THE 1973 REFORM OF THE ILLINOIS GENERAL PURPOSE EDUCATIONAL GRANT-IN-AID:

A Description and an Evaluation

by

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INTRODUCTION AND ACKNOWLEDGEMENTS

"The old order changeth, yielding place to new;
and God fulfils himself in many ways,
Lest one good custom should corrupt the world."
--Tennyson

For almost half of a century one type of grant-in-aid system was dominant in the United States for the financing of the K-12 jurisdiction. Known variously as the "foundation" program or "Strayer-Haig-Mort" program it served K-12 educators for almost five decades. In the late sixties various states began to experiment with other forms of educational grants-in-aid. By the summer of 1973 almost half of the fifty states had made appreciable changes in their K-12 allocation systems. Many of these states adopted grant-in-aid systems in which the state aid will increase if the local school districts either (a) spend more, or (b) tax themselves more. Various names have been applied to these types of grants-in-aid throughout the United States: "incentive systems, variable matching grants, percentage equalization systems, guaranteed tax yield systems, equal expenditure for equal effort systems, and district power equalization." Specialists in school finance continually debate subtle shades of differences and fine points of these various systems, but most would agree that they are all departures from the formerly dominant "foundation" approach. Nine states in particular have adopted grants-in-aid which provide some kind of "reward for local tax effort" and Illinois is now one of those nine states. This monograph is both a description and an evaluation of the legislative reforms of the summer of 1973 which brought such a system into being in Illinois.

The study is divided into three chapters. In the first chapter, Ben C. Hubbard provides the historical background essential for an understanding of the Illinois situation. Professor Hubbard then proceeds to describe in some detail the various provisions of the new allocation system. In Chapter II, G. Alan Hickrod reviews a body of scholarly and professional literature concerning criteria for evaluation of state educational grants-in-aid. In Public Law 93-380 the Congress of the United States has seen fit to express its views

concerning appropriate fiscal goals for financing of the K-12 jurisdiction and Professor Hickrod therefore relates the professional literature to this recent Congressional development. Chapter II also provides the ways and means to make the various evaluative criteria operational in a measurement and statistical sense. In Chapter III, Thomas Wei-Chi Yang and Professor Hickrod use the Illinois data from the 1973-74 school year, plus the procedures outlined in Chapter II, to evaluate the 1973 reforms. This was the primary division of responsibility, however all three authors contributed to each chapter. The study concludes with a brief evaluative statement concerning the status of the 1973 reforms at the end of their first year of existence.

During the nine months in which this study has been in progress we have been aided and abetted by a number of individuals. We wish first to thank Esther O. Tron and James Gibbs of the Division of State Assistance, U. S. Office of Education, for first suggesting such an evaluation in Illinois to us, and then for providing constant encouragement during the task. Second, we are indebted to a number of our colleagues at Illinois State University for valuable help and assistance. These include Vernon Pohlmann of the Sociology Department, Ramesh Chaudhari of Computer Services, and Daniel Jaw-Nan Hou, formerly a research assistant with the Department of Educational Administration and now of the Office of Superintendent of Public Instruction. Third, neither this nor any other school finance study would be possible in Illinois without the valuable assistance and wise counsel of Fred Bradshaw and Robert Pyle. Both of these gentlemen helped in the selection and provision of data for Chapter III. We have profited as well from school finance discussions with Jon Peterson and Sally F. Pancrazio who are also of the Office of the Superintendent of Public Instruction. A number of professional colleagues outside the state also provided helpful suggestions and criticisms during the course of this project. These include: James N. Fox, John J. Callahan, Jr., William H. Wilken, and Robert Bothwell, all of whom saw parts of Chapters II and III as they emerged. We profited as well from discussions with William P. McLure, dean of school finance researchers in Illinois, and indirectly from several school finance conversations with Kern Alexander during this period. As always, our debt to important legislators in the General Assembly, the Illinois School Problems Commission, and the many students who have paid us the courtesy of taking school

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It is to be understood that the opinions expressed herein do not necessarily reflect the position or policy of the United States Office of Education, and likewise no official endorsement by the United States Office of Education should be inferred. Similarly, the cooperation of the Illinois Office of the Superintendent of Public Instruction in this research project should not necessarily be interpreted as an endorsement of the opinions or policies expressed herein. The authors alone remain responsible for any and all errors of fact and/or opinion.

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CHAPTER I

AN HISTORICAL LOOK AT ILLINOIS PUBLIC SCHOOL FINANCE AND A DESCRIPTION OF THE REFORM OF 1973

For many years, state payment for public educational support has come from the Common School Fund. The part of the Common School Fund that was paid directly to the schools for operational purposes based on a formula has been known as the Distributive Fund. The reform of 1973 changed or altered the pattern by which the amount of payment from the Distributive Fund was calculated.

The State Aid System (1927-1973)

The "Distributive Fund" is the name or title given to money used to reimburse local school districts for the general support of their schools. An understanding of all of the alternatives or options of how school districts can secure money from this fund is necessary to understand school finance in Illinois.

A look at the history of the Distributive Fund is essential to an understanding of it. It had from 1927 to the end of the school year 1972-73 supported a system of funding known as "foundation level." In theory, a level of dollar support that was needed to operate an educational program was determined and then a formula was enacted into law that would, when applied, yield that support from both local taxes and state money or aid.

In 1927, the first foundation-level formula was developed. It provided state aid or support based on the number of elementary school students only. In 1939, the formula was changed to provide support for high school pupils as well. The basic principle of supplementing local tax money with some assistance to provide a foundation level was, in fact, not changed significantly from 1927 until July 1, 1973.

In the beginning in 1927 each school was entitled to receive a $9 flat grant for each pupil with other aid, the amount of which was determined by

the use of a formula. No school was permitted to receive a total of state aid in excess of $34 per pupil, which may be thought of as a foundation, support, or equalization level, and no district was to receive less than the $9 flat grant per pupil in ADA. By 1973 this changed so that, generally speaking, each district was guaranteed a flat grant of $48 per pupil with a top limit or maximum set at $520 equalization aid, plus 19 per cent of the amount granted by the state as its share. In no case, however, was a district to receive less than $48 (the amount of the flat grant) plus 19 per cent thereof.

Specifically, this plan provided that each district that taxed itself at a minimum or qualifying rate--1.08 per cent of assessed value for K-12 grade districts, and for "dual" districts .84 per cent for those with a WADA[1] (Weighted Average Daily Attendance) of 100, and .90 per cent for those with a WADA of less than 100--would be eligible to receive a maximum of $520 plus 19 per cent of what the state paid from the state and the return from the taxes collected from the qualifying rate at the local level. Again, no district would receive less than the $48 flat grant plus 19 per cent of that amount from the state.

In Illinois there are three types of school districts when grade levels governed by a board of education are considered. There are districts having only grades K-8, known as elementary districts; districts having only grades 9-12, known as high school districts; and districts having only grades K-12. Frequently the districts having K-8 and 9-12 are referred to as "dual," while it is normal to refer to the K-12 districts as "unit" school districts. The dual districts do not, however, have any legal relationship to each other and boundaries are frequently not co-terminous. It is in fact frequently true that a single high school district will overlie all or part of many elementary districts. At the same time, many elementary districts will be in more than one high school district. The existence of three types of districts as described above greatly complicates studies of equalization or any comparative analysis of financial support and must be clearly understood for this study to have meaning in many of its aspects.

Two examples will serve to clarify the way a qualifying rate is used in calculation. Assuming a unit, or K-12 district, had an assessed value of $20,000

per pupil in WADA and taxed itself at the minimum rate of 1.08 per cent, it would get $216 ($20,000 x 1.08%) from local taxes. But, since it was guaranteed $520.00 plus 19 per cent, the state would give it aid in the amount of $520.00 minus $216.00 or $304.00 plus 19 per cent of $304.00 or $57.76--a total of $361.76--per WADA pupil. But now, assuming that the same district had an assessed value of $50,000 per pupil in WADA, by using the qualifying rate of 1.08%, it could obtain ($50,000 x 1.08%) $540 in local taxes. Since this is in excess of the $520 guaranteed, it would ostensibly receive nothing from the state. But, as stated, each district, regardless, was entitled to the flat grant of $48 plus 19 per cent. So, it would receive $48.00 plus 19 per cent of $48.00, which is $9.12, for a total of $57.12 per WADA pupil. In passing, it should be noted that the qualifying tax rate of 1.08, .84, or .90, depending upon the nature of the district, was the minimum tax rate that a district was required to use to be eligible for aid. Districts could levy in excess of these rates if they desired, but then the qualifying rates, not the actual tax rates, were the rates to be used in the calculations of aid.

This plan or system of figuring state aid, while it gave aid to poorer districts at least in the sense of property valuation "poor" districts, was far from ideal. It definitely gave more aid to poorer than to wealthier districts. In the first place, the 19 per cent add-on operated in favor of the poorer districts, but any increase in tax rate did not give proportionate benefits to the poor and the rich districts. An increase of one per cent in excess of the qualifying rate gave the district with a $20,000 assessed value per WADA pupil an increase of $200 per pupil, but in the case of the $50,000 assessed value per WADA pupil district, it would have $500 per pupil. Thus the poorer district would have to increase its tax rate two and one-half times as much as the wealthier district in order to get the same amount of money per pupil in taxes. When it is recalled that the average expenditure per pupil in Illinois for 1972-73 exceeded $1,000, it is easy to see that districts with extremely low assessments per pupil found it practically impossible to have even the state average available to spend per pupil.

In Illinois the operation money available to schools is found in a large number of funds with independent taxing powers. Funds, other than the education

fund and the transportation fund have always been totally dependent upon local taxes for all their money. Thus, it is obvious that when even maximum tax rates were levied in the other funds, poor districts found it difficult to secure sufficient money. Conversely, wealthy districts found it relatively easy to support these funds.

While the plan for determining the amount of state aid due each district, which was just described, was, in general, the plan followed until recently, several minor changes that had been made should be noted. Following the enactment of the state income tax law in 1969, another alternative to increase state assistance to middle-income tax districts was added to the flat grant and equalization alternatives. Under this alternative, if a district would, as the result of using the regular foundation formula, get less than $120 per WADA pupil, a different formula for calculating aid was used. The principle was that from the time that a district got $120 per WADA pupil, the amount of decline in aid per WADA pupil would be smaller as assessments increased. When either the $120 or less system, or the $48 flat grant system was used, the 19 per cent add-on was added to the amount the state paid the district. Thus, when, as the result of calculating aid, the district was entitled to $100 per WADA, it would be paid $119.

Then, by 1973, in addition to a choice of the systems of calculation just commented upon, certain districts could claim additional aid if they qualified on the basis of size. This additional aid resulted from a plan for increasing the WADA of the district for part of the state aid calculation. In districts having 10,000 to 19,999 WADA, the WADA as used in calculating the amount due under the basic $520 formula was increased by adding 4 per cent to the actual WADA; in districts having 20,000 to 29,999, it was 8 per cent; in districts having 30,000 to 200,000, it was 12 per cent; and in districts having more than 200,000 WADA, it was 16 per cent. This increased WADA could only be used when the $520 formula was used. The 19 per cent add-on could not be added to the increase because of the increase granted in WADA. This meant that the size factor caused these districts to have to calculate their aid both with and without the increased WADA, and then combine the two calculations in a special way.

In addition to the above alternatives, districts could claim additional money when 5 per cent or more of the students had parents or guardians employed by the State of Illinois, or any of its agencies working in any state office building maintained and operated by or for the State. Such a district was entitled to claim one-half of the difference between the calculated operating expense per pupil and the general state aid furnished under the several formulae described.

Legal and Judicial Pressures that Affected the Reform of 1973

In 1969 in the McInnis v. Shapiro[2] case, Illinois had one of the pioneer cases which served as a forerunner for the litigation in 1970-1973 on the question of equity. This and other factors, such as the University of Chicago serving as the academic springboard for Dr. Arthur E. Wise, the author of Rich Schools Poor Schools,[3] and the related discussion leading to the litigation of the 1970-73 era, all served to bring pressure on Illinois educators and more importantly, Illinois politicians, as it related to the question of financial equity. As early as 1969, a powerful minority of the Illinois School Problems Commission had recommended a new formula and its chairman had directed that the paper on "Alternatives in Educational Expenditure Policy for the State of Illinois" be published as a part of the Tenth School Problems Commission Report,[4] which was distributed to most school administrators and all legislators in the state.

When the Serrano case was first decided by the California Supreme Court in 1971, many persons in state government in Illinois understood the shortcomings of the foundation-type formula that was in effect and saw the implications of such a decision for the State of Illinois.[5] It would be fair to say that Illinois was in a "state of ferment" over finance by 1971. Both the Governor and the Superintendent had appointed major committees to explore the problems of funding the schools after the 1971 case and both had reported before Rodriguez was decided in March of 1973.[6] These reports had been written with the burning issue of equity still unsettled, as it is probably still unsettled. The reform package ultimately adopted was, however, the only plan for funding education that appeared as an option in both of these reports. The first public proposal of the basic features of the plan adopted in 1973 was presented to the Adminis-

trators Roundup at Illinois State University on December 4, 1971. This Roundup was attended by administrators and state officials from all parts of Illinois.

Illinois Assemblymen took the Rodriguez case to say that the problem was bad, but to quote one of them, "The responsibility rests upon each of the separate states to bring about a greater degree of equity in school finance." In Illinois, with great involvement of many persons, a movement was started to improve funding, to bring about better equity, and to abandon the "minimum program" concept in favor of a quality funding program. These fiscal policy goals are examined in more detail later in this report. Without the pressure of court cases and other national movements, it would not have, in the authors' judgment, created the great interest which was created in studying and solving the problem.

As the 1973 session of the General Assembly got underway, there was a new governor taking over who had pledged to improve educational funding, but who was not familiar with the details of school finance. The School Problems Commission Chairman was a teacher who both understood school finance and the fine-working of the political process. When the final vote was taken and the compromises had been struck, the vote for approval of the reform measure, HB 1484, was 43-0 in the Senate and 136-0 in the House. The Governor signed the bill without change. After one year of operation, a "clean-up" bill was passed to improve the administration potential of the bill.

It is not possible to show cause and effect in any empirical way between court cases and the enactment of HB 1484, but no person involved could be convinced that there was not great influence exerted by the awakening which the court cases caused in the entire field of school finance.

The State Aid System (1973-1974) and the Reform of 1973

In the 1973 session of the General Assembly, House Bill 1484, dealing with the basis for allocating funds to local districts, was enacted. It amended the system described previously and added a completely different option. One of the principles that is important to keep in mind regarding this bill is that it allows a district to file for its funds under either (1) an amended version

of the 1972-73 law or (2) under a new system known in Illinois as the "Resource Equalizer," which is sometimes referred to in the national literature as a "district power equalization" formula.

The fact that the old formula (1972-73) was changed, as is described later, does not erase it as a save harmless provision. However, the addition of a Title I weighting and the 6% increase both increase the amount that a district is entitled to receive if this option is exercised. As a result, the foundation formula which remains is more than just a save harmless device. This fact complicates the pure working of the resource equalizer in the study of equalization effects and explains some of the problems found in the latter part of this study.

The amendments of 1972-73 changed the old foundation level formula in two specific ways. The 19 per cent add-on was changed to 25 per cent. This guaranteed that every district would earn 6 per cent more aid than it was able to earn earlier. The second major change was that in counting WADA, any district could add a weight of .45 for each Title I student residing in the district. (Title I students are defined as those counted for Title I of the Elementary and Secondary Education Act of 1965, as counted in the 1970 census.[7]) This option of using the .45 Title I count cannot be used in calculating the amount of aid if the size factor described earlier is used in determining WADA. After 1974, the size factor will be eliminated, and a district wishing to file under the amended version of the 1972-73 formula may not use it. One other change that will affect a very few districts is that a district is prohibited from receiving an increase in appropriations of more than 25 per cent of the funds received in 1972-73. As written, this not only limits the increase from Title I weighting but from all other increases as well. The law actually says that the increase in any year may not be more than a 25% increase over the previous year.

The second option in the bill is the most significant. It provides that a district may elect to receive aid under a new system designed to equalize the resources back of each pupil in WADA. The full meaning of this concept is designed to take effect over a four-year period. When fully operative, the use of this option--the Resource Equalizer--if elected, will guarantee each

district the amount of money per WADA pupil that its operational tax rate will produce if it had a $42,000 assessment per WADA, if it is a kindergarten through 12 district; $64,615 is guaranteed if it is an elementary district; and $120,000 is guaranteed if it is a secondary district.[8] This means that if a K-12 district has an operational tax rate of 2 per cent, it will be assured of receiving $840 per WADA pupil ($42,000 x .02). Now, if it has an assessed valuation of only $20,000 per pupil, all it can get from local taxes is $400 per pupil. But, under this law, the state will provide 2 per cent of the difference between the $42,000 assessed value and the $20,000 ($22,000) or $440. Several examples illustrating how districts of different assessments per WADA can set their income level by the level of taxes they are willing to pay will be found in Table 1.

