.

These figures included students served in the thirteen low-incidence handicap regional programs.

The first Exceptional Children Analysis was performed in 1976. Data for this year on a per district basis was unobtainable. Table 1 displays the summary for the state.

Table 1

Illinois Exceptional Child Analysis:
October 1976 and February 1977
Revised Count As of July 1, 1977

	October 1976	February 1977
Ages 3 - 5	20,572	21,210
Ages 6 - 21	184,063	191,316

During the 1977-78 school year the Exceptional Child Analysis was performed in October 1977 and February 1978. Exceptional children aged five through eighteen (Kindergarten through twelfth grade) were included in the study. The February 1978 exceptional child count was used in the calculations. Table 2 depicts these statewide figures.

Table 2

Exceptional Children Analysis: 1977-78

	October 1977	February 1978
Birth - 4 years	5,854	6,137
Age 5 - 18	201,041	211,776
Age 19 - 21	2,080	3,734
Total	208,975	221,647

District Population

This was a population study utilizing all school districts in Illinois for each of the two years. Approximately four per cent of the total districts each year were excluded because of missing values. Table 3 displays the percentage of districts and exceptional students included in this study.

Table 3

Percentage of Districts and Exceptional Students Included in the Study

Unit of Analysis	1976-77 Resource Equalizer	1976-77 Strayer Haig	1977-78 Resource Equalizer	1977-78 Strayer Haig
District				
Elem.	79.4	20.5	77.2	22.7
H.S.	95.6	4.3	94.8	5.1
Unit	85.0	14.9	84.0	15.9
Total	83.8	16.1	82.3	17.6
Student				
Elem.	87.3	12.6	84.1	15.8
H.S.	97.4	2.5	97.3	2.6
Unit	96.7	3.2	96.4	3.5
Total	93.7	6.2	92.6	7.3

Revenues Excluded

Revenues for special education allocated under sections 14-7.02, 14-7.02a, and 14-7.03 of The School Code of Illinois were excluded. These revenues encompassed the following exceptional students:

14-7.02 Children attending private schools or private special education facilities;

14-7.02a Children requiring extraordinary special education services and facilities;

14-7.03 Special education classes for children from orphanages, foster family homes, children's homes, or in state housing units.

Data concerning revenues for these students was unobtainable since the records for these students included personally identifiable information. Confidentiality policies of the Illinois State Board of Education prevented the release of this information.

TWADA

Title Weighted Average Daily Attendance (TWADA) was used in the calculations for wealth (assessed valuation per pupil), local revenue, and general state aid. TWADA represented a weighting of Average Daily Attendance (ADA) students under the Illinois general educational grant-in-aid.

Formula Type

Districts in Illinois received general educational grant-in-aid revenues under either the Resource Equalizer formula or the Strayer-Haig formula. In order to compensate for the differing effects of these formulas on state aid and ultimately the total revenue received, districts were classified according to formula type.

Operating Tax Rate

The operating tax rate (OTR) was defined as the tax rate in effect in the local school district for the basic educational fund or funds. The actual OTR was used in the calculations.

Wealth

Wealth was defined as assessed valuation per TWADA. Income, especially personal income, was considered as an alternative measure of district wealth but rejected since the only measure of income available by Illinois schools is nearly ten years old. The assessed valuation and TWADA figures for each district for each of the two years was obtained from the Illinois State School Board general state aid claim computer tape for the appropriate year. Dividing assessed valuation by TWADA resulted in a per pupil estimate of district wealth.

Local Revenue

Local revenue (LOCALREV) was the local contribution made by each school district in support of students residing within local school district boundaries. This was computed by multiplying the local school district assessed valuation per TWADA by the actual school district operating tax rate. (LR = ASSEDVAL/TWADA x OTR) Exceptional students were included in the school district's TWADA. Thus, for the purpose of determing the local revenue contribution, TWADA was an appropriate measure.

General State Aid

General state aid was the revenue provided each local school district from the state general education grant-in-aid. The Strayer-Haig foundation plan and the Resource Equalizer formula were the two formulas used to allocate and distribute general education revenues from the State of Illinois. Per pupil state aid was computed by dividing the state payment to each local school district by that district's TWADA.

Personnel Revenue for Special Education

The special education personnel claim represented all revenues claimed by local school districts as specified under Article 14-13.01, The School Code of Illinois. Special education teachers, psychologists, special education directors, and other approved professional personnel are authorized to be reimbursed at $6,250 per person per school year. Necessary non-certified employees were authorized to be reimbursed at $2,500 per person. $400 annually per child was authorized for readers for the blind and partially sighted. Hospital or homebound services were authorized not more than $1,000 per pupil or $6,250 per teacher, whichever was less.

