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ABSTRACT

Current school finance problems are discussed in three papers. The first presents an analysis of the Illinois school finance reform law, providing insights into the operation of the law and an evaluation method for examining finance laws in other states. In the second paper, the relationships between selected features of Michigan school districts that can explain some interdistrict cost differences are explored. An index measures price differences among school districts, and a first attempt is made to go beyond a simple cost-of-living index to adjust for district cost differences associated with location. The third paper explores special urban aid factors in state school aid formulas for selected cities with municipal overburdens. The effects of tax exporting on local taxes, urban school aid factors, and tax burdens of various school finance reforms are analyzed. The final section describes New Mexico, Georgia, and Kentucky school finance reform laws. (Author/DW)

Selected Papers in School Finance 1974

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Caspar W. Weinberger, *Secretary*
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Office of Education
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CONTENTS

INTRODUCTION

This publication contains three important new papers on current problems in school finance. The first paper presents an analysis of the school finance reform law in Illinois and provides extensive insights into the operation of this law. Equally important in this study, Professor G. Alan Hickrod and his associates have provided a useful framework for evaluating school finance laws in other States.

In the second paper, Professor Harvey E. Brazer explores the relationships between selected features of school districts in Michigan which can explain some inter-district cost differences. He also constructs an index that measures price differences among school districts using the available data. This paper represents a first attempt to go beyond a simple 'cost-of-living' index to adjust for district cost differences associated with location. Some methodological and data problems remain, and the U.S. Office of Education is funding a follow-up study aimed at refining this approach.

In the third paper, Dean Dick Netzer explores special urban aid factors in State school aid formulas for selected cities often characterized as having municipal overburdens. The author provides an important contribution to an understanding of school finance with his analysis of the effect of tax exporting on the local tax burdens of these cities, the effect of urban school aid factors, and the probable effects on tax burdens of various school finance reform proposals.

In the final section of this publication, school finance reform laws enacted in three States in 1974 are briefly described. The U.S. Office of Education will continue its efforts to explore major school finance problems as a means of promoting equity in school finance.

Esther O. Tron
Project Monitor

THE 1973 REFORM OF THE ILLINOIS GENERAL PURPOSE EDUCATIONAL GRANT-IN-AID: A DESCRIPTION AND AN EVALUATION

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 has seen fit to express its views

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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

finance courses with us at Illinois State University is truly staggering. We shall always be grateful for the vast amount of information they have given us. Last, but far from least, we are appreciative of the efforts of Mrs. Carol Blake for assuring that the manuscript got into readable form.

Resources for this project came from three sources and the authors wish to credit each. First, the basic funds came from contract number OES-0-74-1581 granted under authority of Public Law 81-152, Title III, Section 302 (4) (c). This manuscript therefore constitutes the final report of the project pursuant to the terms of that contract. Second additional resources were provided by the summer grant program for 1974 of the Graduate School, Illinois State University, and this manuscript likewise constitutes a final reporting on that assistance. We express our appreciation to Dean Arthur A. White for his assistance in this matter. Third, the Department of Educational Administration, Illinois State University, made available a portion of its regular computer budget for this project and we express our special thanks to Professor Clayton Thomas, Chairperson, Department of Educational Administration, for that timely assistance.

January, 1975
Normal, Illinois

G. Alan Hickrod
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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 respons[illegible]ests upon each of the separate states to bring about a greater degre[illegible]ty 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 ·alizer," which is sometimes referred to in the national literature as a ·strict 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 building: capital improvement fund; summer school 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 less and districts with greater concentration 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 rollback 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 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" a preferred equity criterion. It was concluded therefore that the reforms 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 95-380. 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 fina riterion 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 tel. 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 denominator 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.