TABLE 1

AID PER WADA STUDENT FOR K-12 DISTRICTS
WITH DIFFERENT ASSESSED VALUES PER WADA STUDENT
AND DIFFERENT TAX RATES, USING THE RESOURCE EQUALIZER

District	Guaranteed	Local	Share on Which State Pays (b - c)	Tax Rate	From Local Taxes (c x e)	From State (d x e)	Total (f + g)
a	b	c	d	e	f	g	h
A	$42,000	$20,000	$22,000	2%	$400	$440	$ 840
B	42,000	20,000	22,000	3%	600	660	1260
C	42,000	10,000	32,000	2%	200	640	840
D	42,000	10,000	32,000	3%	300	960	1260

At this point, one limitation in this plan must be noted. Regardless of a local district's operational tax rate, the state, in arriving at the amount of aid to be granted the district, will not contribute in excess of 3 per cent for unit districts, 1.95 for elementary districts, and 1.05 for secondary districts. In other words, it will give no district money in excess of that which

it is entitled to by using the rates indicated. Effort, as measured by tax rate, is rewarded by this system, and the resources available to educate pupils are equalized.

Because of the great cost involved in paying each district the full amount that the use of the Resource Equalizer would require, and a need to change the system from time to time so that program adjustments may be made, the General Assembly decided to fund the Resource Equalizer option through four or more years. Thus, a district will get only one-fourth of any increase that the Resource Equalizer would give it the first year, two-fourths or one-half the second year, and three-fourths the third year, unless a second limitation in the bill applies. This second limitation is that no district may receive an increase greater than 25 per cent adjusted for increased WADA. In most cases the districts will be receiving the full amounts due them in four years. Because the state participated at a very low level in supporting secondary districts prior to 1973, in most cases their beginning base is so low that they will generally take more than four years to achieve full funding. Most unit and elementary districts will achieve full allotment of all funds earned in four years.

As is obvious, since the full amount is not paid in the first year, some districts that would profit from the Resource Equalizer if it were fully funded may wait until the second, third, or even the fourth year to elect to make use of the Resource Equalizer.

In addition to guaranteeing equal support for equal effort when fully funded, the election of the Resource Equalizer accomplishes several other things.

1. K-12 grade, elementary, and secondary school districts will be treated equally by the state when they make a comparable effort (tax at equivalent rates). The financial penalty for being organized in any particular type of district, which had always been a part of the foundation formula, was eliminated. There are, however, built-in provisions that will make it financially desirable to form unit districts for several years.

2. When districts reach the maximum tax rates (3.0, 1.95, or 1.05 per cent depending on the type of district) that the state will recognize as the basis of its participation, and achieve the $1,260 per weighted pupil expenditure, they are limited in additional taxes and in what can be done with the additional funds received. The bill provides that each district may exceed the $1,260 by 15 per cent for innovative programs or research or experimental programs or other enriching experiences by income from increased total taxes. If the tax rate for operational purposes already exceeds the maximum tax rate that the state will participate in, it may keep the power to secure this 15 per cent, subject only to a "back door referendum."[9] If it does not already have the power to tax, it must be secured by referendum.

3. The tax rates set in the bill are flexible maximums but in the year following the receipt of the money, districts must not levy for operational purposes more than the amount allotted in the bill, except as provided in Item 2 above and Item 4 below. There is a mandated tax rollback for high-tax districts after provisions allotted in Item 2 above and 4 below are considered. The rollback is to be accomplished after the additional revenue is received. Receipt of all revenue that the formula would pay a district if all money indicated by the formula were received would mean rolling back taxes to the level in the bill adjusted by Item 2 above and/or 4 below. However, since all revenue will not be received for some time, the bill requires only a proportionate rollback in the next levy made by the district. This means that all new money paid by the state to a district may not be available to develop more programs or to raise salaries but in many cases will be used to grant tax relief.

4. Districts that were receiving in excess of $1,260 per WADA pupil in 1972-73 may, through the use of local taxes, continue to receive amounts above $1,260. The amount of funds received in 1972-73 for operational purposes may be increased by 15 per cent by the same methods that districts at or below $1,260 per WADA pupil increase the $1,260 figure (subject to a "back door referendum" if taxes are already authorized or by direct referendum).

There are some definitions and explanations that must be clearly understood if the Resource Equalizer is to be comprehended or calculated.

1. TWADA is calculated by adding a weighting for Title I students on a sliding scale. Any district which has the same percentage of Title I WADA students as the state average (19 per 100) may add to the normal WADA .375 for each Title I student in the district. As the percentage of Title I students in a population increases or decreases this figure (.375) is adjusted upward or downward, except that regardless of the percentage of Title I students, no district shall be allowed to weight its Title I students more than .75. Three examples will serve to illustrate how this works. If a district with a WADA of 100 had 19 Title I students, it would be considered as having a WADA of 107.13, since each of the 19 Title I students is weighted by 19/19 of .375 and there are 19 students (19/19 x .375 x 19). If it had 10 Title I students, it would get a WADA of 10/19 x .375 x 10, added to 100, or 101.97. But, if it had 38 such students, it would get 38/19 x .375 x 38, added to 100, or 128.50. The normal WADA which is increased by this method is arrived at by using the following weights: .5 for kindergarten, 1.0 for grades 1-8, and 1.25 for grades 9-12, just as it was calculated in the 1972-73 formula.

2. One-fourth increase allowable each year is one-fourth of the difference between the 1972-73 amount of money earned and the calculation of full funding of the Resource Equalizer for the year. It is simply 1972-73 amount earned plus one-fourth of the difference between the 1972-73 amount earned and the calculated amount that would be earned if the Resource Equalizer were used for the year in question. Each successive year, the entitlement will be one-fourth until full funding is accomplished except as explained in 3 below.

3. The 25 per cent increase per year limits any increase for any purpose except increased WADA. A district may move from the amount earned in 1972-73 to the calculated amount for the year in question as rapidly as a 25 per cent increase of the base will allow. Districts increasing their WADA as calculated in 1972-73 will receive proportionate increases. This increase should pay the district in the year of the increase the same amount that it would have received had it had the students enrolled in 1972-73 and continued to have them in school.

4. The bill defines all operational tax rates in a negative way by saying what is not included. All taxes used to support funds, except bond and interest; rent; transportation; special education; operation, building and maintenance; capital improvement fund; and vocational building are included in the operational taxes and are used to establish the effort of the district.[10]

5. Funds received by the district under the Resource Equalizer may be expended in any fund for which the board is authorized to make expenditures while the funds from the Common School Fund paid because of the revised 1972-73 formula are restricted to the educational fund.

State aid is paid to a district based on the TWADA for the year. Because state officials cannot know in advance what the TWADA will be, all monies sent to a district are considered as an estimate, in reality based on actual calculations for the preceding year. When a year is completed and the report submitted, the actual entitlement for the year is established. If the estimate has been low, the state owes the district; but if the estimate is high, the district owes the state. The adjustment for an over or under payment is made in the year following the over or under payment. As an example, a district in one year received $100,000 which becomes the estimate for the following year. However, in the second year the district actually earns only $90,000, and therefore was overpaid $10,000. Thus, in the third year the estimate will be $90,000, but since the district owes $10,000 it will receive only $80,000. Frequently this is referred to as a double penalty, but in fact it is simply paying back money received in the first year that did not belong to the district. If in one year a district earned $100,000, the estimate for the next year would be $100,000. If, however, the report at the end of the second year showed that the district should have been paid $110,000, then the estimate for the third year would be $110,000; but, since the state would owe the district $10,000, the payment in that year would be $120,000. Confusion would result in the fourth year if no factors changed, since the district would go back to getting only the $110,000 earned.

In the final analysis it must be kept in mind that aid to a district may be calculated either by the revised foundation formula or the "resource

equalizer." Districts may shift as their TWADA and assessments change if the other system is to their advantage. This report is being written after only one year of experience with this reform, but the Office of the Superintendent of Public Instruction reports that 85% of the students of the state are in districts that have elected the resource equalizer.[11] Preliminary calculations for the second year put that figure at 93% of the students of the state.

Summary

In 1973 when the School Problems Commission recommended the reform package to the General Assembly, they said in their official report:[12]

> The basic principles and features which the recommendation included are as follows:
>
> 1. The state would support either the current formula or the new formula, whichever was to the district's advantage.
>
> 2. The WADA would be counted as it is at present with an additional weighting of .375 per Title I student adjusted so that the district with the same proportion of Title I students as the state would get a weighting of .375 per Title I student. Districts with a lower ratio would get proportionately more but no student would be weighted more than .75.
>
> 3. The state would guarantee each unit district an assessment base of $42,000 per weighted pupil, each elementary district a base of $64,615 per WADA pupil, and each high school district a base of $120,000 per WADA pupil for operational purposes.
>
> 4. Operational taxes would be defined as all school taxes collected by a district except those for the Transportation Fund, the Rent Fund, and the Bond and Interest Fund.
>
> 5. A district would calculate its entitlement under the formula by subtracting its assessment per WADA pupils from the amounts shown in 3 above and multiplying the remainder by the tax rate collected in the district for operational purposes described in 4 above up to the maximum rates defined in 6 below.
>
> 6. The state would allow districts to participate up to a maximum tax rate of 3% in 12-grade districts, 1.95% in elementary districts, and 1.05% in secondary districts.
>
> 7. Local districts would effectively set their level of expenditure when they set their tax rates since all would be guaranteed the same reward for the same relative effort except for those districts having assessments greater than those levels set in 3 above.

8. The students in each district of the state would be treated equally regardless of the type district in which they lived. There would be no penalty because of the type of organization of the district.

9. Districts having taxing power greater than that outlined in 6 above would be required to reduce their levy in the year following the payment of additional funds by the state. The exception to this roll-back would be where the people voted by referendum to allow a 15% increase for enrichment and experimentation or where the people had already voted additional taxes the board could by resolution keep such taxes subject to a back door referendum.

Notes and References

1. WADA is, in reality, the Average Daily Attendance (ADA) weighted so as to give different values for elementary, kindergarten, and secondary school pupils. In figuring WADA of a district, each kindergarten pupil in ADA is given a value or weight of ½ or .5, each elementary pupil in ADA is given a value or weight of 1, and each secondary pupil in ADA is weighted as 1¼ or 1.25.

2. McInnis v. Shapiro, 293 F.S. 327, Ill.
McInnis v. Ogilvie, 394 U.S. 322, Ill.

3. Wise, Arthur E., Rich Schools Poor Schools, 1968, University of Chicago Press.

4. Hubbard, Ben C. and Hickrod, G. Alan, "Alternatives in Educational Expenditure Policy for the State of Illinois," in Illinois School Problems: Report of the School Problems Commission No. 10, Illinois School Problems Commission, State House, Springfield, Illinois, 1969.

5. In addition to the work of Hubbard and Hickrod, see also the efforts of William P. McLure: The Public Schools of Illinois, 1964; also Education for the Future of Illinois, 1966, Office of the Superintendent of Public Instruction, Springfield, Illinois.

6. A New Design: Financing for Effective Education in Illinois, 1972, Bureau of the Budget, Springfield, Illinois; also Final Report of the Superintendent's Advisory Committee on School Finance, 1973, Office of the Superintendent of Public Instruction, Springfield, Illinois.

7. The change in definition of Title I eligibles contained in P.L. 93-380 will affect the distribution of state funds within Illinois, but the exact nature of this effect was not known at the time of writing.

8. WADA as used in the Resource Equalizer is sometimes referred to as TWADA because it includes a weighting for Title I students as is explained later in this chapter.

9. A back door referendum is the legal term for granting the electorate the opportunity to challenge the act of a board by petitioning for a referendum. In this case the board would have to pass a resolution to collect the taxes. The opposition would have to petition for a referendum and then defeat the referendum at an election to prevent the tax being continued.

10. Illinois has for years added a new fund for each additional expense rather than increase the permissible tax in an already existing fund. At present there are 15 separate funds that may be used to collect school taxes.

11. Much of the detailed material in this chapter is adopted from the book: Garber, Lee O. and Hubbard, Ben C. Law, Finance and the Teacher in Illinois, 1974, Interstate Printers and Publishers, Danville, Illinois.

12. Hubbard, Ben C. Illinois School Problems: Report of the School Problems Commission No. 12, pp. 10-11.

CHAPTER II

CRITERIA FOR THE EVALUATION OF THE ILLINOIS REFORM OF 1973 (A PROLOGUE TO PUBLIC LAW 93-380)

It is a judgement of history that all revolutions carry with them the seeds of their own destruction and that all bright reforms must eventually tarnish and turn ugly. This is so because revolutions and reforms are made by men and men are fallible. While mankind can probably never escape completely this terrible retribution of the Gods, one way to avoid at least the worst consequences of well intentioned, but imperfect, reformers is to try to evaluate those reforms soon after they have occurred. No less a school finance reformer than Charles Benson has warned us: "The major problem in social policy reform is not saving poor people from themselves but from reformers."[1] It can not be claimed that the record on school finance reform evaluation is particularly good. Perhaps this is understandable though not defensible. For the last three and one-half years much of the available manpower in school finance circles has had to go into either (a) the actual promotion of these reforms, or (b) the straightforward description of what has been done. There has been little time or effort left for an evaluation of what has, or has not, been accomplished.

The raison d'etre for chapters two and three of this report is therefore twofold. First, since this report will be circulated to decision makers within the state we wish to assure them that school finance reforms will not go unevaluated and that those who had some part in the actual passage of the reforms are committed to taking a hard look at the consequences of that reform. Second, since we feel that the evaluation of recent school finance reforms should be encouraged in all states, we have tried to design the Illinois evaluation so that it could be replicated in any state. The evaluation task will be accomplished in four parts. In this chapter we shall address ourselves to the selection of criteria for the evaluation and then shall describe the operationalization of each of the criteria in terms of the measurements used. In the third chapter we shall indicate our findings on each of the criteria, set

forth what we believe to be the principle limitations on these findings, and then conclude the project with suggestions for further research.

Selection of Criteria for Reform Evaluation

Evaluation normally entails the comparison of what "is" with what some individual or some group thinks "ought" to be. The "ought" is then frequently articulated as a set of criteria by which the "is" can be judged. In school finance policy the determination of what "ought" to be is a Herculean task in and of itself. There are no less than four sources to which one can turn for guidance on the question of what an "ideal" state K-12 allocation system should be like. The most traditional source would be the academically based students of the subject, the professors in educational administration or social science departments in universities around the country. Perhaps these "ex cathedra" pronouncements carry less weight than they once did, but they continue to emanate from our major centers of learning. Likely this will remain a major source of information on such normative matters since the professors are paid, at least partially, by citizens, parents, and students, to think, read, and write on the subject. Since 1971 the courts of the land have become a second important source of information concerning what the K-12 finance system "ought" to be like. Often the wishes of the judiciary are stated in the negative, that is, the judicial pronouncement is in terms of what ought not be the case in any given state school finance system. The third source is practicing legislators themselves. This is very appropriate. After all, it is the state legislators who must make the actual decisions on the allocation formulas. It is to be regretted that we have far, far more publications from those who only "advise" on policy formation than from those who actually make the policy itself. Perhaps we should pay the legislators to think, read, and write on the subject? Finally, we can turn to the product of the legislators, the laws themselves. Almost all new legislation contains statements of what these new enactments are intended to accomplish. We shall look briefly at each of these four sources in turn.

This is not the time nor the place to try to document what every major school finance writer has said about his or her particular messianic vision of an "ideal" school finance system. Indeed, readers already familiar with much

of this school finance literature may wish to proceed directly to the next section on operationalization of the criteria and then on into the chapter on empirical findings. There are at least three good reasons, however, for spending a few moments referencing literature dealing with school finance evaluative criteria. In the first place it is perfectly possible, indeed it is likely, that some readers will reject in part or in whole the four criteria we eventually selected to evaluate the Illinois reforms of 1973. We therefore have an obligation to indicate where a more complete discussion of these criteria can be found. Second, it is not difficult to observe that as school finance became a more socially prominent topic in the last three or four years a number of individuals with little or no knowledge of the prior literature have become interested in the topic. It is helpful to these newly arrived investigators to indicate something of the literature available. Thirdly, there may well be too much emphasis placed on the "how" of school finance and not enough time and resources invested in exploring the "why" of the subject. Indeed the general charge that administrative studies of all types are often theoretically and conceptually thin is not without a certain amount of truth.

It seems to us that the literature on school finance criteria can be classified into about five categories. It should be understood that the authors we are about to cite in the footnotes have written in more than one of these five categories. In particular if an individual has been active for any length of time in the school finance field, there is a very high probability that his or her inquiries have taken them into more than one of the five classifications listed below. Nevertheless, we believe the materials cited are not unrepresentative of what is available.