The special education personnel reimbursement amounts used in this study were approximated. All districts used in the study were grouped according to their respective joint agreement membership. All special education personnel reimbursement payments made to districts within each joint agreement were summed. The total personnel reimbursement revenue

for each joint agreement was then divided by the total exceptional child count for all school districts within the joint agreement. The result was an average per exceptional pupil personnel reimbursement revenue. This statistic was used to compute the personnel reimbursement revenue for each member district of the joint agreement. Personnel revenues also included payments made to local school districts as well as to administrative districts for the joint agreement. The result of this computation was an average personnel reimbursement for each exceptional pupil within the joint agreement.

Transportation Revenues

Within a joint agreement, classes or special services for different categories of exceptionality may have been established at one or more member school district sites. Districts were responsible for transporting their eligible students to these sites to receive special education programs and services. All exceptional students as defined in Articles 14-1.02 to 14-1.07 of the Illinois School Code, were eligible to be transported to an approved special education program.

In the study, districts were grouped according to their respective joint agreement memberships. The transportation reimbursement received by all members of the joint agreement was summed. This sum was divided by the total exceptional child count for all districts within the joint agreement. The resulting average figure was used within the joint agreement as the average transportation revenue per pupil figure.

Total Revenue

Total revenue per exceptional student was defined as the sum of the four revenue subcategories for special education. In summary, the variables used in this study were computed in the following manner:

Local Revenue per exceptional child (LOCALREV) was defined as WEALTH divided by 100 and multiplied by the OTR per $100 of assessed valuation for the local school district. WEALTH was defined as assessed valuation for the local school district divided by the TWADA for the school district.

General State Aid per exceptional pupil (GENSTATE) was defined as the general state aid received by the local school district divided by that district's TWADA.

The special education personnel revenue per exceptional student (PERCLM1) was defined as the total special education personnel reimbursement revenues received by all districts within each joint agreement divided by the total exceptional child count for all districts within each joint agreement.

The special education transportation revenue per exceptional pupil (TRAN2) was defined as the total special education transportation revenues received by all districts within each joint agreement divided by the total exceptional child count for all districts within each joint agreement.

The total revenue per exceptional pupil (TOTALREV) was defined as the sum of the four revenue subcategories for special education. These were defined as local revenue,

general state aid, personnel reimbursement revenues, and transportation revenues. This was depicted in the following manner:

TOTALREV=LOCALREV + GENSTATE + PERCLM1 + TRAN2

Unit of Analysis

Calculations were performed using both the district and the exceptional student as the unit of analysis. When the district was the unit of analysis, each of the districts used each year of the study had the same impact upon the calculations, regardless of the number of exceptional students served. Thus, a district with an exceptional child count of ten would carry as much weight in the statistical analysis as Chicago with its exceptional child count of over 45,000 students. By using the pupil weighting method, districts contributed to the statistical analysis equal to their total proportion of the exceptional child count. The use of both units of analysis permitted a wider view of the effects of revenue distributions.

Research Questions and Findings

1) What was the relationship between wealth of a school district (assessed valuation per pupil) and total revenues per exceptional student?

In order to answer the first research question, simple regression was the statistical procedure used. The dependent variable was total special education revenues per exceptional student and the independent variable was WEALTH. Total revenue for special education was the sum of the revenue subcategories:

local revenue, general state aid, special education personnel, and special education transportation. The results were reported as beta weights and r^2.

The beta weight was a standardized regression coefficient. It was used to compare the relative effect on the dependent variable of each independent variable. The r^2 (coefficient of determination) indicated the strength of the relationship between two variables. The r^2 was a measure of the proportion of variance in one variable "explained" by the other variable. With both the beta weigths and the r^2 statistic, the larger the value, the greater the existing relationship. The intent of wealth neutrality is to minimize the relationship between wealth and revenues.