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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 aid 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 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 the 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. This partial population was also used in all the tables starting with Table 10. 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., ele ary 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 premissible 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 IV 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 72-73	Weighted Means 73-74	Ratio 74/73	Unweighted Means 72-73	Unweighted Means 73-74	Ratio 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		Ratio	Unweighted Means		Ratio
	72-73	73-74	74/73	72-73	73-74	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 whetner 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 Grow 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 16-A

INCOME 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	$20,531	$16,721	--	--	--	--
Independent City	16,537	14,754	$25,610	$23,578	$43,833	$34,280
High Growth Suburb	13,414	12,236	22,188	21,573	48,689	38,676
Low Growth Suburb	13,420	11,736	37,515	35,311	65,448	51,639
Rural	12,557	11,215	19,124	17,968	36,898	28,726

TABLE 16-B

INCOME 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	$23,750	$16,189	--	--	--	--
Independent City	17,084	15,180	24,762	22,453	44,161	34,522
High Growth Suburb	14,455	13,108	22,736	22,187	52,009	41,338
Low Growth Suburb	15,513	13,483	38,693	36,049	73,713	58,168
Rural	12,847	11,529	20,666	19,626	39,486	30,683

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 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.

TABLE 20
INCOME PER ADA OF RURAL DISTRICTS
BY GEOGRAPHIC LOCATION (1973-74)

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

(1) Unweighted Mean
(2) Weighted Mean

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 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 poor 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 [illegible]12 allocation systems and therefore extensive consultation and travel is nc[illegible]cary to assure that one is not comparing apples and oranges. However, if [illegible] Congress of the United States is really serious about some of the statement 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 dist[illegible]ts, "once they learn the rules of the game." If they do this would not r[illegible] us in the direction of greater equality of educational opportunity. How[illegible], there is not, at least to our knowledge, enough evidence accumulated to [illegible]w 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 is not 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.

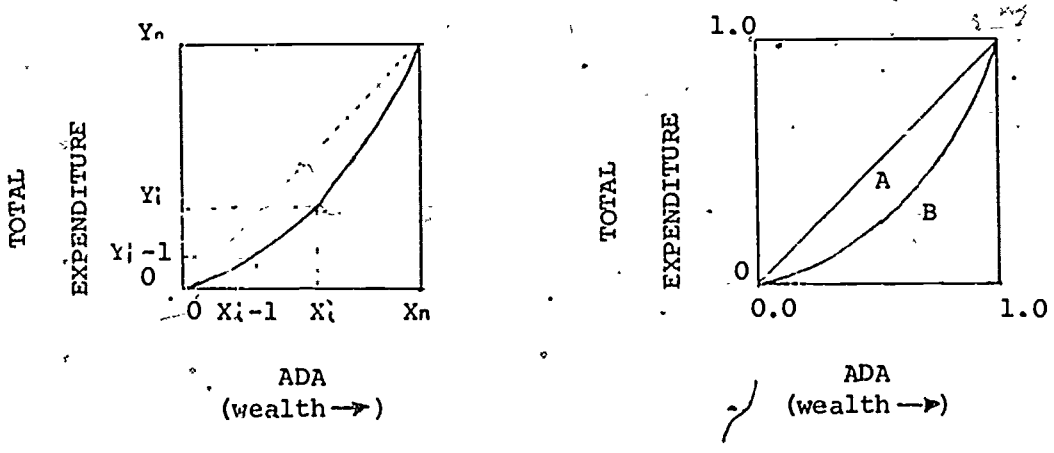
21. One of the authors of this report, Thomas W. C. Yang, has made some preliminary inquiries in this area.

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

ADJUSTING FOR DIFFERENCES AMONG SCHOOL DISTRICTS IN THE COSTS OF EDUCATIONAL INPUTS: A FEASIBILITY REPORT*

INTRODUCTION

Anyone concerned with equalization of educational opportunity necessarily focuses initially on the very wide differences in the amounts spent by school districts on the elementary and secondary education of their pupils. Among Michigan districts, for example, current operating expenditures per pupil in 1972-73 ranged from $1,608 in the affluent Detroit suburb of Oak Park to $497 in the South Boardman district of northern rural Kalkaska County,[1] while the unweighted mean for all 530 districts was $865.[2] Disregarding the extremes, we still find considerable variance. Thus the Mount Pleasant district, which ranked at the bottom of the top decile in terms of current operating expenditures per pupil, spent $1,049, and the district just one decile from the bottom, rural Quincy in Branch County, near the Indiana border, spent $734.