There is first a type of writing that is clinical and practical in orientation. The primary purpose of these efforts is to describe the "best available practice" in the school finance field. The older literature here is hortative in nature and is based upon "expert judgement" concerning what constitutes a good school finance system. The more recent contributions in this tradition are based upon summaries of legislative action. The goal here is to derive inductively a set of criteria for judging school finance systems based

upon a common denominator of informed opinion. The writing is most certainly not devoid of concepts, but the conceptual apparatus used is seldom systematically examined.[2]

Contrasted with this first type of literature on evaluative criteria there is a second classification that is less hortative and more analytical in nature. The goal here is to re-examine fundamental concepts such as "equalization" or "need" and then to use these re-examined constructs as criteria for school finance reform.[3]

A third body of literature relating to criteria for school finance reform is also conceptual in nature but draws heavily from the corpus of court decisions. That is, the conceptualization is in legal or legalistic terms.[4]

A fourth body of literature is primarily deductive in nature. School finance reform criteria are deduced from a priori assumptions about the nature of an "ideal" social and/or economic order. Since there is a wide spectrum of opinion concerning what might constitute an "ideal" social and economic structure for the United States one would expect to find, and one does find, a very great variance in this particular body of literature with rather striking contrasts present between "liberal" and "conservative" positions on criteria for school finance reform.[5]

Lastly, there are some attempts to tie current school finance reform directly into basic assumptions concerning democratic government or at least to the assumptions underlying the political philosophy of a democratic society.[6]

The above five categories are not exclusive. Even the most practical oriented studies do assume certain values or assumptions concerning the school finance world of the future. What is worth noting is that there is now, and there has been for some time in the past, a sizeable body of literature in school finance that deals quite explicitly with values and value positions. As the number of economists increases in the school finance field it is likely that those who attach great importance to "positive economics" rather than institutional or normative economics may feel rather uncomfortable with this value

oriented literature.[7] Economists, however, who are at home in the areas sometimes labled "political economy" or "social economics" should have no difficulty at all dealing with this literature.

There is a new source of good school finance literature in the opinions of Judges who have been required to offer pronouncements on litigation surrounding constitutional challenges to state school finance allocation systems.[8] There is also a body of information on school finance criteria in the briefs that have been drawn up for some of the major cases[9] and in articles appearing in law school journals.[10] Since much of this legal material is in constitutional terms, it reinforces the political or governmental literature mentioned above dealing with evaluative criteria for school finance reform. There is a minor difficulty here in that much of this legal literature is available to the non-lawyer only at considerable additional effort to understand the mysteries of law libraries and the complexities of legal bibliographical systems.

The writings of the legislators themselves are also not as accessible as the standard academic materials since they tend to be drafted for state audiences or for even smaller groups of people.[11] Nevertheless, they are quite revealing and useful when one can acquire them. Despite the efforts of organizations like the Education Commission of the States there is also still a problem in acquiring copies of the actual new state laws on school finance. It is to be hoped that the recent monograph by the National Legislative Conference will encourage others to make available reprints of the new state laws.[12] With regard to the light these statutes might cast on the matter of reform criteria there is a tradition that new legislation carry a statement of intent of the legislature. Normally this appears directly following the "short title." Legislation passed in Florida and Maine in 1973 concerning school finance does carry such sections and they are helpful as to how school finance might be evaluated in those states. Unfortunately the school finance section of most school "codes" is a much amended portion of school law. Therefore "intent" sections are often either out of date or more likely completely missing since they have been struck somewhere in the continual amendment process. It might be useful for state legislatures to look into this matter of outdated or missing intent sections.

Some will think that the above recommendation is not at all useful since "intent" sections are, by the necessity of political compromise, worded in very general terms. This is true and some of the wording of Public Law 380 of the 93rd Congress illustrates this very well. Section 801 for example proclaims: "it to be the policy of the United States of America that every citizen is entitled to an education to meet his or her full potential without financial barriers." This general public policy goal is then further elaborated in Section 842 where it is required that states desiring federal aid in developing plans or programs for financial assistance to local districts develop a plan: "(A) which is consistent with such standards as may be required by the fourteenth article of amendment to the Constitution and (B) the primary purpose of which is to achieve equality of educational opportunity for children in attendance at the schools of the local educational agencies of the State." The federal statute then leaves the question of evaluative criteria at this high level of generalization and charges the United States Office of Education with the responsibility for drafting guidelines and regulations which are consistent with the general criteria. In the hope that this report might be of some help to the USOE in this guideline drafting process we shall now turn to the four criteria selected for the Illinois evaluation and argue that all four criteria are consistent with Section 842.

The first criterion selected we shall term "permissible variance." We draw this notion largely from the writings of Wise[13], from some of the court decisions[14] and from McLoone.[15] This we see both as a student equity criterion and a taxpayer equity criterion. Essentially the criterion rests on the assumption that equalization of educational opportunity requires a narrowing of the variation in the levels of expenditure per pupil between districts within a state with the passage of time. No claim is made however that all students should have the same amount spent on them. Indeed educational need differences between students would probably necessitate that there always be some amount of variation in expenditure levels between school districts. As Berke so succinctly puts this point: "Treating unequals equally is a highly questionable definition of equity."[16] Equality of educational opportunity may require, however, that students have access to similar levels of educational services, unless their special educational needs dictate differential kinds of services.

Furthermore, this may be true irrespective of the effect of these educational services on their future earnings, life styles, political activity, or any other kind of long range educational "output." We tend to agree with Cohen[17] that the distribution of educational services is more a matter of "fairness" than it is a matter of "efficiency," and it does not seem fair to us by almost any standard that children should have very unequal access to educational services based on where their parents happen to reside. This criterion admittedly has a certain "softness" to it in that what is a "permissible" variation in expenditures to one citizen will not be "permissible" to another. For example, individuals who wish to accord a great deal of weight to local control in the provision of educational services are likely to allow a considerable variation based on their view that parents do have a right to decide the levels of educational provision for their children and more importantly for their neighbors' children. Individuals who are more concerned about the rights that children might have as future citizens themselves, rights to be defended even against their own parents and their parents' neighbors, will likely be desirous of a smaller variation between districts. It is "soft" also in that variations in expenditure levels are caused by many determinants such as regional cost of living differentials, different concentrations of students needing special educational services between school districts, characteristics of the teaching staff, etc., as well as the more obvious source of variation; e.g., local ability to pay. On the other hand this criterion is not difficult to explain to judges and juries and the very notion of "equality" seems to demand reductions in variation.

As has been explored elsewhere one needs to answer the questions: "variance in what?" and also "variance among what units of distribution: families, individual schools, school districts, etc.?"[18] Much more controversial and more powerful notions of permissible variance emerge if it becomes apparent that the goal is really a narrowing of the variance in some kind of "output" measurement rather than a narrowing of the variation in various kinds of school "inputs." In this report we have not attempted to expand the criterion in these directions but have restricted the notion to expenditures per pupil and to tax rates. The permissible variance notion can be applied to taxpayers if we think of a distribution of tax burden. Again, it does not seem "fair" to us that taxpayers

are subjected to widely differing levels of tax burden based solely upon their place of residence. If we could be assured that these tax burdens reflected only the willingness or lack of willingness to support education then we might not be so concerned with the variation in tax rates among districts. However, tax rates vary for reasons not related to the desire of local citizens to support education. The most prominent of these factors is again local ability to pay.

Professor McCloone would also have us concentrate upon the reduction of variation in expenditure levels per pupil, however, his attention is directed primarily to the lower end of the expenditure per pupil distribution. In his own words: "Some may interpret the expression "equalization" as striving for the same level of expenditure in all school systems--as reducing the high and lifting the low. As used in educational finance, equalization does mean reducing the differences between the high and the low, especially where the low expenditure is due to insufficient resources. However, the foundation program concept seeks to reduce the differences by raising the level of support in areas of low wealth without reducing expenditures in high-wealth areas."[19] The McCloone approach can be therefore thought of as a "conditional" approach to "permissible variance." It is viewed as permissible for the expenditure distribution to be skewed to the right; that is, for some districts to have expenditures considerably above the median, but it is not thought permissible for the expenditure distribution to be skewed to the left, e.g., for large numbers of districts to have expenditures considerably below the median. This fiscal policy position is squarely in line with the late professor Paul Mort's defense of "lighthouse" school districts, e.g., those districts that could, and would, spend far more than the average district. We have incorporated both approaches to permissible variance into the current study; that is, a total reduction in variation among expenditures and a reduction of variation only below the median. It was concluded therefore that the reforms of 1973 would be judged successful on this first criterion if a narrowing of the variation in expenditures per pupil and educational tax rates had occurred after the reforms.

The second criterion selected has been termed "fiscal neutrality." This is a most interesting concept and more complicated than the first criterion.

The literature on the subject reveals some support for this criterion,[19] some opposition[20] and some articles questioning the scope and dimensions of the concept.[21] We believe there are at least two aspects to this notion. The first is a value position that states that the level of educational services provided in a district should not be a function of local district wealth. This is obviously a student equity notion and if we are to believe the previously quoted Section 801 of Public Law 93-380, this value position has been endorsed by the Congress of the United States. Similar statements are also found in the "intent" sections of several recently passed state school finance laws. One important implication of this notion is that it moves the purchase of education into a quite different frame of reference than the purchase of other goods and services in the economy. We do not say to consumers that the purchase of automobiles, for example, should not be a function of local family wealth. Indeed most "demand" schedules are closely related to income schedules. But in this one area of public services we have departed drastically and rather dramatically from the "market" orientation of ordinary consumer purchasing. It is beyond the scope of this paper to explore why we have chosen to place educational goods and services in this unique position. We would venture one suggestion, however, and that is that it is not possible to treat education as purely a consumer good but rather as an allocation of funds that is partially consumption but also partially investment in human capital formation.[22] As far as we can ascertain, however, there is nothing in the "fiscal neutrality" criterion which prevents the level of educational services from being a function of local willingness to tax, or a function of the differences between educational needs of school districts, or a function of cost-of-living differences between school districts, or indeed any reasonable and rational determinant of expenditures other than the interdicted local district wealth. All that the fiscal neutrality criterion really says is that the level of educational services should be neutral as far as local wealth is concerned. It is perhaps unfortunate that the term "neutrality" was chosen, since this brings to mind the concept of neutrality of taxes. The kind of allocation system contemplated under most conceptualizations of fiscal neutrality is not at all neutral as far as taxes are concerned.

There is a second aspect of fiscal neutrality that has to do with fairness in the distribution of shares of the available state and local dollars set aside for education. Viewed from this second perspective fiscal neutrality holds that rich students and poor students should have the same share of state and local dollars available unless other non-wealth factors such as local willingness to tax, or differences in the educational needs of the districts prevent this from occurring. This is not a very radical notion. To the contrary if stated without the clause above referring to different educational needs, it would allow no room for a "compensatory" idea of educational spending. There are many who hold that poor students should have a greater proportion of the available state and local dollars spent on them than are spent on rich students.[23] The advantage of this "fair share" notion is that it leads one toward the kind of measurements used in the study of income distributions in economics, in particular toward the use of the Gini Index and Lorenz curves which we shall discuss in the next section of this report.

Perhaps the most important point about fiscal neutrality is that we believe it is superior as an equity notion to the concept of "equalization," at least as that concept has been used in some prior school finance research. Many studies define "equalization" as simply the flow of state money to local school districts where that flow is inverse to some measure of local wealth, usually property valuations. Measurements are then made in terms of product moment correlations or regression slopes, and occasionally in terms of Gini coefficients.[24] This sort of investigation still serves a useful purpose in that it is quite important to know "who gets what?" However, its inadequacy as an equity criterion can be quickly demonstrated. Assume two states, X and Y. Assume that X is 80% state support and Y is 20% state support. If Y, which provides very little state dollars for K-12 education, decides nevertheless to distribute most of the dollars to its poorest districts it will appear to rank highly on many conventional measurements of "equalization." Assume further that X, which provides a great many state dollars for education, decides to spread its allocations among the wealthier districts as well as the poor districts. By simple bivariate measurements between state funds and local district wealth, state X will rank low on "equalization." However, investigation of variance in expenditure per pupil will probably show that there is less variance

in state X than there is in state Y because the higher level of state funding causes less dependence upon local property valuations. It is the inequality of these local property valuations that causes the expenditure disparity problems in the first place. This is no new revelation. It has been observed by several other school finance investigators.[25] In fact it is this problem that has caused McLure[26] and other investigators to prefer a "graphic" method of investigating equalization and equity effects over almost any kind of mathematical index and there is still much to be said for graphic approaches to "equalization." In this investigation we have elected not to establish "equalization" as a criterion, but rather to substitute the notion of "fiscal neutrality" as a preferred equity criterion. It was concluded therefore that the reforms of 1973 would be judged successful on this second criterion if the State of Illinois moved closer to the goal of fiscal neutrality after the reforms had occurred.

The third criterion is a taxpayer equity criterion rather than a student equity matter. As was mentioned in the introduction, since 1973 several states have adopted grant-in-aid systems that are based upon the principle that any two school districts that exert the same amount of effort should be guaranteed the same amount of educational resources. In Michigan this was called the "equal yield" principle and in Illinois it was termed the "equal expenditure for equal effort" principle.[27] This is, in our judgement, a politically popular concept, and taxpayer equity accounts as much for the passage of the legislation described in the first chapter of this report as any arguments for student equity. As a taxpayer equity concept it would seem to fit into the "14th Amendment" specification found in Section 842 of Public Law 93-380. Although politically popular, the notion of reward for local tax effort is viewed with considerable suspicion by many school finance experts.[28] At least seven objections to the principle of "reward for local effort" can be put forward. First, these local initiative systems may result in increased social stratification and geographic segregation of social classes as the different social strata each seek the tax rate or the expenditure level they prefer. Second, local decision-makers may not or cannot meet the needs of their local districts, even if these needs clearly exist. Two examples might suffice here. In rural areas strong agricultural representation on local boards of education has kept tax rates down and might continue to keep them down in spite of the reward the

state would offer for raising the rate under the new formulas. Rural districts might then not profit as much under these reward for effort schemes as would suburban districts. We shall comment further on this phenomena in the findings section of this report. Secondly, in some states, the central city educational tax rate is depressed by the phenomena of "municipal overburden," e.g., central cities educational tax rate is kept low by the costs of non-educational municipal spending for police, fire, welfare, etc. As we will note in our findings section, however, this is not so much the case in Illinois. There is enough of a problem here, however, to conclude that reward for effort systems might not also be utilized as fully by central cities as by suburban units. Third, reward for effort formulas might also stimulate local property taxation, and this would be directly counter to a strong desire for local property tax relief. Fourth, it is possible that it will be the districts with higher income families that raise their tax rates in response to the reward offered by the state rather than districts with income poor families. There is, in fact, some limited research evidence to support this notion already[29] and we shall again comment further on this in the findings section of this report. Fifth, there is a special problem of low income households located in property affluent school districts. Under any of the local initiative systems the property wealthy districts might decide to increase their generally low tax effort in order to obtain more state aid. The low income family living in the shadow of a factory or commercial complex would then find its residential property tax increased greatly. Benson and his associates are particularly sensitive to this possibility and suggest a number of remedies for the situation, particularly the adoption of the so-called "circuit breaker."[30] Sixth, students of general local public finance have never been especially pleased with these educational local incentive grants. They view these grants as encouraging local governments to spend funds on public education that might well need to go into other public services, e.g., health, sanitation, police, and fire, because of the state reward for effort in public education. This issue largely turns on whether one accepts or rejects the claim of professional educators that public education is a "unique" public expenditure.[31] Finally, local initiative grants might have the effect of maintaining small inefficient school districts since the state would be rewarding higher tax rates resulting from diseconomies of scale. Looking at these seven arguments the Phi Delta Kappa National Commission

on Alternative Designs for Funding Education concluded that: "The aspiration level of the citizens in a local school district should not be the primary determinant of the level of spending."[32]

This is a rather powerful array of arguments against the type of grant-in-aid system adopted in Michigan, Illinois, and other states. Why then were they passed? Because there are some equally compelling arguments on the other side. First, these grant-in-aid systems directly attack the ancient equity problem in school finance that is at once both taxpayer equity and student equity in nature. As early as 1905 Elwood Cubberly pointed out that two taxpayers, living in different districts, might find themselves in a situation where one taxpayer paid a higher rate and received a lower level of goods and services while another paid a lower rate and yet received a higher level of educational goods and services.[33] The school finance litigation of the early 1970's simply highlighted an equity problem that has been known and investigated for seventy years. The systems adopted in Illinois and Michigan attack this problem directly. Second, it is also true that these systems provide at least some amount of tax relief to high tax burden districts. Since the general correlation of tax rate with property valuation is negative, the initial result of the adoption of the Michigan and Illinois type systems is bound to give more state money to property valuation poor districts. This should enable these districts to at least level off their tax rates in the future. There is no guarantee that these new funds will be used to actually reduce the tax rates although the special provisions of the Illinois system described previously do call for some tax reduction. The notion that those districts which have the highest tax burden should receive the most state funds has considerable common sense appeal. Third, tax rates may be high in some districts for perfectly legitimate reasons that are as compelling as the diseconomies of scale factor is not compelling. For example, suburban areas have high tax rates at least partially because the wave of migration to the suburbs has forced a heavy burden on school governments in those areas in the last two decades. While outward migration of business and industry has partially offset this, there is no doubt that suburban units have needed help for some time. The myth that all suburban school districts are wealthy has been destroyed forever by a considerable amount of research.[34] While educational tax rates in central cities

are kept down by "municipal overburden" they are also pushed up by high cost-of-living situations in these population dense areas. Higher tax rates in these areas due to costs associated with population density probably do deserve to be rewarded by the state. Fourth, educators have, in recent years, encountered serious problems in passing local tax referendums. It is at least possible that the type of reward for effort provisions passed in Michigan and Illinois will assist at least the property valuation poorer districts in passing some of these referendums as the state will then pick up a larger share of each new dollar levied. A careful study of tax referendums in these states after 1973 should cast some light on this situation. Fifth, Lenin was correct in pointing out the power of a slogan. It proved very difficult in Illinois to be against the notion of "equal expenditure for equal effort." Even those who opposed the grant-in-aid system described in the first section were at some pains to point out that they "agreed with the basic philosophy." Not among this group of course were those who supported full state assumption of costs in education and are philosophically opposed to any form of mixed state and local funding for K-12 education.[35] Sixth, for a very long time reorganization and consolidation has been slowed by the fact that wealthier districts did not wish to accept the higher tax rates that inevitably came with the absorbtion of their poorer neighbors. Under DPE these higher tax rates are less of a problem and consolidation and reorganization may again go forward. From what has been said it is clear that the controversy over local initiative systems will continue and indeed has begun to appear in the pages of journals devoted to local public finance matters.[36] It was concluded, however, that the majority view of the Illinois Legislature counted, at least in this situation, for more than the views of the professors, and that the reforms of 1973 would be judged successful on the third criterion if the state could be shown to have moved toward the goal of "equal expenditure for equal effort" after the reforms had taken place.