Table 4

Simple Neutrality Model:

Total Revenues Per Exceptional Student vs WEALTH

Unit of Analysis	Type of School District	All Districts				Resource Equalizer			
		1976-77		1977-78		1976-77		1977-78	
		Beta	r^2	Beta	r^2	Beta	r^2	Beta	r^2
District									
	Elementary	.652	.425	.698	.487	.224	.050	.282	.080
	High School	.504	.254	.478	.228	.395	.156	.403	.162
	Unit	.176	.031	.281	.079	-.026	.001	-.004	.000
Child									
	Elementary	.463	.214	.539	.290	.208	.043	.281	.079
	High School	.455	.207	.396	.157	.499	.249	.481	.232
	Unit	-.099	.010	-.084	.007	-.131	.017	-.146	.021

Table 4 displayed the simple neutrality model based upon the relationship between total revenues per exceptional pupil and local school district wealth. The beta weight was derived from the simple regression model with total special education revenues per student as the dependent variable and wealth per exceptional student as the independent variable.

Simple Neutrality Model: Total Revenues Per Pupil vs Wealth

With the district as the unit of analysis, an examination of the beta weights displayed in Table 4 for both years for all elementary and high school districts indicated the existence of a relationship between wealth and total revenue for special education, e.g., the lack of wealth neutrality. The problem is greatest in districts where variations in wealth accounted for over 40% of the variations in total revenue for special education; for high school districts, over 20% of the variations in total revenue can be attributed to variations in wealth; for unit districts, variations in wealth fell to less than 8% of the variations in total special education revenue. The results displayed a slight beta weight increase for elementary and unit school districts and a decrease for high school districts from the previous year.

With the exceptional child count as the unit of analysis, a similar pattern was shown. For all district types, the beta weights were less than when the district was employed as the unit of analysis. For elementary and high school students,

over 15% of the variation in total revenue for special education was attributable to variations in wealth. The beta weights for unit districts for each of the two years were -0.099 and -0.084. This indicated an inverse relationship between wealth and total revenue for special education. Greater revenues were available to poor districts than to wealthy districts. However, the size of the beta weights and the associated r^2 values of 0.010 and 0.007 respectively denoted that the relationship was very weak.

When districts using the Resource Equalizer formula were examined, the beta weights for elementary districts were 0.224 and 0.282 as compared to 0.652 and 0.698 which were the beta weights obtained when all elementary districts were analyzed. Less than 8% of the variation in total revenue was attributable to variations in wealth for both units of analysis. High school districts displayed a small decrease in beta weights. However, when the exceptional child count was the unit of analysis for high school districts, the beta weights increased to 0.499 and 0.481. Unit districts utilizing the Resource Equalizer formula displayed beta weights of -0.026 and -0.004. The r^2 statistic indicated that there was no relationship between wealth and total revenue for special education. However, when the exceptional child count for unit districts was the unit of analysis, the beta weights increased to -0.131 and -0.146. These negative beta weights indicated an inverse relationship

between wealth and total revenues. Greater revenues were available to poor districts than to wealthy districts. Variations in wealth accounted for only 2% of the variations in total revenue for special education. The evidence points to a wealth neutrality problem in dual districts in Illinois when total special education funds are examined, but no such problem appears in unit districts.

2) Has there been movement toward simple wealth neutrality (absence of a relationship between local school district wealth and revenues) in special education funding over the two year period?

Simple wealth neutrality was defined as the absence of a relationship between total revenue for special education and wealth. The r^2 statistic and beta weights for each district type were examined for each of the two years included in the study in order to determine movement toward simple wealth neutrality.

Table 4 displayed the simple neutrality model based upon the relationship between total revenue per exceptional pupil and local school district wealth. The beta weight was derived from the simple regression model with total special education revenue per student as the dependent variable and wealth per exceptional student as the independent variable.

An examination of the r^2 values for all elementary districts, as displayed in Table 4, revealed that 42% of the

variation in total revenue for special education was attributable to variations in wealth during 1976-77. In 1977-78, this increased to 48%. Using the exceptional child count as the unit of analysis, 21% of the variation in total revenue was related to variations in wealth during 1976-77. This increased to 29% in the second year of the study. Analyzing elementary Resource Equalizer districts, 5% of the variation in total revenue for special education was attributed to variations in wealth during 1976-77. In 1977-78 this increased to 8%. The results were the same when the exceptional child count was used as the unit of analysis.

Elementary Resource Equalizer districts comprised 79.4% of all elementary districts in 1976-77 and 77.2% of all elementary districts in 1977-78. These districts included 87.3% of all elementary exceptional students in 1976-77 and 84.1% of all elementary exceptional students in 1977-78. When the relationship between wealth and total revenues for special education was examined for elementary Resource Equalizer districts and students, simple neutrality had been nearly achieved. However, examination of the beta weights and r^2 values displayed in Table 4 demonstrated an increase in these values which was indicative of a slight movement away from simple wealth neutrality.