But how much do these expenditure figures tell us? Despite the difference of more than $300 per pupil in current operating expenditures between Quincy and Mount Pleasant, we find that composite basic skills achievement scores for fourth and seventh graders are only modestly higher in Mount Pleasant than in Quincy, and the latter experience a substantially

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*Constructive critical comment is generally a scarce commodity. But, fortunately, an earlier draft of this paper was reviewed by the Faculty Seminar and the Public Finance Seminar of the Department of Economics, The University of Michigan, as well as several other individuals. Particularly useful were the insights and suggestions offered by Alan L. Gustman, Saul H. Hymans, George E. Johnson, Robert D. Reischauer, Daniel L. Rubinfeld, Harold T. Shapiro, Frank P. Stafford, Lester D. Taylor, Esther O. Tron, Gail R. Wilensky, and two anonymous readers. W.H. Locke Anderson's contributions were exceedingly generous and indispensable. Needless to say, not all of the advice was accepted. For all of it, however, we are deeply grateful.

[1]Michigan Department of Education, Ranking of Michigan Public High School Districts by Selected Financial Data, 1972-73, Bulletin 1012 (Lansing, n.d.), pp. 19 and 27.

[2]Derived from ibid. The standard derivation was $144. Unless otherwise indicated, data for Michigan school districts may be assumed to be drawn from Bulletin 1012.

Harvey E. Brazer, assisted by Ann P. Anderson, University of Michigan, Ann Arbor, Michigan.

lower dropout rate.[3] Thus in terms of performance measures such as these the two school districts look more alike than their rankings with respect to expenditures would suggest. The two most striking differences are to be found in the average teachers' salary of $13,007 for Mount Pleasant and $9,806 for Quincy, and the pupil-teacher ratios of 22 and 26, respectively.[4] In combination they account for more than two-thirds of the difference between the two districts in per pupil current operating expenditures.

Enough has been said, perhaps, to illustrate the fact that observed differences among school districts in levels of expenditure per pupil may or may not be associated with similar differences in such measures of output as achievement test scores or dropout rates. But clearly they do arise as a consequence of differences in prices paid for major inputs such as teachers (salaries) and/or differences in the quantities of inputs used (pupil-teacher ratio). If prices for inputs of various qualities were the same everywhere and if educational "needs", however defined, were everywhere equal, then the obvious route to equalization of educational inputs per child would be through the assurance of equal availability of dollars per child.[5] Under these circumstances, with prices and dollars of revenue equal everywhere, quantities of inputs would also be equal.[6] But to the extent

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[3]Michigan Department of Education, Local District Results, The Fourth Report of the 1971-72 Michigan Educational Assessment Program (Lansing: Michigan Department of Education, 1972), pp. 25 and 93.

[4]Average teachers' salaries are from Bulletin 1012 and pupil-teacher ratios (reported as "State Aid members per teaching position") are from Michigan Department of Education, 1972-73 Summary of Expenditure Data for Michigan Public School, Bulletin 1013 (n.p., n.d.).

[5]"Equal availability of dollars" and equal inputs are not the same thing, even with prices and "needs" constant, for available dollars may not be spent or may be spent differently by different districts. Emphasis here is on equal opportunity to acquire equal inputs.

[6]Under the simplifying assumptions that input mixes, managerial efficiency, and curricular programs do not vary among districts, and that there are no economies of scale.

that prices do vary, neither an equal dollar distribution of funds among school districts nor an equal-yield per unit of tax effort can achieve equality in terms of educational inputs or the capacity to acquire them. If such approaches are to attain those objectives some means must be found for allowing appropriately for price differences among districts.