The final criterion relates to aid to urban districts. Like the third goal this also is an item of some controversy. It would take us too far afield to review the arguments pro and con as to whether central cities are, or are not, "poor." There is considerable research on this point.[37] We did however accept the notion that central cities should receive more funds from the state.

It should be stressed that the rationale for aiding the central cities was in terms of the concentrations of students with special educational needs that are found in those central cities. Poverty concentrations exist in Illinois and indeed in all states outside of central cities and therefore while the grant-in-aid described in the first section was designed to aid central cities, it was also designed to assist districts with high concentrations of low income families wherever they might be found in Illinois. It was therefore concluded that if the central cities received more state aid per pupil after the reform than before it would be judged a success on this fourth criterion. These four criteria certainly do not exhaust the list of criteria that could be used for state grant-in-aid models and we make no such claim. We do feel that these four criteria are sufficiently important that no state could say that it had thoroughly evaluated its educational grant system without at least including these four in the evaluation system.

In the next section we shall discuss the operationalization of these four criteria. It is particularly important that we do so. If "criteria" are left at a high level of verbal generalization then the courts cannot tell if their orders have been carried out. In fact, school finance cases may not even be justiciable if the issues in question cannot be subjected to at least some form of measurement. Legislators cannot tell if their intent has, or has not, been violated. In fact, a greater danger exists in the legislative arena. Without clear criteria for evaluating legislation there is a danger of extreme pragmatism. Too often in school finance, as in other educational legislation, the temptation is to "pass a Christmas tree with a gift on it for everyone, and then figure out the wiring later." Clear statements of public policy become lost in the necessary compromises that must take place. Without operational statements of goals and measurements of these goals there is no way to implement a great deal of legislation including the newly passed Section 842 of Public Law 93-380. In fact, in our judgment, this legislation almost requires that the states do now come forward with clearly defined and measurable objectives for their school finance system. It may well be that the Congress of the United States can do what seven decades of professorial effort has not been able to do, e.g., muster some concensus on school finance criteria. Lastly, the school

finance fraternity itself has a vested interest in this matter. A cumulative body of knowledge in school finance is difficult if not impossible to erect unless the major concepts are empirically grounded and measurable. For all these reasons we now turn to the methods of measuring the four criteria we have selected.

Operationalizing the Criteria

As indicated previously the first criterion, permissible variance, can be conceptualized at least two ways. The first notion used the entire variation in expenditures per pupil and in educational tax rates. Several approaches are possible here. One could depend upon the range, that is, the difference between the largest and smallest number in a given distribution, or perhaps a better measurement would be the difference between the number at the 90th centile of the distribution and the number at the 10th centile of the distribution, since there are so many highly deviant school districts in most school finance distributions. However almost any range statistic could be misleading due to inflationary effects. The inflation manifest in the last three decades will cause all dollar amounts to increase including all range differentials. Thus especially over long periods of time there is an automatic bias in favor of higher differentials at the second point in time as compared to a prior point in time. For school finance changes only one or two years apart there is no great confounding effect, however, the whole problem can be avoided by dividing whatever measurement of variation is finally chosen by the relevant measurement of central tendency. For example, this could be the difference between the first quartile and the third quartile divided by the median. Since previous school finance research uses the so-called "coefficient of variation," that is, the standard deviation divided by the mean and multiplied by 100, we have followed that convention here.[38] Therefore the smaller the coefficient of variation the closer to the desired state of affairs.

Since we owe the second notion of "permissible variance" to Professor McCloone it seemed appropriate to use one of his own indexes. The "McLoone Index" used in this report is based on the dollars required to raise the lower half of the classroom units to the state median expenditure. Since this study

uses pupil units rather than classroom units the values reported here cannot be directly compared to those reported by McCloone. Nevertheless, the basic procedures are the same. After the revenues required to bring all students in the state to the median expenditure per pupil are determined, this amount is then added to the actual revenues generated below the median and becomes the demominator of the index. The numerator is the actual revenues generated below the median. Thus the larger the fraction, the closer the approach to the desired state of affairs. Several other indexes are possible using the basic notion of the dollars needed to move all students to the median expenditure, but we elected to use only this one approach.

To operationalize the concept of "fiscal neutrality" we have chosen the Gini coefficient, or "coefficient of concentration" as it is sometimes called. As in previous research reported by Hickrod and his associates this index is based upon a bi-variate set of measurements rather than a uni-variate set of measurements.[39] That is, both wealth and expenditures or revenues are used rather than expenditures or revenues alone. This usage of the Gini index is to be contrasted with the application made by McCloone which is based on expenditures alone.[40] Basically what is done is to rank the school districts from low to high upon some specification of wealth. In this research we have used property valuations per pupil, income per pupil, and a combination of the two resource measurements. Our experience working with this index suggests that one can get quite different values depending upon both (a) the specification of wealth used, and (b) the specification of pupils used, e.g., weighted v. unweighted, ADA v. ADM, etc. Once this wealth ranking of districts is completed a cumulative percentage distribution of pupils is then formed starting from the poorest districts and working to the top. A similar cumulative distribution is established for state and local revenues. The two cumulative percentage distributions are then plotted on an X-Y axis.

If the "fair share" norm, previously discussed, actually prevailed in a given state the X-Y plot of the two cumulative percentages, wealth and state and local revenues, would be, in fact, a straight line. That is, the poorest ten per cent of students would get ten per cent of the available "pie" of state and local monies, the poorest twenty per cent would get twenty per cent, etc., etc. A distribution of state and local funds would prevail that would be "neu-

tral" of local resources and this is what is necessary in any operational definition of fiscal neutrality. The situation would be the same as a state of affairs in which the state raised all revenues and then distributed them back on a head count irrespective of local resources. One might therefore think of it as "full state funding" with flat grant distribution. However, previous research in Illinois plus our general knowledge of the conservative nature of state school finance systems in other states strongly suggests to us that this straight line is not the observed function formed by the plotting of the two cumulative percentage distributions. To the contrary, we believe that the plot of the two cumulative distributions will, in many states, form a curve which will depart from the "ideal" straight line. This curve of two cumulative percentage distributions, often referred to as a "Lorenz curve" will then be the graphic representation of the "fiscal neutrality" situation in a given state. There are several ways to derive a numerical value which will describe the degree to which this empirical curve departs from the "ideal" straight line. Appendix A to this report prepared by Professor Ramesh Chaudhari sets forth one possible calculation procedure. Readers interested in the computer program for such a calculation should address themselves directly to Professor Chaudhari.[41]

The conservative nature of the fiscal neutrality criteria is fully revealed by this type of operationalization. A truly compensatory notion of school finance would require that the poorest ten per cent of the students ranked by wealth receive more than ten per cent of the state plus local funds available for K-12 education, the poorest twenty per cent more than twenty per cent of the pie, etc., etc. In other words, full state funding with flat grant distribution would <u>not</u> be an acceptable "ideal" situation to many "authorities" in the school finance field. The operational definition can be changed, however, by weighting pupils according to their educational needs. <u>If</u> pupils have been previously weighted by cost differentials based on their different educational needs <u>before</u> the rest of the calculations are performed then we would have a situation in which the ten per cent poorest pupils, weighted by educational needs, would be expected to receive ten per cent of the state and local pie, the poorest twenty per cent, weighted by educational needs, twenty per cent, etc., etc. This "expanded" definition of fiscal neutrality would

probably be more acceptable to many school finance analysts. Since the weighting by educational needs varies so much from state to state it might be impossible, however, to ever use this "expanded" operationalization of fiscal neutrality in interstate comparisons. We have taken a small step in this direction however in this project by weighting students with compensatory educational needs prior to calculation of the Gini values. This is described in greater detail in the next chapter.

It has been pointed out to us that the interpretation of the Gini value is confusing if the curve ever rises above the line. That is, should there be a state in which the poorest X per cent receive more than the X per cent of state and local funds then the numerical value would not be of great use. In other words, the procedure outlined in Appendix A works well as long as the curve is always below the line. Our experience in Illinois has been that the curve does not cross the line. However, in the event that there are states in which truly compensatory school finance systems are operative, e.g., the poorest proportions of the students receive more than their simple head count percentage share of state and local funds, then the curve itself would probably be of greater value than the Gini coefficient whose calculation is outlined in the appendix. This also might be the case if federal funds are included in the analysis. Federal funds are excluded from the research reported here since the focus in this project was upon evaluating an action of a state legislature. Calculation of the curve and the coefficient with and then without federal funds might well be one way of measuring the "compensatory" effects of federal funds.

Unlike the operationalization of the first two criteria we had no research precedents for the third criteria, equal expenditure for equal effort. Our first inclination was to use the simple linear regression slope between tax rate and combined state and local revenues. However, the slope calculated would be unique to a given state and could not then be used for interstate comparisons. To overcome this difficulty we transformed both revenues and tax rate into logarithms. Thus the closer the slope comes to 1.00 the nearer one would be to the desired state of affairs. It was pointed out to us, however, that the slope, either in natural or logarithmic terms, is really more of a measure of "reward for effort" than it is of "equal expenditure for equal

effort." One is indicating the additional or marginal yield in combined state and local revenues for an additional or marginal increment of tax effort, either in dollars and cents or in percentage increases. It therefore seemed logical to use some measurement of the "goodness of fit" between the tax rate and the combined state and local revenues. This might have been the standard error of estimate, but it seemed that the square of the simple correlation coefficient would be more familiar. This does assume, however, that the "ideal" relationship between tax rate and revenues received is linear in form. In Benson's discussion of "district power equalization" systems it is pointed out that the desired relationship between tax rate and revenues may well be curvilinear rather than rectilinear in nature.[42] We regard this third criteria as somewhat more exploratory than the first two and continue to search for better specifications of the criterion of "equal expenditure for equal effort."

Our fourth and final criterion required a geographic typology of school districts. There are several ways of approaching the question of what constitutes an "urban" school district. The scheme we eventually adopted was a modification of the system used by school finance researchers at the University of Wisconsin.[43] City school districts are of two types in this system, "central city" districts and "independent city" districts. Central city districts are those school districts serving the largest city in each of the nine standard metropolitan statistical areas of Illinois as defined by the 1970 census of population and housing. Independent city districts are those school districts serving a city with a population of 10,000 or more in 1970 but not located within a standard metropolitan statistical area. These are the two categories of "urban" school districts. "Suburban" districts are also of two types. To qualify as a "suburban" district, a school district must be located within a standard metropolitan statistical area but not be the central city therein. The enrollment growth of these suburban districts was then calculated between 1964 and 1973. If the suburban school district was above the median in percentage increase of students it was designated a "rapid growth suburb" and if below the median a "low growth suburb." Finally all school districts which were neither within a standard metropolitan statistical area and were not "independent cities" were designated "rural."

The above process of elimination leaves quite a number of Illinois school districts in the "rural" category. It was pointed out to us that a further analysis of "rural" units would be helpful in this situation. It is a matter of general knowledge that the social demographic characteristics of Illinois change greatly from the north to the south in this state. We therefore used the six general supervisory regions of the Office of the Superintendent of Public Instruction to structure the state into three roughly equal geographic regions, the north, the center, and the south. The project then concludes with this special analysis of Illinois "rural" units.

Notes and References

1. Benson, Charles S., Goldfinger, Paul M., Hoachlander, E. Gareth, and Pers, Jessica S., Planning for Educational Reform: Financial and Social Alternatives, 1974, Dodd, Mead, Inc., p. 70.

2. See for example: Alexander, Kern S., "Trends and Issues in School Finance," in Proceedings of the Eleventh National Conference on School Finance, 1968, National Education Association, Washington, D. C.; Garms, Walter I., "The Financial Dimensions of Recent School Finance Reforms," Planning and Changing, Summer, 1974; Johns, Roe L., "Evaluating State Plans for Financing the Public Schools," in Proceedings of the Fifteenth National Conference on School Finance, 1972, National Education Association, Washington, D. C.; Johns, Thomas L., "School Finance Reform in 1973--An Overview," Planning and Changing, Spring, 1974; Lindman, Eric L., Mort, Paul R., Morphet, Edgar L., McLure, William P. and Hutchins, Clayton D., "Guiding Principles in School Finance," in Proceedings of the Third National Conference on School Finance, 1960, National Education Association, Washington, D. C.; also, "Guiding Principles for School Finance" in Proceedings of the Fourth National Conference on School Finance, 1961, National Education Association, Washington, D. C.; Morphet, Edgar L., "Developing Sound Foundation Programs" in Proceedings of the Second National Conference on School Finance, 1959, National Education Association, Washington, D. C.

3. See for example: Barro, Stephen M., "Alternative Post-Serrano Systems and Their Expenditure Implications," in Pincus, John (Ed.), School Finance in Transition, 1974, Ballinger Press, Cambridge, Mass.; Callahan, John J., Wilken, William H. and Sillerman, Tracy M., "Urban Schools and School Finance Reform: Promise and Reality," 1973, National Urban Coalition, Washington, D. C.; Cohn, Elchanan, Economics of State Aid to Education, 1974, D. C. Heath and Company, Lexington, Mass.; Garms, Walter I. and Smith, Mark G., Development of a Measure of Educational Need and Its Use in a State School Support Formula, 1969, New York State Educational Conference Board, Albany, N. Y.; Hickrod, G. Alan, Chaudhari, Ramesh, and Tcheng, Tse-Hao, Definition, Measurement, and Application of the Concept of Equalization in School Finance, 1972, Office of the Superintendent of Public Instruction, Springfield, Ill. (available as document ED078 551 in the ERIC system); Hickrod, G. Alan, "Alternative Fiscal Solutions to Equity Problems in School Finance," Proceedings of the Sixteenth National Conference on School Finance, 1973, Institute for Educational Finance, 1212 S. W. 5th Ave., Gainesville, Fla.; Kelly, James A., "Resource Allocation and Educational Need," Education and Urban Society, May, 1970; James, H. Thomas, Thomas, J. Alan, and Dyck, Harold J., School Revenue Systems in Five States, 1961, School of Education, Stanford University; also James, H. Thomas, Thomas, J. Alan, and Dyck, Harold J., Wealth, Expenditure and Decision-Making for Education, 1963, School of Education, Stanford University.

4. See for example: Berke, Joel S., Answers to Inequity: An Analysis of the New School Finance, 1974, McCutchan Publishing Corp., Berkeley, California; Browning, R. Stephen and Long, David C., "School Finance Reform and the Courts After Rodriguez," in Pincus, John (Ed.), School Finance

in Transition, 1974, Ballinger Press, Cambridge, Mass.; Jordan, K. Forbis and Alexander, Kern S., "Constitutional Methods of Financing Public Schools," in Alexander, Kern S. and Jordan, K. Forbis, Constitutional Reform of School Finance, 1972, Institute for Educational Finance, 1212 S. W. 5th Ave., Gainesville, Fla.; Coons, John E., Clune, William H., and Sugarman, Stephen D., Private Wealth and Public Education, 1970, Harvard University Press, Cambridge, Mass.