In examination of the r^2 values for all high school districts, as displayed in Table 4, 25% of the variation in

total revenue for special education was attributed to variations in wealth. During 1977-78, this value decreased to 22%. Using the exceptional child count as the unit of analysis, 21% of the variation in total revenue for special education was related to variations in wealth in 1976-77. This decreased to 16% during 1977-78. Analyzing only Resource Equalizer high school districts, 15% of the variation in total revenue was attributed to variations in wealth during 1976-77. This increased to 16% during the second year of the study. Using the exceptional child count as the unit of analysis, 25% of the variation in total revenue was related to variations in wealth during 1976-77 and 23% in 1977-78.

High school Resource Equalizer districts comprised 95.6% of all high school districts in 1976-77 and 94.8% of all high school districts in 1977-78. Exceptional students in high school Resource Equalizer districts comprised over 97% of all exceptional high school students. Overall, Table 4 indicated that there has been a vary slight movement toward simple wealth neutrality.

For all unit districts, simple wealth neutrality appears to have been achieved and maintained over the two year time period. The r^2 values based upon the district analysis were 0.031 and 0.079; for the exceptional child count analysis, the r^2 values were 0.010 and 0.007. When only Resource Equalizer unit districts were alayzed, the r^2 values for both years were 0.000. This indicated no relationship between total revenue

and wealth. When exceptional students in Resource Equalizer districts were examined, the beta weights were -0.131 and -0.146 indicating an inverse relationship between total revenue and wealth. The accompanying r^2 values of 0.017 and 0.021 indicated that approximately 2% of the variation between total revenue was attributable to variations in wealth. These results were displayed in Table 4.

Unit district utilizing the Resource Equalizer formula comprised 85% of all unit districts in 1976-77 and 84% of all unit districts in 1977-78. These districts accounted for over 96% of the unit district exceptional students for each of the two years. Overall, the results from Table 4 indicated the absence of a relationship between total revenue for special education and wealth.

3) Has there been movement toward conditional wealth neutrality (absence of a relationship between local school district wealth and revenues received after the influence of tax rate had been controlled) in special education funding over the two year period?

Conditional wealth neutrality was defined as the absence of a relationship between wealth and revenues having controlled for an expected relationship between tax rate and revenues. In order to determine the movement toward conditional wealth neutrality, multiple regression was the statistical procedure employed. The dependent variable was total revenue for special education. The first independent variable entered

into the regression was OTR. The second independent variable was wealth. By entering OTR as the first value, the derived R^2 statistic would denote the proportion of variability in the dependent variable (revenues) attributable to the variability found within the independent variable. By entering wealth as the second independent variable, the resultant R^2 value derived denoted the proportion of variability that can be attributed to both of the independent variables (wealth and OTR) in combination. Subtracting the first derived R^2 (in example, for elementary districts in 1976-77 this value was 0.15790) from the second R^2 (0.82948), the resultant R^2 change (0.67158) denoted the relationship between wealth and revenues once the effects of OTR have been controlled. The larger the R^2 change statistic, the greater the distance from conditional wealth neutrality. This procedure has been used previously by Garms and by Schmink et.al.(11) The beta weights denoted the relationship between wealth and total revenue. The larger the beta weights, the greater the existing relationship between the two variables after controlling for the effects of OTR.

Table 5 displayed the conditional wealth neutrality model based upon the relationship between total revenues for special education and wealth after the effects of operating tax rate had been controlled. The beta weight was derived from the second step of the multiple regression model employing OTR as the first independent variable, wealth as the second independent variable, and total revenues for special education

as the dependent variable. The R^2 change statistic was obtained in a likewise manner.

Table 5

Conditional Neutrality Model:

Total Revenues Per Exceptional Student vs WEALTH

After Controlling for OTR

Unit of Analysis	Type of School District	All Districts 1976-77 Beta*	All Districts 1976-77 Incr$_2$ in R^2	All Districts 1977-78 Beta	All Districts 1977-78 Incr$_2$ in R^2	Resource Equalizer 1976-77 Beta	Resource Equalizer 1976-77 Incr$_2$ in R^2	Resource Equalizer 1977-78 Beta	Resource Equalizer 1977-78 Incr$_2$ in R^2
District									
	Elementary	.864	.671	.890	.717	.065	.004	.077	.006
	High School	.700	.457	.691	.441	.465	.214	.438	.192
	Unit	.422	.160	.431	.178	.043	.002	-.016	.000
Child									
	Elementary	.571	.319	.645	.406	.044	.002	.056	.003
	High School	.642	.390	.561	.302	.573	.325	.510	.260
	Unit	.129	.015	.063	.004	.007	.000	-.092	.008

*Beta weight for wealth was derived from the two variable models which included OTR and WEALTH as the independent variables.