The suggestion that cost differences be taken into account in formulas used to distribute state aid to schools or in full state finance systems has been offered frequently and sometimes implemented. In New York State, for example, for purposes of state aid high school pupils are weighted 25 per cent more heavily than elementary pupils, and further adjustments are provided for "density", in the case of urban districts, and "sparsity", at the other end of the spectrum, for rural schools. Adjustments such as these are aimed rather vaguely at educational costs as a whole, rather than at prices of inputs as variable cost elements.

A recent Urban Institute study suggests "that a funding approach be based on a cost-of-education index rather than on equal dollars per pupil."[7] The authors are not very explicit about the details of the suggestion, but it is clear that they would make allowances for differences in "cost-of-living," otherwise providing for uniform salary scales throughout the state and uniform pupil-teacher ratios. Because of the belief that teacher education and experience are "not a benefit but a fixed cost," state payments would "reflect the actual teacher education-experience characteristics of a school district."[8] As a practical matter this approach would seem to depart

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[7] Betsy Levin, Thomas Muller and Corazon Sandoval, The High Cost of Education in Cities (Washington, D.C.: The Urban Institute, 1973), p. 71.

[8] Ibid., p. 72.

only modestly from an equal dollar scheme, with the principal difference entering in the form of the "cost-of-living" adjustment.

Even if it were possible to define the cost-of-living, as a price-market-basket amalgam somehow allowed to vary among areas of the state, measuring it for areas as small and as diverse as typical school districts implies a prohibitively costly task.[9] Perhaps even more important, however, is the implicit assumption that were it not for regional differences in consumer prices teachers would be indifferent as to location in the absence of salary differences. This assumption simply will not stand before the fact of differences in salaries paid within states to teachers of like education and experience that amount to as much as a third or more.[10] At best "cost-of-living" can be seen as only one of several arguments we should expect to find entering the supply function for teachers as seen by individual school districts.[11]

Similar recognition of the desirability of adjusting dollars distributed to school districts for differences in prices or costs is found in the Final Report of the President's Commission on School Finance.[12] The Commission recommended full state financing coupled with equal per pupil dollar distributions, modified by application of proposed indexes of "cost-of-

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[9]For a critique of the provision for adjusting state aid in Florida for differences among school districts (counties) in "the cost-of-living", see James N. Fox, "Cost of Living Adjustments in School Finance Reform: Righteous Intent Wrong Technique" (U.S. Office of Education, processed 1974).

[10]In Michigan, for example, in a probability sample of 177 districts, the range in minimum salaries paid to teachers with M.A. degrees in 1972-73 was $7,700 to $10,350, and the range for the maximum for teachers with a M.A. degree was $11,000 to $17,399. The higher figures are greater than the lower ones by 34 and 58 per cent, respectively.

[11]Since no data are available for consumer prices, let alone cost-of-living, it will not be possible to attempt to measure the importance of this factor.

[12]Schools, People and Money: The Need for Educational Reform (Washington, D. C.: U.S. Government Printing Office, 1972).

education" and "educational need".[13] Specifically it called for "Definition of cost differentials of various aspects of education among districts within a State and the development of a cost-of-education index to clarify these differences among districts," noting that "Cost of education personnel, facilities, services, and equipment vary from area to area as they do for all other public and private activities."[14] The Commission offers no further guidance for the construction of the index. It implies, however, that construction should be relatively simple, for it finds it "surprising" that such an index does not already exist, and holds that building an educational need index "is a considerably more complex process."[15]

In his plan for full state financing of elementary and secondary education in Michigan, Governor William G. Milliken called for varying per pupil dollar amounts in accord with observed regional differences in teacher salaries, taking into account education and experience. Under this proposal basic salary levels in 1971-72 would have ranged from $12,917 in Oakland County in the Detroit SMSA to a low of $8,832 in rural Lake County.[16] Implicit in this approach is the assumption that teachers' salaries in the State in 1971-72 were in equilibrium, reflecting appropriately market forces of demand and supply for teachers, and that the existing relationships should be maintained, except for changes over time in education, experience, "cost-of-living", and salaries paid in other public and private employment in the region.[17]

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[13] Ibid., pp. 35-7.