5. See for example: Benson, Charles S., Guthrie, James W. and others, Report of the New York State Commission on the Quality, Cost and Financing of Elementary and Secondary Education, 1972; available also as The Fleischmann Report, 1973, Viking Press, New York, N. Y.; Benson, Charles S., Goldfinger, Paul M., Hoachlander, E. Gareth, and Pers, Jessica S., Planning for Educational Reform: Financial and Social Alternatives, 1974, Dodd, Mead, Inc.; Hickrod, G. Alan and Hubbard, Ben C., "Social Stratification, Educational Opportunity, and the Role of State Departments of Education," Educational Administration Quarterly, Winter, 1968; Guthrie, James W., Kleindorfer, George B., Levin, Henry M., and Stout, Robert T., Schools and Inequality, 1971, Massachusetts Institute of Technology Press, Cambridge, Mass.; Friedman, Milton, "The Role of Government in Education" in Benson, Charles S. (Ed.), Perspectives on the Economics of Education, 1963, Houghton Mifflin, Boston, Mass.; also Tiebout, Charles M., "A Pure Theory of Local Expenditures" in Benson, op. cit.; Levin, Henry M., "Equal Educational Opportunity and the Distribution of Educational Expenditures," Education and Urban Society, February, 1973; Levin, Henry M., Guthrie, James W., Kleindorfer, George B. and Stout, Robert T., "Capital Embodiment: A New View of Compensatory Education," Education and Urban Society, May, 1971.

6. Jordan, K. Forbis, Alexander, Kern S., Hickrod, G. Alan, Rose, James, Young, John F., and Rose, Lowell G., Financing the Public Schools: A Search for Equality, Phi Delta Kappa, Bloomington, Indiana; Cohen, David C., "School Finance and Social Policy: Serrano and Its Progeny" in Pincus, John (Ed.), School Finance in Transition, 1974, Ballinger Press, Cambridge, Mass.; Hickrod, G. Alan, Laymon, Ronald L., and Hubbard, Ben C., "Toward a Political Theory of School Finance Reform in the United States," Journal of Educational Administration, November, 1974.

7. Morgan, Daniel C., "No Wealth Discrimination: The Proper Reform Options for the States," Education and Urban Society, November, 1973; Hickrod, G. Alan, "No Wealth Discrimination: Reply from a Conventional School Finance Analyst," Education and Urban Society, November, 1974.

8. NOLPE School Law Journal, "A Special Section Presenting the Full Text of Five Equal Protection Cases, Affecting the Financing of Public Education," Spring, 1972; see also Berke, Joel S. op. cit. and especially: Jefferson, Bernard S., Memorandum Opinion re: John Serrano Jr. et. al. vs. Ivy Baker Priest, Superior Court of the State of California for the County of Los Angeles, April 10, 1974.

9. For a particularly good example of this see, Coons, John E., Clune, William H., and Sugarman, Stephen D., Motion for Leave to File Brief and Brief for John Serrano, Jr. and John Anthony Serrano as Amici Curiae in Support of Appellees, Supreme Court of the United States, October Term, 1972.

10. See for example, Levin, Betsy, "Alternatives to the Present System of School Finance: Their Problems and Prospects," Georgetown Law Journal, March, 1973; a large collection of articles, opinions and related materials can now be found in Kirp, David L. and Yudof, Mark G., Educational Policy and the Law, 1974, McCutchan Publishing Co., Berkeley, California.

11. See Berman, Arthur L., "What it was meant to be!", Illinois School Board Journal, September, 1974; many papers and memoranda of legislators must be classified as confidential and not released for several years after they are written, if at all. Such a document exists at Illinois State University entitled, "The Legislative History of HB 1484: Seventh-Eighth General Assembly, State of Illinois," by the principal sponsor of the reform bill described in the first chapter of this report, Representative Gene L. Hoffman. It is to be hoped that parts of this study can be declassified and made public at some time in the future. As this report was going to press an article appeared in a Springfield newspaper, The State Journal-Register, Jan. 10, 1975, by Representative Douglas Kane. Representative Kane would remove the "reward for effort" aspect of the Illinois reform, plus adding an income factor and a municipal overburden factor to the formula.

12. Grubb, W. Norton, New Programs of State School Aid, 1974, National Legislative Conference, 1150 17th St., N. W., Suite 602, Washington, D.C. 20036. See also Grubb, W. Norton, "The First Round of Legislative Reforms in the Post-Serrano World," Law and Contemporary Problems, Winter-Spring, 1974.

13. Wise, Arthur E., "The Constitution and Equal Educational Opportunity" in Daly, C. U. (Ed.), The Quality of Inequality: Urban and Suburban Public Schools, also Rich Schools, Poor Schools, 1968, University of Chicago Press.

14. See footnote #8.

15. Harrison, Forrest W. and McLoone, Eugene P., Profiles in School Support: A Decennial Overview, 1965, OE-22022, Miscellany No. 47, U.S. Department of Health, Education and Welfare; also McLoone, Eugene P., Profiles in School Support: 1969-70, National Center for Educational Statistics, 1974, U. S. Government Printing Office, Washington, D. C.

16. Berke, Joel S., op. cit., p. 163.

17. Cohen, David G., op. cit.

18. McLoone, Eugene P., op. cit., p. 85.

19. Benson, Charles S., "Accomplishing Fiscal Neutrality," and Hickrod, G. Alan, "Alternative Fiscal Solutions to Equity Problems in Public School Finance," in Proceedings of the Sixteenth National Conference on School Finance, 1973, Institute for Educational Finance, 1212 S. W. 5th Ave., Gainesville, Fla.

20. Carrington, Paul D., "Equal Justice Under Law" and "School Finance: An Appreciation of Rodriguez," in Proceedings of the Sixteenth National Conference on School Finance, op. cit.

21. Aiken, John S. and Clune, William H., "Economic and Legal Justification of Fiscal Neutrality," Education and Urban Society, February, 1973; Cohen, David C., "School Finance and Social Policy," op. cit.

22. Levin, Henry M., op. cit.

23. Guthrie, James W., op. cit.; Levin, Henry M., op. cit.

24. For some examples of this see: Benson, Charles S. and Kelly, James A., Rhode Island State Aid Program, 1966, Rhode Island Commission to Study Education, Providence, R. I.; Sampter, Eugene E., State Aid and School Finance Policy, 1966, Western New York School Study Council, Buffalo, N. Y.; Hempstead, Charles A., "Projected Costs and Equalization Strengths of Ten Alternative State Aid Formulae for Illinois," Unpublished doctoral dissertation, Illinois State University, 1969; Waren, Bernard, "The Equalization Effects of Proposed Formulae for Financing the Public Junior Colleges in Illinois," Unpublished doctoral dissertation, Illinois State University, 1969; for examples of the use of the Gini Index to measure the flow of state aid to poor school districts see Wilensky, Gail R., State Aid and Educational Opportunity, 1970, Sage Publications, Beverly Hills, California; Barkin, David, The Equalizing Impact of State Aid to Education, 1967, Washington University Institute for Urban and Regional Studies, St. Louis, Mo.

25. Briley, William P., "Variation Between School District Revenue and Financial Ability," in Johns, Roe L., Alexander, Kern S., and Stollar, Dewey H., Status and Impact of Educational Finance Programs, 1971, Institute for Educational Finance, 1212 S. W. 5th Ave., Gainesville, Fla.; Grubb, W. Norton and Michelson, Stephan, States and Schools, 1972, Center for Educational Policy Research, Harvard Graduate School of Education.

26. See for example: McLure, William P., The Public Schools of Illinois, 1964, Office of the Superintendent of Public Instruction, Springfield, Illinois; McLure, William P. and others, Education for the Future of Illinois, 1966, Office of the Superintendent of Public Instruction, Springfield, Illinois; McLure, William P., "Equal Expenditure for Equal Effort," in Final Report of the Superintendent's Advisory Committee on School Finance, 1973, Office of the Superintendent of Public Instruction (available as document # ED 078 550 in the ERIC system).

27. Compare for example: Caesar, Gene, McKerr, Robert N., and Phelps, James, New Equity in Michigan School Finance, 1973, Senate Committee on Education, with: Final Report of the Superintendent's Advisory Committee on School Finance, 1973, Office of the Superintendent of Public Instruction, Springfield, Illinois.

28. Jordan, K. Forbis and Alexander, Kern S., "Constitutional Methods of Financing Public Schools," op. cit.; also Jordan, Alexander, Hickrod, Rose, et. al., Financing the Public Schools: A Search for Equality, op. cit. For a particularly strong attack on the "reward for effort" notion see Michelson, Stephan, "What is a 'Just' System for Financing Schools," Law and Contemporary Problems, Winter-Spring, 1974.

29. Johns, Roe L. and Kimbrough, R. B., The Relationship of Socio-Economic Factors, Educational Leadership Patterns and Elements of Community Power Structure to Local Fiscal Policy, 1968, U. S. Office of Education.

30. Benson, Charles S., Goldfinger, Paul M. et. al., Planning for Educational Reform, op. cit.

31. Judd, Charles H., "Priority of Education Over Other Governmental Services," Phi Delta Kappan, February, 1933.

32. Jordan, Alexander, Hickrod, Rose, et. al., Search for Equality, op. cit., p. 49.

33. Cubberly, Ellwood P., School Funds and Their Apportionment, 1905, Teachers College Press, New York, N. Y.

34. Hickrod, G. Alan and Hou, Daniel Jaw-Nan, "Social and Economic Inequalities Among Suburban School Districts: Observations from a Two-Decade Study," paper presented to the 1974 Annual Meeting of the American Educational Research Association.

35. Wise, Arthur E. and Thomas, J. Alan, "Full State Funding," in Final Report of the Superintendent's Advisory Committee on School Finance, 1973, op. cit.

36. Treacy, John J. and Frueh, Lloyd W., "Power Equalization and the Reform of Public School Finance," National Tax Journal, June, 1974.

37. See for example: Berke, Joel S., Campbell, Alan K. and Goettel, Robert J., Financing Equal Educational Opportunity: Alternatives for State Finance, 1972, McCutchan Publishing Company, Berkeley, Calif.; Sacks, Seymour, Ranney, David, and Andrew, Ralph, City School-Suburban School, 1972, Syracuse University Press, Syracuse, N. Y.; Levin, Betsy, Muller, Thomas, Scanlon, William J. and Cohen, Michael A., Public School Finance: Present Disparities and Fiscal Alternatives, 1972, Urban Institute, Washington, D. C.; Callahan, Wilken, and Sillerman, Urban Schools and School Finance Reform, op. cit.

38. See Appendix B: "Selected Statistics for the Measurement of Disparity and Inequality Among Schools Districts" in Hickrod and Hou, op. cit.

39. Hickrod, G. Alan and Chaudhari, Ramesh, "A Longitudinal Study of Fiscal Equalization in Illinois," paper presented to the 1973 Annual Meeting of the American Educational Research Association; Hickrod, G. Alan, Chaudhari, Ramesh, and Tcheng, Tse-Hao, "Definition, Measurement, and Application of the Concept of Equalization in School Finance," Superintendent's Advisory Committee on School Finance, Occasional Papers, Volume One, 1972, Office of the Superintendent of Public Instruction, Springfield, Illinois (available as document ED 060 544 in the ERIC system); Hickrod, G. Alan, "Alternative Fiscal Solutions to Equity Problems in School Finance," Proceedings of the Sixteenth National Conference on School Finance, 1973, Institute for Educational Finance, 1212 S. W. 5th Ave., Gainesville, Fla.

40. McLoone, Eugene P., Profiles in School Support: 1969-70, National Center for Educational Statistics, 1974, U. S. Government Printing Office, Washington, D. C.

41. Mr. Ramesh Chaudhari, Computer Services, Illinois State University, Normal, Illinois 61761.

42. Benson, Charles S., Goldfinger, Paul M., Planning for Educational Reform, op. cit.

43. Peterson, LeRoy J., Rossmiller, Richard J., Wakefield, Howard E., and North, Stewart D., Economic Impact of State Support Models on Education Finance, 1963, School of Education, University of Wisconsin; Rossmiller, Richard A., Hale, James A. and Frohreich, Lloyd E., Fiscal Capacity and Educational Finance, 1970, Department of Educational Administration, University of Wisconsin, Madison, Wisconsin 53706.

CHAPTER III

EVALUATION OF THE ILLINOIS GRANT-IN-AID REFORM OF 1973 USING FISCAL DATA FROM THE 1973-74 SCHOOL YEAR

In this chapter we shall apply fiscal data from the 1973-74 school year to the evaluative criteria we have established in the second chapter. The discussion is in five parts. First, we shall describe the variables we are using. Second, we shall describe the population used in the study. Third, we shall present our findings, criterion by criterion. Fourth, the limitations one must place on these findings will be presented and also suggestions will be made for further research. We shall then conclude this study with a summary evaluative statement.

Variables Used and Definitions of Terms

Although much of the discussion in Chapter II is in terms of "expenditure per pupil," audited expenditure statements from the many school districts in Illinois lag considerably behind the current actions of the General Assembly. In order not to hold up this evaluation even longer than has already been the case we elected to use a constructed variable called "estimated state and local revenue per pupil" in place of the expenditure per pupil variable. For the 1972-73 school year this variable consists of multiplying the 1971 operating tax rate by the 1971 revised assessed valuations and then adding the actual general school aid for 1972-73. Similarly, for the 1973-74 school year this constructed variable consists of multiplying the 1972 operating tax rate by the 1972 assessed valuations and then adding the actual general state aid for 1973-74. In every case loss from failure to collect 100% of taxes will cause our figures to be slightly higher than the audited figures will be in the future. We have used two kinds of pupil counts in the analysis which follows. In order that this study can have some applicability outside the state of Illinois we have used the traditional "average daily attendance" (ADA). However, as was described in Chapter I, Illinois did in 1973 take a step toward weighting students in terms of certain selected educational "needs." This is reflected in the analysis which follows in terms of "TWADA." TWADA is average daily attendance which has been weighted for the presence of children who are eligible for Title I funding

under the Elementary and Secondary Education Act of 1965 plus a 25% add-on for each ADA in grades 9-12. Unlike some other states, Illinois does not have a separate state categorical grant for "compensatory" education. It is a curious historical fact that the General Assembly in Illinois did once pass a categorical grant-in-aid of this nature but never provided the funds to make the act operational.[1] In 1973, Illinois elected to take the quite different path of introducing a student weighting for "compensatory" educational needs into their general grant-in-aid formula. Several other states had previously taken this step, notably, New Jersey, Minnesota, and Missouri.

It is important to stress that the particular Illinois version of the Title I weighting reflects not only the number of Title I eligible children in a given district, but also the concentration of these children in that district, e.g., a district with 25% Title I children has a heavier weighting than a district with only 5% Title I children. This notion of weighting for concentration as well as for number of children with "compensatory" educational needs was drawn from the recommendations of a Presidential Commission on School Finance that was active about the same time as the state school finance studies referenced in Chapter I.[2] Therefore, wherever TWADA appears in the analysis that follows it refers to this "concentration" weighting, which is a part of the previously described "resource equalizer" option, and not to the constant .45 weighting that is present elsewhere in the 1973 reforms. Chapter I describes these weightings in more detail.

As many readers know, there is a long history of controversy over just what constitutes the most "valid" measurement of local district "wealth." The older literature stressed the difference between an "income" specification of fiscal capacity and a "property valuation" specification of fiscal capacity.[3] This debate between the proponents of income versus the proponents of property valuation has been kept alive by empirical studies which demonstrated very little correlation between school district income and school district property valuation.[4] In fact, some studies have even turned up negative correlations between the two wealth specifications.[5] Apparently this relationship varies from state and to state with somewhat better correlations in the southern part of the United States where the unit of school government is the county. More

recently this old dispute has been cast up in terms of whether "poor students live in poor districts" or more exactly, whether income poor students are not also to be found in property valuation wealthy districts.[6] We did not attempt to explore the relationships between various measurements of school district wealth in Illinois, although a full and systematic exploration on this score is sorely needed. Rather, we simply used both a "property valuation" specification of wealth and an income specification of wealth. In one part of the analysis we combined the two measurements.

"Assessed valuation" is the same state adjusted real property valuation used in many states for the purpose of distributing general educational state aid. "Partial" assessment practices do prevail in Illinois as they do in many states, that is, local assessors do not all assess at the same proportion of "true market value." The state attempts to adjust for these differences at least partially by applying so-called "multipliers" between counties in Illinois. These "multipliers" are intended to "equalize" the property assessments and offset the partial assessment practices. However the multipliers have at times been frozen at certain rates and the variance in assessment rates between townships within many counties have never been adequately "equalized" by the multipliers in the first place. There are also some peculiar complications in Illinois by having a number of school districts that lie in more than one county. We mention these matters only to illustrate that while "property valuations" have been accepted for a half a century as <u>the</u> measure of local fiscal capacity, there is now, and there has been for some time, reservations concerning the validity of this specification of fiscal capacity. Since the summer of 1973 these reservations have probably increased.[7]

There are also considerable reservations concerning the validity of the second fiscal capacity specification used in this study, i.e., "income per pupil." Ideally, income data should come directly from either federal or state income tax forms which are filed annually. However, state officials in Illinois have raised a number of practical problems concerning the collection of income data from this source, and, as of this writing, no income data is available by school district in Illinois from state tax sources.[8] In the absence of income data from state tax sources one must fall back on either income data as it is derived from the federal decennial census of housing and population or on special collections such as the income data project of the National

Educational Finance Project.[9] The special collections of course quickly become too dated to be of much help and they have their own validity problems. In the case of the NEFP project the federal income tax data is from 1966 and, more importantly, it was collected in terms of U. S. postal zip codes. Zip code areas in Illinois contain a wide variation of income levels and to assign all school districts within the same zip code, the same income per pupil, would considerably underestimate the variance in income levels.