Conditional Neutrality Model: Total Revenue for Special Education vs Wealth While Controlling for the Influence of OTR

As displayed in Table 2, the beta weights for elementary districts for each of the two years were 0.864 and 0.890; for elementary districts using the exceptional child count as the unit of analysis, the beta weights were 0.571 and 0.645. The magnitude of these beta weights revealed that conditional wealth neutrality had not been achieved. The increase in the beta weights over the two year period indicated movement away from conditional neutrality.

Using the district as the unit of analysis, the beta weights for high school districts were 0.700 and 0.691. The beta weights obtained from the exceptional pupil weighting were 0.642 and 0.561. Conditional wealth neutrality had not been achieved but there was movement toward this goal.

The beta weights for unit districts were 0.422 and 0.431. Using the exceptional child count as the unit of analysis, these beta weights were 0.129 and 0.063. The R^2 change values for the district analysis indicated that 16% of the variations in total revenues were attributable to variations in wealth once the influence of OTR had been controlled. In 1977-78, the R^2 value increased to almost 18% indicating a slight movement away from conditional wealth neutrality. The R^2 change values for the pupil weighting were 0.015 and 0.004 indicating the achievement of the goal of conditional wealth neutrality.

Examining only Resource Equalizer districts, the beta weights and R^2 change values displayed in Table 5 indicated that conditional wealth neutrality had been achieved for both elementary and unit districts. This was true for both the district and student analysis. The beta weights for high school Resource Equalizer districts were 0.465 and 0.438; using the exceptional child count as the unit of analysis, the beta weights obtained were 0.573 and 0.510. The decrease in the 1977-78 results indicated movement toward the goal of conditional wealth neutrality.

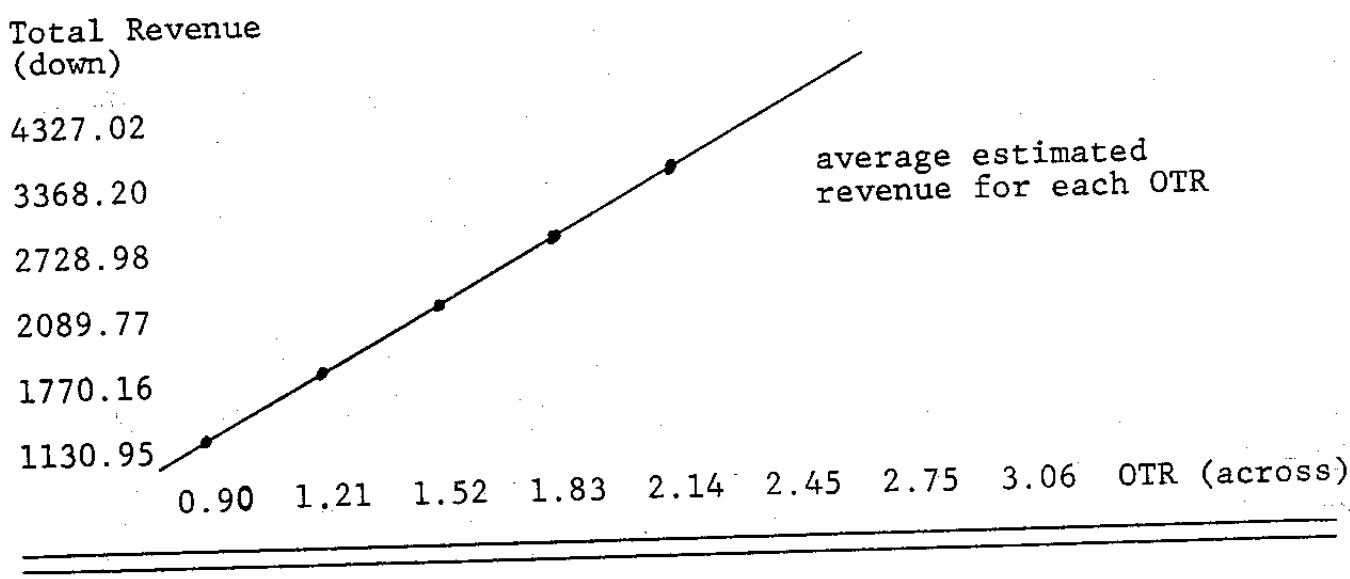
Conditional Wealth Neutrality Utilizing Residual Analysis

Another procedure for measuring the existence of conditional wealth neutrality (equal revenue for equal tax effort) involved an examination of total revenue residuals and wealth. This procedure entailed the following components.