[14] Ibid., p. 35.

[15] Ibid.

[16] School Finance Reform in Michigan (Lansing, 1972), pp.58-63.

[17] "Region" is defined as Intermediate School District, which is a county or, in the case of the less populous areas of the State, a group of two or more contiguous counties.

Governor Milliken's proposal seems especially attractive to the teachers in low-paying districts of each region or county. It ignores entirely differences in such factors as the socio-economic status of the children in school, amenities offered by the district or region, and so forth. The fact is that in 1972-3 average teacher salaries in Oakland County ranged from $16,068 in Oak Park to $9,801 in Brandon, and of 28 K-12 districts in the county 3 paid an average of less than $11,000, while 4 paid more than $14,000. Undoubtedly education and experience accounted for some part of the indicated variance, but so did other factors that may be deserving of at least as much claim to recognition.

One might cite a number of other illustrations of calls for the development of a workable means of achieving equality in educational inputs or resources through provision for adjustment in state disbursements to school districts designed to take into account differences in input prices or costs. In contrast, however, as the President's Commission noted, it is not possible to cite either examples of appropriate price or cost indexes or of reasoned blueprints for their construction. It is, therefore, to the problems relating to the development of guidelines for making the desired adjustments and a limited "pilot" effort to develop illustrative actual adjustment indexes that we now turn.

QUALITY, QUANTITY, COSTS AND PRICES

Differences in current operating expenditures per pupil[18] are a function of many factors. They include differences in managerial efficiency,

[18] Defined in Michigan to include the costs of instruction and administration, attendance, health, and transportation services, operation and maintenance of plant, and "fixed charges". The latter category includes principally such things as employee fringe benefits. Excluded are capital outlay, debt services, and community and student services. Bulletin 1012, p. 3.

in quality of inputs acquired, in school programs or curricula, in quantity of inputs, and in prices paid, including teachers' salaries. Our objective in attempting to develop an adjustment index is not to ensure that the use of that index will permit revenues realized by each school district to finance whatever level of expenditures it or other districts may choose. It is, rather, to develop a means of compensating for differences among districts in the prices paid for or the costs of acquiring inputs of like quality. Thus, if our objectives were fully attained all districts in a state could be provided with precisely the funds needed to finance a uniform school program of a given quality if each district performed at the same level of managerial efficiency as every other district. That is to say, essentially, that each district in the state would be enabled to acquire the same quantity of constant quality inputs per pupil. This is not to suggest that each district should employ the same quantity of inputs per pupil. Obviously, perceived needs, however defined, will vary among districts and these should give rise to differences in the quantity, quality, and mix of school inputs employed. The problem of how to adjust revenues for differences in needs, except insofar as needs are reflected in factors governing the prices paid for educational inputs, is outside the scope of this paper.

Of the various school inputs teachers comprise, by any criterion, the most important category. In Michigan teachers' salaries account for approximately 55 per cent of current operating expenditures. And if we can obtain measures of other relevant influences on the level of teachers' salaries, we should be able to develop an adjustment index for this crucially important input price.

If adequate data were available quite the same might be said for the salaries of other personnel, professional and non-professional. But for purposes of this initial, preliminary study, it was not possible to compile the needed data. With respect to non-personnel prices, Michigan law prohibits the charging of prices that vary among school districts and, for the most part, differences in expenditures per pupil for books, supplies, and so forth, may be expected to reflect differences in quantities purchased or quality or level of program rather than variance in prices. Thus differences in non-instructional expenditures reflect factors such as tastes or preferences, climatic or geographic circumstances, behavior of the pupils as seen in levels of vandalism, and so forth. Clearly full analysis of this wide array of sources of variance in expenditures for things other than teachers' salaries is a large task that could not be encompassed within the framework of this study. Nevertheless, it seemed unsatisfactory simply to ignore entirely some 45 per cent of current operating expenditures. We shall, therefore, examine that part of expenditures that makes up the difference between current operating expenditures and "total instruction expenditure,"[19] or non-instructional current operating expenditures. In Michigan in 1972-73 they accounted for an average of 27 per cent of current operating expenditures. Adding teachers' salaries to this category accounts for all but 18 per cent of current operating expenditures, a residual that may be described as "instructional expenditure other than teachers' salaries."