Should one elect to use the U. S. Census income data, as we did in this project, there are other problems. The U. S. Bureau of the Census has never in the past, and did not in 1970, collect social and economic information on the U. S. population by school districts. Up until very recently researchers who wished to use federal census data had to go through the laborious task for "converting" from census units, e.g., block statistics, enumeration districts, census tracts, and minor civil divisions (often townships) to school districts. This was usually done by superimposing school district maps on the top of census maps, often with the aid of a light table, and then making estimates of the proportions of census units found within school district lines.[10] Through the joint efforts of the Bureau of the Census and the National Center for Educational Statistics data on all the 1970 census first count tabulations, and selected population tables from the fourth count summary tapes, were "translated" from census units into school district terms. This effort unlocks a great deal of socio-economic data on school districts never before at the disposition of school administrators. However, users of the NCES school district tapes have also uncovered some problems which will be discussed briefly in the next section of this chapter. In the analysis which follows "income per pupil" is self-reported family income plus income from unrelated individuals divided by either ADA or TWADA. Corporate income is not included. Since corporate property is included in assessed valuations there is a problem in making comparisons with income.

Definitions of "community type" used in this project, e.g., "central city, independent city, high growth suburb, low growth suburb, and rural," have been given previously in Chapter II, as have the "north, central, and southern" regional specifications. It remains only to comment upon the

regretable fact that it was necessary to carry out the analysis in terms of each of the three organizational types of districts found in Illinois, e.g., "unit" districts, that is K-12 jurisdictions, versus "dual" districts, e.g., separate high school and elementary jurisdictions. The result is that one must, in essence, work with three distinct populations rather than with a single population. We have not, at least at this point in time, arrived at some widely agreed upon system for merging fiscal data from the three different organizational types of districts. This does certainly complicate any school finance analysis in Illinois, but the problem is not unique to that state. California, for example, has similar problems.

Population Used

For all parts of the analysis which follows, except where income data is employed, the entire population of 501 elementary districts, 143 high school districts, and 436 unit districts in 1972-73 was employed. Similarly the 476 elementary districts, 135 high school districts, and 442 unit districts in 1973-74 were used. For that reason no inferential statistical tests are reported in this research since no sampling method was utilized. However, as was mentioned above, problems did arise with regard to the income data which was taken from federal census sources. In the first place it was necessary to drop districts from the study population which had merged or consolidated between 1970 and 1973. Secondly, a detailed analysis of the Illinois school district tapes was undertaken by Professor Vernon C. Pohlmann of the Illinois State University Sociology Department and Mr. Daniel Jaw-Nan Hou of the Office of Superintendent of Public Instruction. This analysis revealed a large number of discrepancies between the enrollments reported on the federal census tapes and the enrollments reported in the official state statistics of the Office of the Superintendent of Public Instruction. This motivated Professor Pohlmann and Mr. Hou to duplicate much of the procedures of the National Center for Educational Statistics in arriving at the data on the school census tapes in the first place. A number of processing errors were found and the nature of these errors has been reported elsewhere.[11] Despite the considerable efforts of Pohlmann and Hou a number of districts still showed enrollment discrepancies. It was therefore decided that where the percentage difference between the federal census school district tapes and the official state statistics was greater than twenty per cent those districts would then also be dropped from the population.

The upshot of the above is that we were forced to deal with a "partial" population where income data is concerned. Appendix B shows the extent of this dropping of districts both in terms of pupils and in terms of districts by organizational type and by geographic region of the state. It is clear that the effect of this dropping of districts was greater on the "dual" districts, e.g., elementary and secondary jurisdictions, than upon the unit districts. It is also clear that this trimming of districts affected the central and southern parts of the state more than the north. Since the great preponderance of pupils are found either in unit districts of the state, or in the "duals" of the north, we decided to live with the handicap of a "partial" population and continue the analysis. We do consider, however, the weakness of the income data to be perhaps the single greatest limitation on the results reported. Efforts are still underway at the time of this writing to increase the validity of the income data and reduce the number of districts that must be dropped from the study population.

Findings: Permissible Variance Criterion

Tables 1 and 1-A contain the data on the permissible variance criterion. In Table 1, where the total variation in revenue per ADA and the total variation in operational tax rate is used, the coefficient of variation is reduced between 1972-73 and 1973-74 in all cases. We may therefore conclude that overall disparity in revenues, and in tax rates, declined after the adoption of the 1973 reform. However, we know from prior research that a reduction of variation in costs per pupil and in educational tax rates has been occurring in Illinois during a period from 1963 through 1971.[12] Therefore, we cannot directly attribute the observed reduction in variation to the 1973 reform alone. What we can say, is that nothing in the 1973 reform interrupted this trend toward a greater equality of dollars per pupil and a greater equality of tax burden in Illinois.

In Table 1-A the focus of attention is not upon the entire variation in state and local revenues but only upon the variation below the median. Using the "McLoone Index" discussed in Chapter II there appears to have been some improvement in unit districts, and in high school districts, after the 1973 reform, but not in the case of elementary districts. The improvement

TABLE 1

PERMISSIBLE VARIANCE CRITERION

	Estimated State and Local Revenue Per ADA		Operational Tax Rate	
	Old (1972-73)	New (1973-74)	Old (1972-73)	New (1973-74)
Elementary	28.729	26.889	25.000	24.203
High School	27.801	24.992	23.809	22.000
Unit	14.087	13.492	15.596	14.847

TABLE 1-A

PERMISSIBLE VARIANCE CRITERION:
MCLOONE INDEX: REVENUE PER ADA

	Median		Dollars Needed		Index	
	Old (1972-73)	New (1973-74)	Old (thousands) (1972-73)	New (1973-74)	Old (1972-73)	New (1973-74)
Elementary	$ 783.14	$ 903.04	$32,038	$41,921	.9402	.9299
High School	1,193.23	1,252.84	42,182	33,084	.8940	.9202
Unit	876.35	972.37	63,709	66,899	.9530	.9559

in unit districts is also not very impressive. This suggests that policy makers may wish to pay special attention to the very low revenue producing districts in Illinois. The progress of these districts toward a greater equality of expenditures or revenue is as important as is the overall reduction in variation in the entire population.

Findings: Fiscal Neutrality Criterion

Tables two, three, and five contain the data on the fiscal neutrality criterion. With regard to the "dual" districts, that is, the separate high school and elementary jurisdictions, the Gini Indexes decline both when property valuation per pupil is used as the specification of wealth (Table 2) and when income per pupil is used as the specification of wealth (Table 3). One may conclude therefore that the dual districts in Illinois did move closer to the goal of fiscal neutrality after the reform of 1973. With regard to unit districts, however, only when assessed valuation per weighted pupil is used (the Illinois TWADA as explained in Chapters I and II) do we find a movement toward the goal of fiscal neutrality. Using the other three specifications of fiscal capacity we actually note a movement away from the goal of fiscal neutrality.

We were perplexed at first by this finding using unit districts. We then began to focus upon the role of the single school district of Chicago in this situation. As a review of Chapter II and Appendix A will indicate the Gini Index is deliberately constructed so that the larger school districts will have a greater effect than the smaller school districts. That is, the unit

TABLE 2

FISCAL NEUTRALITY CRITERION USING PROPERTY VALUATION PER PUPIL

	Assessed Valuation Per ADA		Assessed Valuation Per TWADA	
	Old (1972-73)	New (1973-74)	Old (1972-73)	New (1973-74)
Elementary	.0939	.0823	.0995	.0848
High School	.0929	.0815	.0961	.0844
Unit	.0578	.0616	.0345	.0265
Unit w/o Chicago	.0361	.0242	.0506	.0387

TABLE 3

FISCAL NEUTRALITY CRITERION USING
INCOME PER PUPIL

	Income Per ADA		Income Per TWADA	
	Old (1972-73)	New (1973-74)	Old (1972-73)	New (1973-74)
Elementary	.0984	.0859	.1011	.0832
High School	.0995	.0778	.1029	.0818
Unit	.0691	.0822	.0142	.0183
Unit w/o Chicago	.0306	.0263	.0442	.0374

of analysis when the Gini Index is used is the student, not the district. We therefore dropped the largest district in Illinois, Chicago, from the unit school district distribution. We then again observed the movement toward the goal of fiscal neutrality in all cases. This led us to look at the position of Chicago on four specifications of fiscal capacity or wealth, which is shown in Table 4.

It is apparent that Chicago is a wealthy school district in terms of several "average" type measurements of fiscal capacity. For example, Chicago is sixth from the very top of the distribution in terms of income per ADA and remains high on this income distribution even when the weighted student count (TWADA) is used. It is also far above the median in terms of property valuation per ADA. It is noteworthy that the only wealth specification on which Chicago will drop to near the median in Illinois is the specification which was actually used in the 1973 reform, e.g., property valuation per TWADA. It would be a mistake, however, to jump to a conclusion that Chicago is "wealthy" in some overall or absolute sense. The note to Table 4 also points out that Chicago has one of the largest concentrations of Title I eligible students in

TABLE 4

WEALTH OF CHICAGO
(1973-74)

Variable	Rank	Total Units
Income per ADA	6	360
Income per TWADA	22	360
Property Valuation per ADA	140	442
Property Valuation per TWADA	270	442

Note: Concentration of Title I eligibles in Chicago was 54.83% which places Chicago in the top 10% of unit districts in the state.

the state. What we are really observing here is a phenomenon which has been commented upon by a number of other school finance analysts.[13] Very large urban cities often appear wealthy when some average measurement of wealth is used, but these same cities appear poor when either direct measurements of poverty or correlates of poverty are introduced into the calculations. Large cities do have sizeable pockets of poverty; a simple "windshield survey" from the front seat of the family car any day in the year will leave little doubt as to that fact. What is not seen by such an intuitive process is that large cities also have appreciable numbers of very wealthy individuals and families. The result is a highly skewed income distribution with large numbers of low income families and individuals forming one end of the distribution and a few wealthy families and individuals forming the other end of the distribution. In such a situation any measurement of central tendency or, in fact, any average measurement, as all "per pupil" measurements are, is apt to be misleading.

We thus arrive at a very interesting paradox with regard to the fiscal neutrality situation in Illinois. The reforms of 1973 did increase the flow of state funds to the Chicago school district. This was primarily due to (a) Chicago's concentration of Title I eligibles and (b) Chicago's relatively high tax rate. However, since Chicago also appears relatively wealthy on the measurements of fiscal capacity or wealth used in the Gini Index calculations, this new flow of state money into Chicago has the effect of moving the state away from the goal of fiscal neutrality. The single exception to this, it will be recalled, is when assessed valuation per TWADA is used, and Chicagoans may be expected to argue that this is the most "valid" specification of school district wealth. To put the matter another way, central city educators will argue for the "expanded" interpretation of the fiscal neutrality concept discussed in Chapter II. Their position will probably be that "poorness" can be measured only after differences in student educational needs have been taken into consideration.

We also tried one combination of property valuation and income as a wealth specification primarily because a few states do use such combinations of these two variables. As can be seen from Table 5 the overall picture does not change very much when compared with the two wealth specifications taken separately. However, there are many possible combinations of the two wealth

TABLE 5

FISCAL NEUTRALITY CRITERION USING COMBINATION OF PROPERTY VALUATION AND INCOME PER PUPIL

	Combined Wealth Per ADA		Combined Wealth Per TWADA	
	Old (1972-73)	New (1973-74)	Old (1972-73)	New (1973-74)
Elementary	.1051	.0917	.1079	.0911
High School	.1056	.0871	.1072	.0890
Unit	.0663	.0744	.0340	.0275

specifications, for example, equally weighted, weighted by some index of prediction power relative to a third variable, etc., etc. We hold no special brief for the system used in combining the two wealth factors here and it is quite likely that one would get different results with other means of merging the two variables.[14]

Findings: Reward for Effort and Equal Expenditure for Equal Effort

Tables 6, 7 and 8 contain the data on the reward for effort criterion and the equal expenditure for equal effort criterion. Table 6 contains the results of a simple linear regression of state and local revenue per ADA on tax rate. Before the 1973 reform each one cent in tax rates in elementary districts was associated with an average of $17.73 in state and local revenues per ADA. After the 1973 reform each one cent in tax rate in elementary districts was rewarded with $23.73 in state and local revenues per ADA.[15] Encouragement to raise local tax rates has therefore been increased by $6.00. For unit districts the increase in the reward for effort is not quite as large, $4.50 roughly. By contrast, there was no increase in reward for effort for the high school districts. We believe this phenomenon to be a function of the very low tax rate ceiling placed on high school districts in the "resource equalizer," e.g., $1.05 as compared to the $1.95 and the $3.00 in the elementaries and units respectively. Without doubt, one of the most interesting

TABLE 6

REWARD FOR EFFORT CRITERION
USING NO TRANSFORMATIONS

	Old (1972-73)		New (1973-74)	
	Intercept	Slope	Intercept	Slope
Elementary	$595	$17.733	$604	$23.733
High School	780	32.647	871	32.381
Unit	641	12.010	621	16.471

Regression: Estimated Revenue/ada = a + b (tax rate)

questions currently to be asked in Illinois school finance is whether many local school districts will now respond to this increased reward for local effort. We shall comment again upon this matter at the close of the chapter.

Table 7 presents essentially the same information as Table 6. An attempt was made here to put the regression slopes in some kind of standard units so these slopes could be compared from state to state. One would then have some way of comparing the reward for effort factor in one state with the reward for effort factor in another state. Placing both variables, e.g., state and local revenues per pupil and tax rates in their logarithms has some advantages over other possible transformations. If one is willing to accept the position that a one per cent change in tax rate should be associated with a one per cent change in state and local revenues then, as was mentioned in Chapter II, the "ideal" slope is the same as the "unit elasticity" concept in economics, e.g., 1.00. Furthermore, any movement toward 1.00 can then be interpreted as a movement in the direction of the desired state educational fiscal policy goal. Table 7 reinforces the results of Table 6. Movement toward the "ideal" of 1.00 has taken place in elementary districts and unit districts but not in high school districts.

TABLE 7

REWARD FOR EFFORT CRITERION USING
LOGARITHMIC TRANSFORMATIONS

	Old (1972-73)		New (1973-74)	
	Intercept	Slope	Intercept	Slope
Elementary	7.796	.2526	8.168	.3137
High School	8.621	.3570	8.562	.3260
Unit	7.817	.2658	8.272	.3628

Regression: Log estimated revenue/ada = log a + b log (tax rate)

The use of regression slopes is particularly appropriate for the policy analyst if the conceptualization is dynamic in nature, that is, change in something, relative to change in something else.[16] However, the notion of "equal expenditure for equal effort" also has a static or "precision" component. One is also asking what is the relationship or correlation of tax rate to state and local revenues per pupil. The assumption here is not that the slope should equal 1.00 but rather that the correlation should be 1.00. In other words, one is interested in "goodness of fit" of the data to a desired function, in this case a straight line. As was mentioned in Chapter II one could well challenge this assumption that the "desired" function should be a straight line. However, one would then be called upon to defend some other shaped function and that could also be difficult. For this investigation we did accept the rectilinear assumption and Table 8 contains the information on the square of the Pearson correlation coefficient. As would be expected, the results are the same in Tables 6 and 7, that is, there is an increasing goodness of fit between the tax rate schedule and revenues for elementary and unit districts but not for high school districts.

TABLE 8

EQUAL EXPENDITURE FOR EQUAL EFFORT CRITERION

	Old (1972-73) R Squared	New (1973-74) R Squared
Elementary	.0745	.1201
High School	.1083	.0970
Unit	.1048	.1692

Regression: Estimated revenue/ada = a + b (tax rate)

Findings: Wealth and Tax Effort

Tables 9-A, -B, and -C do not relate directly to the evaluative criteria established in Chapter II, but they are of considerable interest to any state

which is experimenting with the "reward for effort" notions. As can be observed in the three tables there is a consistently negative linear relationship between property valuations per pupil and tax rates. As would be expected, property poor districts have higher tax rates. It is this simple negative relationship that attracted a good deal of attention from Illinois legislators since any grant-in-aid system placing more state funds into high tax effort districts can then also be interpreted as a form of selective property tax relief, or more precisely, property tax relief for the poorer districts. However, the relationship between tax effort and income is consistently positive. That is, at least in terms of overall linear effects, the wealthier districts as measured by income do make the greater tax effort. One could speculate that this might occur because higher income families place a higher value on formal education than do the lower income families.