Step 1

A simple regression was performed with total revenues as the dependent variable and OTR as the independent variable. The results of this regression represented an average total revenue estimate for all districts with identical tax rates. Table 6 displays the average estimated revenue for each tax rate category

Table 6



Upon examination of the plotted values in Table 6, it should be noted that there are total revenue values for each OTR that lie either above or below the average estimated total

revenue for each OTR. These differing values from the predicted average are residuals. A residual is the difference between the actual and estimated value of the dependent variable (total revenue) observed for each case. These residuals represent differences in total revenue not attributable to differences in tax rate. It was assumed that these differences from the average estimated total revenue were attributable to influences of other independent variables such as wealth.

Step 2

The residuals used in the conditional fiscal neutrality analysis were calculated from the simple regression of total revenue with OTR as described previously. This residual value was the difference between the actual and estimated value of total revenue for each OTR level. Thus, the residual denoted the variability in total revenue remaining after the influence of OTR has been controlled. A separate estimating equation was used in calculating residuals for each of the three district types.

Step 3

A regression procedure utilizing the residual as the dependent variable and wealth as the independent variable was performed. The resultant R^2 value denoted the proportion of variability in the residual (differences from the average total revenue for each OTR) attributed to variability in wealth. Conditional wealth neutrality would require that the R^2 values

be zero. Zero or small R^2 values would indicate that differences from the expected total revenue values for each OTR level were not related to differences in wealth.

Table 7 displayed the conditional wealth neutrality model based upon the relationship between the total revenue residual and wealth. The R^2 values were derived from the simple regression model with total revenue residuals as the dependent variable and wealth as the independent variable.

Table 7

R^2 Values for Residual Analysis When Controlling for OTR: TOTALREV RESIDUAL vs WEALTH

District Type	Unit of Analysis	1976-77 R^2	1977-78 R^2
Elementary	District	0.718	0.737
	Exceptional Child Count	0.493	0.554
High School	District	0.627	0.604
	Exceptional Child Count	0.610	0.547
Unit	District	0.254	0.290
	Exceptional Child Count	0.005	0.001

Conditional Neutrality Model: Residual Analysis

An examination of the R^2 values displayed in Table 7 for unit districts revealed the closest approximation of the achievement of conditional wealth neutrality of the three district

types. These values were 0.254 and 0.290 indicating movement away from this goal. However, the R^2 values obtained from the exceptional child count analysis were 0.005 and 0.001 which indicated the achievement of conditional wealth neutrality.

The R^2 values for elementary districts were 0.718 and 0.737; using the exceptional child count as the unit of analysis, the R^2 values were 0.493 and 0.554. The increase indicated movement away from conditional wealth neutrality. For high school districts, the R^2 values observed in Table 7 displayed movement toward conditional neutrality over the two year period for both units of analysis. The R^2 values for high school districts were 0.627 and 0.604; using the exceptional child count as the unit of analysis, the R^2 values were 0.610 and 0.547.

Major Findings

If every local educational authority (LEA) had the same proportion of its students in special education; then the beta value for districts would be an improved indicator. Since every LEA does not have the same proportion of its students in special education, then the beta value for individual students would appear move valid. The trend of the data would appear to support this conclusion. The beta values are smaller in every case where the unit of analysis is the child.

The same trend is observed in Table 4. In Table 4 every comparison except one shows less of a relationship when using the child as the basis of analysis as compared to using the LEA as the basis of comparison. (Resource Equalizer High School Districts are the single exception.)

Unit districts displayed a weak relationship between wealth and total revenue for special education. Simple wealth neutrality had been approached for unit districts. Examination of the exceptional child count analysis for all unit districts combined revealed the achievement of simple wealth neutrality for total special education revenues. Variations in total revenue for special education were attributable to variations in wealth for elementary and high school districts. Movement toward simple wealth neutrality was observed for high school districts. Movement away from simple wealth neutrality was observed for elementary districts.