The relationships seem particularly strong in the dual districts. There must be a good probability in these districts of combinations such as: high tax rate, high income, and low property valuations, or conversely: low tax rate, low income, and high property valuations. The first combination sounds suspiciously like a bedroom suburban or residential suburb while the second sounds like an industrial concentration, also in the suburbs. We merely note these diverse relationships here and promise to explore them in greater detail

TABLE 9-A

WEALTH AND TAX EFFORT
SIMPLE LINEAR RELATIONSHIPS
UNIT DISTRICTS

Variables	1972-73	1973-74
Tax Rate and Income/ADA	+.2072	+.2363
Tax Rate and Income/TWADA	+.1850	+.2221
Tax Rate and Property Av./ADA	-.3509	-.3693
Tax Rate and Property Av./TWADA	-.3580	-.3759

in subsequent research. There is also the very strong possibility of curvilinear rather than rectilinear relationships between wealth and tax effort, and this possibility should also be explored in some detail.

TABLE 9-B

WEALTH AND TAX EFFORT
SIMPLE LINEAR RELATIONSHIPS
ELEMENTARY DISTRICTS

Variables	1972-73	1973-74
Tax Rate and Income/ADA	+.4773	+.4661
Tax Rate and Income/TWADA	+.4843	+.4728
Tax Rate and Property Av./ADA	-.2946	-.2942
Tax Rate and Property Av./TWADA	-.2820	-.2845

TABLE 9-C

WEALTH AND TAX EFFORT
SIMPLE LINEAR RELATIONSHIPS
HIGH SCHOOL DISTRICTS

Variables	1972-73	1973-74
Tax Rate and Income/ADA	+.5754	+.4992
Tax Rate and Income/TWADA	+.5776	+.5055
Tax Rate and Property Av./ADA	-.3488	-.3379
Tax Rate and Property Av./TWADA	-.3447	-.3301

Findings: Community Type and State Aid

State aid systems are most assuredly the product of political pressures, counter-pressures, and compromises and therefore no evaluation would be complete without casting some light on that very familiar question: "Who got what?" Tables 10, 11, and 12 are intended to do this and Tables 13, 14, 15, and 16 provide auxiliary information bearing on this same question. In Chapter II we indicated that the reforms of 1973 were intentionally urban oriented and Table 10 provides evidence on that point. It was indeed the nine central city unit school districts that gained the most from the 1973 reforms while the rural unit districts gained the least. After the 1973 reforms the state of Illinois was providing more dollars per pupil to its central city school districts than to any other type of community. While many school finance studies have urged that this be done, very few states can provide evidence that it has been done.[17] It would appear therefore that Illinois can properly take some credit for leadership in meeting the needs of students in large urban areas.

The computations in the three tables which follow are in terms of both weighted means and unweighted means. In the unweighted situation the measurements are simply added together and divided by the number of districts. Such a process of course gives Chicago the same weight in the central city category as a much smaller city like Bloomington. To offset this the measurements were multiplied by the ADA and then divided by the summation of the weightings. This process would give Chicago much more effect in the central city category than Bloomington. The differences between weighted and unweighted means were not quite as great as we expected but since they do make some difference both are reported.

Tables 11 and 12 indicate that the other "winners" in 1973 were the suburban high schools and the suburban elementary schools. If there are "winners" then there must also be "losers," not in any absolute terms, since all got more state funds, but in the relative sense that some districts profited more than others. The three tables make it clear that it was the rural unit districts and, to a slightly lesser extent, the rural elementary districts, that gained the least from the reforms of 1973. The rural secondary districts

TABLE 10

STATE AID PER ADA BY COMMUNITY TYPE
UNIT DISTRICTS

Community Type	Weighted Means		Ratio	Unweighted Means		Ratio
	72-73	73-74	74/73	72-73	73-74	74/73
Central City	$414	$521	1.258	$426	$503	1.181
Independent City	412	473	1.148	412	474	1.150
High Growth Suburbs	435	502	1.161	397	455	1.146
Low Growth Suburbs	425	509	1.198	356	412	1.157
Rural	387	442	1.142	356	405	1.138

Number of Districts and ADA:

	Number	ADA-73	ADA-74
Central City	9	613,348	594,619
Independent City	15	73,641	73,079
High Growth Suburbs	42	142,387	142,381
Low Growth Suburbs	42	81,599	79,619
Rural	252	267,169	265,033

were, however, aided strongly, but there were only 37 of this type of district in the study population. The data on the number of districts and the ADA are given at the bottom of each table and help to interpret the relative importance of each community type in the study population. The data in the three tables strongly suggest that the reforms of 1973 might well be called "aid to metropolitan areas," that is, aid to both central cities and their suburbs. Such

TABLE 11

STATE AID PER ADA BY COMMUNITY TYPE
ELEMENTARY DISTRICTS

Community Type	Weighted Means		Ratio	Unweighted Means		Ratio
	72-73	73-74	74/73	72-73	73-74	74/73
Independent City	$358	$459	1.282	$348	$451	1.296
High Growth Suburbs	385	470	1.221	364	442	1.214
Low Growth Suburbs	289	357	1.235	282	341	1.209
Rural	367	431	1.174	326	382	1.172

Number of Districts and ADA:

	Number	ADA-73	ADA-74
Independent City	9	17,704	16,857
High Growth Suburbs	95	166,474	166,142
Low Growth Suburbs	100	195,071	188,529
Rural	109	45,888	46,356

areas are, of course, where the greatest concentrations of children are to be found, and when one anticipates changing the system they are also where a high concentration of votes in the General Assembly are to be found.

The three tables also make it clear that the dual districts were aided more than the unit districts by the reforms of 1973. This has led to some concern throughout the state that reorganization and consolidation efforts might be slowed by this new allocation of state funds. The relationship

TABLE 12

STATE AID PER ADA BY COMMUNITY TYPE
HIGH SCHOOL DISTRICTS

Community Type	Weighted Means 72-73	Weighted Means 73-74	Ratio 74/73	Unweighted Means 72-73	Unweighted Means 73-74	Ratio 74/73
Independent City	$239	$306	1.280	$249	$319	1.281
High Growth Suburbs	239	313	1.310	249	325	1.305
Low Growth Suburbs	150	189	1.260	158	199	1.259
Rural	232	302	1.302	222	290	1.306

Number of Districts and ADA:

	Number	ADA-73	ADA-74
Independent City	6	9,487	9,388
High Growth Suburbs	28	128,537	132,480
Low Growth Suburbs	26	78,593	78,377
Rural	37	18,999	19,365

between dual and unit districts is a complex one in Illinois and perhaps of limited interest outside the state. We will therefore not elaborate on this relationship in this report. We should point out, however, that the increased aid to dual districts rose out of an attempt to treat taxpayers equally regardless of whether they resided in unit or dual districts. This had not been true prior to the reforms of 1973.

Table 13 provides a slightly different view of state aid. Tables 10, 11, and 12 are in terms of dollar increases in state aid. Table 13 is in terms of the percentage of state aid provided each of the community types after the reform. From these data it is clear that while dual districts did get larger dollar increases in state aid the secondary districts in particular in Illinois are still mainly supported by local funds. This is particularly true of low growth suburban high schools which tend to be rather wealthy in terms of property valuation per child. In this type of community only 16 per cent of the revenues come from state sources. We can also see that while central cities did get sizeable dollar increases in state aid the percentage of funds coming from state, as opposed to local sources, is not out of line with suburban and rural units.

TABLE 13

PERCENTAGE STATE AID BY COMMUNITY TYPE
AND ORGANIZATIONAL TYPE, 1973-74

Community Type	Unit	Elementary	High School
Central City	46.70 (09)	--	--
Independent City	49.71 (15)	50.11 (09)	30.04 (06)
High Growth Suburb	47.62 (42)	49.15 (94)	25.92 (28)
Low Growth Suburb	42.21 (42)	34.15 (101)	15.73 (26)
Rural	42.43 (252)	47.26 (109)	25.34 (37)

In Table 14 we begin to see some of the reasons for the distribution of state funds to the different community types. One notes immediately the high tax effort for education exerted by the central cities of Illinois. This

appears to be greater than the effort of central cities elsewhere in the United States relative to the other community types.[18] Apparently the "municipal overburden" effect, that is the sometimes considered depressing effect of other municipal services on educational tax effort, is not as great in Illinois as it is in other states. It would require an investigation of greater scope than this project to reject or confirm this speculation. One also notes the low tax effort of the rural districts of Illinois. This fact almost assures that any type of reward for effort provision is not going to be of much assistance to rural Illinois. Table 14 also demonstrates that taxpayers located in the dual districts of the state are exerting greater tax effort than taxpayers in the unit districts of the state. This is particularly true of taxpayers in suburban dual districts. From this it is apparent that reward for effort or equal expenditure for equal effort notions are of considerable interest to suburban taxpayers and voters. Viewed in this light, the reforms of 1973 might be thought of as tax relief for suburban taxpayers.

TABLE 14

TAX RATE BY COMMUNITY TYPE AND ORGANIZATIONAL TYPE, 1973-74

Community Type	Unit	Elementary	High School
Central City	2.44	--	--
Independent City	2.32	1.53	1.32
High Growth Suburb	2.35	1.71	1.75
Low Growth Suburb	2.28	1.82	1.56
Rural	2.24	1.35	1.34

Tables 15-A and -B and 16-A and -B provide information on the "wealth" of the different community types and cast further light on the distribution of state aid to these community types. There are several interesting observations that could be made here but in the interests of shortening an already

lengthy report we shall comment on only one fact which has important policy implications. It is apparent from these four tables that the rural districts of the state are not only not going to profit from "reward for effort" systems, they are never really going to profit much from any traditional system of using property valuation per pupil as the measure of wealth. The effect of a long inflationary period on the price of farm land is an important part of the picture displayed in these four tables. By contrast, it is also apparent that the rural districts of Illinois would profit, and profit handsomely, by the introduction of an income measurement into the state grant-in-aid formula. The tables also make clear, however, that the rural districts cannot realistically expect much assistance from urban and suburban districts in introducing an income factor since neither the cities nor the suburbs have much to gain by the introduction of these "average" type income measurements. Suburban legislators and educators certainly gained from the tax effort provisions of the 1973 reforms, and central city legislators and educators certainly gained from the weightings for Title I eligibles. It seems only fair to us therefore for rural legislators and educators to now be given the chance to profit from an income factor. At this point in time, however, we are not sure what the rural interests have to offer as an inducement to get the necessary votes. The city and suburban legislators are very quickly becoming appraised of the full extent of their 1973 gains, and they know also that the inclusion of a simple income per pupil factor would not be of great help to them. We leave exercises of this sort, however, to those more experienced in such "horse trading," and turn finally to the last element of the analysis.

Tables 17-A and -B, 18, 19, and 20 are restricted to the rural districts of the state. Again, there are several items that could be commented upon here, but we will limit ourselves to noting the peculiar position of rural unit districts in the central part of the state. The complaints of rural superintendents from this geographic region of the state that they were helped very little by the reforms of 1973 receive considerable support from Tables 17-A and -B. Some of the reasons for this low gain in state aid in rural central Illinois are then apparent from Tables 18 and 19. Central Illinois rural unit districts have lower tax rates than the rural units of either the north or the south. In part, this low tax effort is the result of the rich black soil of this portion

TABLE 15-A

ASSESSED VALUATION PER PUPIL BY COMMUNITY TYPE
AND ORGANIZATIONAL TYPE, 1973-74
UNWEIGHTED MEANS

Community Type	Unit		Elementary		High School	
	ADA	TWADA	ADA	TWADA	ADA	TWADA
Central City	$24,233	$19,846	--	--	--	--
Independent City	21,266	19,025	$29,545	$27,375	$59,229	$46,427
High Growth Suburb	22,455	20,541	29,531	28,744	56,871	45,183
Low Growth Suburb	27,257	23,700	47,143	44,234	81,878	64,565
Rural	27,065	24,181	37,758	35,260	77,482	60,160

TABLE 15-B

ASSESSED VALUATION PER PUPIL BY COMMUNITY TYPE
AND ORGANIZATIONAL TYPE, 1973-74
WEIGHTED MEANS

Community Type	Unit		Elementary		High School	
	ADA	TWADA	ADA	TWADA	ADA	TWADA
Central City	$27,513	$18,755	--	--	--	--
Independent City	21,719	19,299	$29,100	$26,386	$60,915	$47,619
High Growth Suburb	19,851	18,002	27,543	26,876	50,259	47,100
Low Growth Suburb	21,679	18,827	41,975	39,111	85,491	67,462
Rural	24,069	21,598	30,270	28,748	67,134	52,168

TABLE 17-A

STATE AID PER ADA (UNWEIGHTED MEANS)
FOR RURAL DISTRICTS BY GEOGRAPHIC LOCATION

	North		Ratio	Central		Ratio	South		Ratio
	1973	1974	74/73	1973	1974	74/73	1973	1974	74/73
Elementary	$266	$311	1.169	$254	$297	1.169	$424	$500	1.179
High School	152	198	1.303	156	238	1.525	349	432	1.238
Unit	376	428	1.138	284	317	1.116	451	523	1.159

TABLE 17-B

STATE AID PER ADA (WEIGHTED MEANS)
FOR RURAL DISTRICTS BY GEOGRAPHIC LOCATION

	North		Ratio	Central		Ratio	South		Ratio
	1973	1974	74/73	1973	1974	74/73	1973	1974	74/73
Elementary	$314	$376	1.197	$385	$450	1.169	$450	$532	1.182
High School	179	234	1.307	164	238	1.451	338	428	1.266
Unit	391	454	1.161	320	359	1.122	461	527	1.143

of the nation's corn belt. Note particularly the property valuation per pupil figures of the central part of the state in Table 19. Although data is not present in the study on this point, the rural central part of Illinois also has a low concentration of Title I eligibles. Therefore, with low tax effort, high property valuation, and low concentrations of Title I eligibles, it is

TABLE 18

TAX RATE OF RURAL DISTRICTS BY GEOGRAPHIC LOCATION
(1973-74)

	Unit	Elementary	High School
North	2.3715	1.3684	1.3796
Central	2.1492	1.3240	1.3269
South	2.2261	1.3357	1.3269

TABLE 19

ASSESSED VALUATION PER ADA
OF RURAL DISTRICTS BY GEOGRAPHIC LOCATION
(1973-74)

	Unit	Elementary	High School
North	$25,189 (1) 23,446 (2)	$45,475 (1) 36,383 (2)	$84,026 (1) 74,215 (2)
Central	33,515 (1) 30,054 (2)	50,057 (1) 30,191 (2)	84,993 (1) 78,955 (2)
South	18,407 (1) 17,552 (2)	23,371 (1) 19,180 (2)	64,730 (1) 52,022 (2)

(1) Unweighted Mean
(2) Weighted Mean

small wonder, indeed, that rural central Illinois educators are not quite as enthusiastic about the reforms of 1973 as are their metropolitan colleagues throughout the state.

The situation of the central Illinois rural districts is not at all good in spite of their high property valuations. A continuing inflationary push in the economy plus a continuing loss of pupils through population decline will drive the property valuations per pupil figures to even greater heights and the tax effort of this part of the state will fall even further unless school boards can convince their voters to approve tax rate increases through referenda. The outlook for that is not good. In the first place they have never been able to do this in the past in part due to strong agricultural representation on the local school boards; second, their high property valuations prevent them from making much use of the new equal expenditure for equal effort provisions of the 1973 reforms; and third, the general tightening conditions of the U. S. economy are working against all forms of local tax rate increase. There is, in fact, a giant scissors at work in Illinois as in many states, one blade of which is the inflation and the other blade is the loss of pupils. A particular combination of historical and geographic conditions makes this scissors cut deeply into funds available in the central portion of the state.

There is perhaps a limited ray of hope for rural educators and legislators in Table 20. As was previously observed, the introduction of an income factor would be helpful to rural Illinois and Table 20 indicates that this would work to the advantage of rural educators and legislators in the southern and central part of the state more than in the north. It is a "limited" hope, however, since even if rural interests in the central and southern parts of of the state could get their less enthusiastic brethren in the north to go along with them, they would still face considerable apathy, if not outright opposition from the suburbs and the central cities.