Simple wealth neutrality had been achieved and maintained over the two year period for unit Resource Equalizer districts. This was observed in both the district and pupil analysis. Elementary Resource Equalizer districts approached simple wealth neutrality for special education revenues.

Examination of total revenue for special education revealed that unit districts, using the exceptional child count as the unit of analysis, had achieved conditional wealth neutrality. Examination of total revenue for special education based upon the district analysis revealed that elementary and unit districts displayed movement away from the goal of conditional wealth neutrality. High school districts displayed movement toward this goal.

Examination of Resource Equalizer elementary and unit districts demonstrated the presence of conditional wealth

neutrality with respect to total revenues for special education. This was also observed when the exceptional child count for elementary and unit Resource Equalizer districts was the unit of analysis. High school Resource Equalizer districts displayed movement toward this goal.

Conclusions

Simple wealth neutrality for special education revenues as defined in this study had been attained or nearly attained for unit districts. Using the exceptional child count as the unit of analysis, simple wealth neutrality was achieved for unit districts. Resource Equalizer unit districts demonstrated the attainment of simple wealth neutrality for special education revenues. Simple wealth neutrality had not been attained, however, for dual districts in Illinois and the lack of simple wealth neutrality is most pronounced in elementary districts.

Conditional wealth neutrality with respect to total revenue for special education had been achieved for unit districts based upon the pupil analysis. Conditional wealth neutrality had been achieved for unit and elementary Resource Equalizer districts. This was observed in both the district and pupil analysis. However, conditional wealth neutrality had not been attained for dual districts in Illinois when all districts are analyzed, even in terms of the child weighted unit. Forty-one per cent of the special education revenues in elementary districts are associated with wealth variations,

controlling for tax rate, and 30% of the special education revenues in high school districts are associated with wealth variations controlling for tax rates. The lack of attainment of wealth neutrality in the dual districts is deserving of further analysis.

It is also noted that the conditional wealth neutrality foremat yields stronger relationships between wealth and revenue than does the simple wealth neutrality foremat. This same situation was observed by Schmink et.al. in a prior Center study of general funding in Illinois.(12)

As this study was going to press, the Education Finance Center's study of special education finance by Vescera, Fuhrman, and Collins became available.(13) Differences in research design make comparison of this study with the Vescera study difficult but it should be noted that for the four states Vescera et.al. studied: Connecticut, Florida, Missouri, and Oregon, these researchers found that, "There does not appear to be any systematic relationship between special education support and district property wealth."(14) The findings in Illinois, at least with respect to unit districts, would appear to be consistant with Vescera's results; however, the dual district population in Illinois is another matter.

The present study is too preliminary to base any broad policy conclusions on the empirical results. However, if future research does support the notion that the funding of special

education demonstrates a close approximation to wealth neutrality at least two observations come to mind. First, the strong legal framework in which special education now functions may have caused poor districts as well as wealthy districts to comply with the legal mandates. In that event, one should expect special education funding to contribute to wealth neutrality. Second, even though wealth neutrality exists in special education funding this may be due to greater fiscal effort being exerted by poor school districts. It seems to us that future research in this area should explore the amount of fiscal effort that has to be exerted by poor districts to meet the administrative and legal requirements surrounding special education. It is just possible that wealth neutrality has been purchased at the price of greater fiscal effort by poor districts. Vescera et.al. come to similar conclusions.

Qualification of Findings and Recommendations for Future Research

This study was able to ascertain (with the exception of students in extraordinary cost/low-prevalence handicap programs) the special education personnel and transportation revenues received by all school districts within each special education joint agreement in Illinois. This included payments made to local school districts as well as payments made to administrative districts of special education joint agreements. However, it was impossible to allocate these revenues to the appropriate districts within each special education joint agreement. Thus

the special education personnel and transportation revenues allocated to local school districts were an average figure based upon revenues received by all entities within a special education joint agreement.

Revenues for the twenty-three districts acting as sole agent in the provision of special education were relatively clear-cut. They provided the personnel and transportation services and thus were reimbursed directly. However, records did not indicate the number of exceptional students served by the personnel revenues.

The special education joint agreement structures posed the greatest obstacles in delineating special education revenues for each local school district. Idiosyncracies of each joint agreement were responsible for differing revenue allocation patterns. This resulted in an inability to ascertain the revenues associated with each local school district's special education claim.

Each school district in the state is assigned a unique identification number. Dependent upon the structure of the special education joint agreement, the administrative district entity was also distinguishable. The five legal entity joint agreements had been assigned unique district identification. When an Education Service Region (ESR) was the special education administrative agent, the ESR identification was utilized. In other instances, examination of the district type code

(elementary, high school, unit, or special education) was necessary. All other special education joint agreement administrative districts were indistinguishable from the non-special education local district. The function of these joint agreement administrative districts was the provision of special education programs and services. They were bureaucratic, organizational entities solely in existence to serve eligible special education students.

During the two years of the study, special education personnel revenues were allocated according to the number of personnel employed. Eligible categories for reimbursement, as specified under Article 14-13.01 of The School Code of Illinois, included special education teachers, psychologists, special education directors, necessary non-certified employees, readers for the visually impaired, and hospital/home-bound services. Class size limitations varied dependent upon the category of exceptionality and personnel classification. The operating rules and regulations for special education specify these limitations. Personnel reimbursements were paid to the entities employing the personnel. This was based upon the personnel employed and did not include data concerning the number of exceptional students served.

During 1976-78, transportation revenues were allocated according to the number of exceptional students transported. The low prevalence of exceptional pupils in the total school

age population necessitated the establishment of special education programs in centralized locations and transportation of students within a district or among two or more districts. Special education joint agreements arose for this same reason. Districts providing transportation were eligible for reimbursement.

Special education personnel and transportation reimbursements were made to the district or districts that filed claims with the state for services rendered. The structure of the special education joint agreement determined the entities that rendered services. Revenues were payable to local school districts if they provided either personnel or transportation or both. Revenues were payable to the joint agreement administrative district for the provision of these services. In most instances, personnel and transportation revenues were received by both entities. Occasionally, only one or two districts in the joint agreement received revenues. The revenue allocation did not specify the number of students served or their respective districts of residence.

The local revenue figure computed for each school district in this study was based upon each district's respective assessed valuation per pupil and the district's operating tax rate. It was assumed that these local revenues generated were divided evenly among all students within the local school district. However, this may not be a correct assumption. It

may be that local school districts allocate a greater amount of local revenues generated to students with extraordinary educational needs.

School finance equity studies are based upon the relationship between local school district wealth and revenues received in support of resident students. Simple wealth neutrality research focuses upon the relationship between local school district wealth and per student revenues received. Conditional wealth neutrality studies are based upon the relationship between local school district wealth and per pupil revenue after the influence of operating tax rate has been controlled. Both of these types of equity research require that pupil revenues be clearly identifiable and allocatable to the student's district of residence. Recommendations for further research on the extent to which the goals of simple and conditional wealth neutrality with respect to special education revenues in Illinois have been achieved are outlined below.

Proposed Record Keeping Revisions

The identification of all exceptional students served is necessary. This identification must include both the student's district of residence and the district, or administrative unit, providing special education services. This is a crucial component of the process of allocating revenues to local school districts on a per pupil basis. Research demands

necessitate ascertaining the number of local school district exceptional students served, regardless of the location of program/service delivery.

Once complete student identification has been achieved, revenue identification is required. It is essential that the type of revenue received by local school district or joint agreement administrative district be ascertainable by program and personnel category. Utilizing that information, the impact of particular revenues upon students within the joint agreement can be obtained. Revenues received in support of a particular category of exceptionality or group of students could be distinguished from revenues which contribute to all students within the joint agreement. Examples of the latter would be administrative services, psychological and medical services, and other ancillary or referral services.

Extraorinary Cost/Low-Prevalence Handicaps

Students classified as extraordinary cost/low-prevalence handicap students under sections 14-7.02, 14-7.02a, and 14-7.03 of The School Code of Illinois should be included in future research. These students are a small proportion of the total exceptional student population in Illinois; however, they represent some of the greatest per pupil expenditure claims. Record-keeping precisely identifies revenues allocated and student recipients.

Federal Funds

Revenues from P.L. 94-142, The Education for All Handicapped Children Act, should be included in future research. These funds represent the largest federal revenue allocation for special education. These revenues need to be delineated by student and credited to the district of residence.

Summary of Recommendations

Revenues need to be identifiable by student and respective district of residence in order to overcome the difficulties posed by the joint agreement structures used for special education program and service deliveries in Illinois. All exceptional students would be included in future research with the addition of low-prevalence/extraordinary cost handicapped pupils. Inclusion of federal revenues, particularly P.L. 94-142 funds, would present a more complete description of the status of special education revenues. This would result in further clarification and delineation of special education wealth neutrality in Illinois.

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