Limitations of the Study and Suggestions for Further Research

In addition to the weakness of the income data, which has been previously described, the second major limitation must be that the evaluation rests upon only the first year's data from an allocation change that is planned to be phased in over a period of four years. The full impact of the 1973 reforms can only be known if the General Assembly elects to keep at least the major outline of the reform in place over the full four year period. This would of course not rule out changes in tax ceilings, guaranteed valuations, changes in the authority

TABLE 20

INCOME PER ADA OF RURAL DISTRICTS
BY GEOGRAPHIC LOCATION (1973-74)

	Unit	Elementary	High School
North	$12,472 (1)	$21,009 (1)	$40,683 (1)
	13,350 (2)	22,478 (2)	41,920 (2)
Central	12,453 (1)	17,832 (1)	35,617 (1)
	12,649 (2)	19,468 (2)	37,385 (2)
South	12,799 (1)	17,748 (1)	33,418 (1)
	12,540 (2)	18,090 (2)	36,608 (2)

(1) Unweighted Mean
(2) Weighted Mean

of certain types of districts to pass tax rate increases without referenda, at least to higher levels than now possible, etc. In fact, changes of this sort have already been suggested by various individuals and groups.[19]

In our judgement the real "unknown" in the Illinois situation is the degree to which districts will pass tax referenda under the terms of this new allocation system. In other words to what extent will the "reward for effort" actually result in additional local effort, and more importantly, where will this incremental effort take place: in the poorer districts, in the richer districts, in urban areas, suburban areas, rural areas, etc.? As Grubb and others have noted we know very little about the determinants of local district tax effort.[20] We would speculate that important tax rate changes might start occurring in the third and fourth years of the phase-in period. It takes considerable time to lay the groundwork for referenda attempts particularly under new "rules of the game." It is therefore important that the new allocation system be carefully monitored, not only during the first year or two of its existence but during the full four year phase-in period. Separate research efforts should also be undertaken on the determinants of tax rate increases and the determinants of successful referenda.[21]

While it is our sincere hope that studies of individual states such as this will prove helpful to decision-makers in those states, the U. S. Office of Education would also be well advised to invest some funds in projects that would compare the allocation patterns in one state with those in another. For example, a careful comparative study of Illinois versus Michigan, or perhaps Illinois, Michigan, Kansas, and Colorado might well throw some light upon the "reward for effort" phenomena that could never be attained by going at the task on a state by state basis. These are, of course, rather expensive research undertakings since no two states are exactly alike in their K-12 allocation systems and therefore extensive consultation and travel is necessary to assure that one is not comparing apples and oranges. However, if the Congress of the United States is really serious about some of the statements concerning equal educational opportunity it has made in Public Law 93-380, as we have indicated in Chapter II, then there must be much more work of this "comparative" nature in school finance.

School finance systems are also relatively open systems and they respond rather quickly to changes in the general U. S. economy and to changes in demographic and population composition. We would speculate for example that the response of school districts in Illinois, Michigan, Colorado, and other states with "district power equalization" or "reward for effort" provisions might be quite slow indeed if the general recession of the last two years continues its downward plunge. Without doubt, the passage of school district referenda, so important in these "equal expenditure for equal effort" systems is strongly affected by the general economic climate. If the school finance changes of the summer of 1973 had taken place in the summer of 1963, under the quite different conditions of a high pupil growth and a generally favorable economic climate then we might have gotten quite different allocation patterns than we are apt to get in the mid-1970's. We may never be able to do much more than speculate about these larger fiscal policy matters since the amount of funds invested in empirical school finance research is much too limited to support the long range efforts that are needed to answer questions of this type.

Much more work is needed on measurable criteria for school finance reform. We have had some reasonably good results with the Gini Index as a specification of "fiscal neutrality" but this instrument is certainly not without

limitations. If, for example, the application in other states shows that the curve does go above the line, that is, if some state systems are truly compensatory, despite our suspicions to the contrary, then there would be difficulties with this approach. This may also apply if federal funds are included in the analysis, which they were not in the study reported here. More importantly, while we can perhaps use this approach to observe whether or not an individual state is moving either toward, or away from, the goal of fiscal neutrality, we cannot tell for sure why this was the case. In a situation like Illinois where a major change in the state allocation system has just been made we could assume that the short run changes are due to that new allocation system. However, readings on the Gini Index would also be affected by resource shifts due to consolidations or reorganizations or simply to changes in industrial and commercial concentrations. The values would also be affected by changes in tax effort patterns, at least over longer periods of time. Perhaps most importantly, we have as yet no way to evaluate state school finance systems in a truly multivariate perspective. Our approach at present is to take each criterion, one at a time, and measure the state system against that single criterion. In the "real world," decisions must be made simultaneously taking into consideration all relevant criteria at one moment in time. We are a long way from being able to simulate that situation and there is considerable work yet to be done in these vineyards.

Summary Evaluative Statement

The wheels of legislative progress will not wait for researchers to complete all of the above tasks, even assuming the unlikely presence of enough personnel and funds to do the job. Therefore we shall attempt to summarize what we have discovered about the reforms of 1973 to date, bearing firmly in mind the qualifications we have insisted upon above. On the basis of one year's data it does appear to us that the state has generally moved toward the several fiscal policy goals outlined in Chapter II. Movement was made toward the goal of fiscal neutrality, variation in revenues per pupil and tax rates were reduced, reward for effort was increased, and movement was made toward the goal of equal expenditure for equal effort. Furthermore, Illinois became one of the leading states in the nation to at least begin to meet the expensive educational needs of students in its urban areas. These were, again, short run

results of the reform of 1973. Some of these gains may be reversed in the remaining three years of the phase-in period. Only time and further research can reveal whether this qualification was necessary or not. On the debit side, there are admittedly serious problems now in the rural areas of the state and these will have to be addressed by the General Assembly. The relationship between income and tax effort continues to disturb us and supports the fears of some who speculate that the rich districts will be able to take greater advantage of the reward for effort provisions than the poor districts, "once they learn the rules of the game." If they do this would not move us in the direction of greater equality of educational opportunity. However, there is not, at least to our knowledge, enough evidence accumulated to know whether this fear is justified or not.

To the limits of our resources and capacities the school finance research group at Illinois State University is committed to continuing the search for knowledge and enlightenment in all these school finance matters. We welcome the company of all those who share our several concerns.

Notes and References

1. See Section 14-B of the Illinois School Code.

2. Schools, People, and Money: The Need for Educational Reform, The President's Commission on School Finance, 1972, Washington, D. C.; The suggestion is reputed to have been made first by Professor Tom Jones, currently of the University of Connecticut.

3. See for example, the works of Arvid J. Burke, especially: Financing Public Schools in the United States, 1957, Harper and Bros., and "Local, State and Federal Financing of Locally Operated Elementary and Secondary Schools" in Gauerke, W. E. and Childress, J. R. (Eds.), The Theory and Practice of School Finance, 1967, Rand McNally.

4. See for example: James, H. Thomas, "Alternative Ways of Measuring Taxpayer Ability and Some Policy Implications for School Finance," paper presented to the annual meeting of the American Educational Research Association, 1963; Peterson, Leroy J. and Rossmiller, Richard, Economic Impact of State Support Models on Educational Finance, 1963, University of Wisconsin, Madison; Davis, Donald L., "Taxpaying Ability: A Study of the Relationship Between Wealth and Income in California Counties," unpublished doctoral dissertation, Stanford University, 1963; Rossmiller, Richard A., Hale, James A., and Frohreich, Lloyd E., Fiscal Capacity and Educational Finance, 1970, University of Wisconsin.

5. Hickrod, G. Alan and Sabulao, Cesar M., Increasing Social and Economic Inequalities Among Suburban Schools, 1969, Interstate Printers and Publishers, Danville, Illinois.

6. See Berke, Carnevale, Morgan and White, "The Texas School Finance Case: A Wrong in Search of a Remedy," Journal of Law and Education, Vol. I, 1972; Churgin, Ehrenburg, and Grossi, "A Statistical Analysis of the School Finance Decisions: On Winning Battles and Losing Wars," Yale Law Journal, 1972.

7. Many argue that there is now a stronger motive for underassessment than before the reform. Underassessment now causes the tax rate to go up, which is rewarded by the state, as well as the traditional increase in funds to poorer districts.

8. In addition to the usual arguments about the cost of gathering these data the more important problems seem to be the lack of knowledge on the part of the taxpayer as to which school districts they reside in, the difficulties with including corporate income, and the lag in time in processing the data. The authors suspect that a determined group of rural legislators could, however, overcome such opposition, if the need for the data was great enough. See Peterson, Jon, "Attempt to Obtain Income Data for School Finance Purposes," interoffice memo, December 12, 1974, Office of the Superintendent of Public Instruction, Springfield, Illinois.

9. Stollar, Dewey and Boardman, Gerald, Personal Income by School Districts in the United States, 1971, Institute for Educational Finance, 1212 S. W. 5th Ave., Gainesville, Fla. 32601.

10. See for example, Hickrod and Sabulao, op. cit.; also, Hickrod, G. Alan and Hou, Daniel, Jaw-Nan, "Social and Economic Inequalities Among Suburban School Districts: Observations from a Two-Decade Study," paper presented to the 1974 annual meeting of the American Educational Research Association.

11. Pohlmann, Vernon C., "Evaluation of 1970 Census School District Tapes," Review of Public Data Use, July, 1974.

12. Hickrod, G. Alan and Chaudhari, Ramesh, "A Longitudinal Study of Fiscal Equalization in Illinois," paper presented to the annual meeting of the American Educational Research Association, 1973; see also Hickrod, G. Alan, "Alternative Fiscal Solutions to Equity Problems in School Finance," in Proceedings of the 16th National Conference on School Finance, 1973, Institute for Educational Finance, 1212 S. W. 5th Ave., Gainesville, Fla. 32601

13. Riew, John, "State Aids for Public Schools and Metropolitan Finance," National Tax Journal, August, 1970; Callahan, John J., Wilken, William H., and Sillerman, Tracey M., "Urban Schools and School Finance Reform: Promise and Reality," 1973, National Urban Coalition, Washington, D. C.; Berke, Joel S., Campbell, Alan K., and Goettel, Robert J., Financing Equal Educational Opportunity, 1972, McCutchan Publishing Corporation, Berkeley, Calif.; Berke, Joel S., Answers to Inequity, 1974, McCutchan Publishing Corporation, Berkeley, California.

14. The income and property assessed valuation are combined by the following formula: Combined Wealth = $(AV/(AV + IN)) \times AV + (IN/(AV + IN)) \times IN$ Note that this isnot the only method to combine both income and property assessed valuation.

15. It is to be stressed that this is the average linear relationship between the two variables, that is, the slope of the regression line, and cannot be applied to a particular district. The three different kinds of districts complicate this situation as well.

16. For an interesting argument that regression slopes are of greater importance to policy analysts than are correlation coefficients see "A Policy Analyst's Guide to Regression Analysis," James N. Fox, interoffice memorandum, Assistant Secretary for Policy Analysis, Department of Health, Education and Welfare, December, 1973.

17. See for example the citations in footnote #13. Increased aid to urban areas in Illinois was also specifically recommended by two "blue ribbon" school study committees in Illinois. See A New Design: Financing for Effective Education in Illinois, 1972, Bureau of the Budget, Executive Office of the Governor, Springfield, Illinois; see also: Final Report of the Superintendent's Advisory Committee on School Finance, 1973, Office of the Superintendent of Public Instruction, Springfield, Illinois (available as Document ED 078 550 in the ERIC system).

18. See Levin, Betsy, Muller, Thomas, Scanlon, William J., and Cohen, Michael A., Public School Finance: Present Disparities and Fiscal Alternatives, 1972, The Urban Institute, Washington, D. C.; also Rossmiller, Hale, and Frohreich, op. cit.

19. Parrish, Leonard D. and Cox, Ralph, "Lets Equalize the Resource Equalizer," Illinois School Board Journal, January, 1974; Hubbard, Ben C., "The Resource Equalizer is Doing Its Job," Illinois School Board Journal, June, 1974; for an interesting but unsuccessful attempt to place an income factor into the Illinois formula see Choate, Clyde, "Amendment to Senate Bill 1397," June, 1974; see also the extensive memoranda of the Illinois School Problems Commission on this subject.

20. Grubb, W. Norton, "Wealth, Income, and Price Effects in Local School Finance," paper presented to the annual meeting of the American Educational Research Association, 1974.

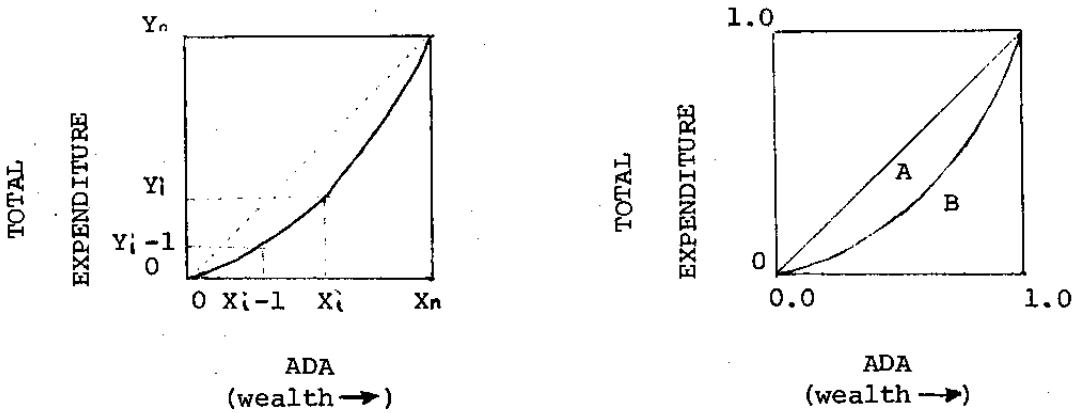
21. One of the authors of this report, Thomas W. C. Yang, has made some preliminary inquiries in this area.

APPENDICES

APPENDIX A

COMPUTATION OF GINI COEFFICIENT

The districts are sorted in ascending order of wealth per pupil. The cumulative proportions of pupils in the districts are represented by the horizontal axis and the cumulative proportions of total operating expenditures accounted for by these districts are represented by the



vertical axis. The curve thus plotted would be a straight line if the operating expenditures per pupil were the same in all districts. A sagging curve represents lesser expenditure in poorer districts. The measure of this inequality as defined by Gini Coefficient G is given by the formula:

$$G = \frac{\text{Area A}}{\text{Area (A+B)}}$$

or after further simplication

$$G = \frac{0{\cdot}5 - \text{Area B}}{0{\cdot}5}$$

$$= 1 - 2\text{Area B} \qquad (1)$$

Area B is the area under the curve and if n is the number of districts, and

X_i = cumulative proportion of ADA for the ith district

y_i = cumulative proportion of $ for the ith district

$$\text{Then Area B} = \sum_{i=1}^{n} \frac{(x_i - x_{i-1})\ (y_{i-1} + y_i)}{2}$$

$$\text{or 2 Area B} = \sum_{i=1}^{n} (x_i y_{i-1} - x_{i-1} y_{i-1} + x_i y_i - x_{i-1} y_i)$$

$$= (x_i y_0 - x_0 y_0 + x_1 y_1 - x_0 y_1$$
$$+ x_2 y_1 - x_1 y_1 + x_2 y_2 - x_1 y_2$$
$$+ x_n y_{n-1} - x_{n-1} y_{n-1} + x_n y_n - x_{n-1} y_n)$$
$$= (x_2 y_1 - x_1 y_2) + (x_3 y_2 - x_2 y_3) + \ldots$$
$$+ (x_n y_{n-1} - x_{n-1} y_n) + x_n y_n$$
$$= \sum_{i=2}^{n} (x_i y_{i-1} - x_{i-1} y_i) + 1 \qquad (2)$$
$$= 1 - \sum_{i=2}^{n} (x_{i-1} y_i - x_i y_{i-1})$$

substituting the value of area B in eq 1

$$G = \sum_{i=2}^{n} (x_{i-1} y_i - x_i y_{i-1}) \qquad (3)$$

APPENDIX B

EFFECTS OF DROPPING DISTRICTS IN THE INCOME ANALYSIS

Table 1 indicates the location and number of pupils dropped. Table 2 indicates the location and number of school districts dropped. It can be readily seen that the duals were more affected by this process than the unit districts.

TABLE 1

NUMBER OF PUPILS IN EACH TYPE OF SCHOOL DISTRICT

	1972-1973			1973-1974		
	North	Center	South	North	Center	South
Elementary						
Total	471,830	37,473	43,382	457,455	35,579	40,090
Dropout	105,046	16,790	10,807	94,692	15,626	8,501
%	.2228	.4481	.2491	.2070	.4392	.2120
High School						
Total	225,723	16,101	21,045	226,619	15,880	20,210
Dropout	23,075	4,018	3,974	20,395	3,783	3,231
%	.1022	.2495	.1888	.0899	.2382	.1598
Unit						
Total	796,759	290,344	198,950	789,120	286,884	198,350
Dropout	49,675	29,552	27,592	58,272	30,361	30,481
%	.0623	.10178	.1387	.0738	.1058	.1537

TABLE 2

NUMBER OF SCHOOL DISTRICTS

	1972-1973			1973-74		
	North	Center	South	North	Center	South
Elementary						
Total	307	80	114	301	75	100
Dropout	91	41	53	88	36	39
%	.2964	.5125	.4649	.2924	.4800	.3900
High School						
Total	82	31	30	79	29	27
Dropout	20	15	10	17	13	8
%	.2439	.4838	.3333	.2152	.4483	.2963
Unit						
Total	124	196	116	126	197	119
Dropout	18	33	25	20	34	28
%	.1452	.1683	.2155	.1587	.1726	.2353