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[19]This category includes substantially more than teachers' salaries. It is defined as "The cost of activities dealing with or aiding in the teaching of students or improving the quality of teaching." Bulletin 1012, p. 3.

TEACHERS' SALARIES

A Review of Related Studies

The unionization of public school teachers, contract negotiation, and frequent strikes have stimulated substantial interest during the past four or five years in quantitative analysis of teachers' salaries. The immediate objective of virtually all of the resulting literature has been to measure the influence of union organization on salary levels. For our purposes, however, it remains of interest for the insights it may provide on determinants, in general, of teachers' salaries. Thus we shall review, briefly, some of the highlights of this literature.

There are eight papers that seem relevant in this context, all of which employ the standard techniques of ordinary or two-stage least squares regression analysis.[20] The Kasper study is the least interesting for our purposes. It analyzes variance among the 50 states and the District of Columbia in average teachers' salaries and thus tells us nothing about inter-district influences on salaries. It finds that average teachers' salaries

[20] Listed in order of their appearance they are: Hirschel Kasper, "The Effects of Collective Bargaining on Public School Teachers' Salaries," Industrial and Labor Relations Review, Vol. 24, No. 1, Oct., 1970; Robert J. Thornton, "The Effects of Collective Negotiations on Teachers' Salaries," Quarterly Review of Economics and Business, Vol. 11, No. 4, Winter, 1971; John H. Landon and Robert N. Baird, "Monopsony in the Market for Public School Teachers," American Economic Review, Vol. LXI, No. 5, Dec., 1971; Robert N. Baird and John H. Landon, "The Effects of Collective Bargaining on Public School Teachers' Salaries: Comment," Industrial and Labor Relations Review, Vol. 25, No. 3, April 1972; W. Clayton Hall and Norman E. Carroll, "The Effects of Teachers' Organizations on Salaries and Class Size," Industrial and Labor Relations Review, Vol. 26, No. 2, Jan. 1973; David B. Lipsky and John E. Drotning, "The Influence of Collective Bargaining on Teachers' Salaries in New York State," Industrial and Labor Relations Review, Vol. 27, No. 1, Oct. 1973; Donald E. Frey, "Wage Determination in Public Schools and the Effects of Unionization," Paper presented at the Conference on Labor in Non-Profit Industry and Government, May 7-8, 1973, Industrial Relations Section, Princeton University, Princeton, New Jersey; and M. O. Clement and Alan L. Gustman, "Educational Equality and Teachers' Salary Differentials," March, 1974, mimeo.

tend to be positively associated with the level of personal income in the state, the degree of urbanization of the population, and total current educational expenditures per pupil, and negatively related to the proportion of school revenues derived from local sources.

All of the other studies employ individual school districts as their units of observation. Baird and Landon, Thornton, and Clement and Gustman deal with school districts located in or comprising large cities scattered across the United States. On the other hand, Hall and Carroll (Cook County, Illinois), Lipsey and Drotning (New York State), and Frey (New Jersey) focus on districts within one state. Hence they avoid inter-state differences in legal, institutional, traditional and other influences peculiar to individual states, and also include a wide variety of sizes and kinds of communities, rather than central cities of SMSA's only.

In both of their articles Baird and Landon present results of regression analysis suggesting that teachers' salaries[21] respond positively to the level of per capita income in the community, the log of the number of school districts in the SMSA or the county, and, in some equations, the proportion of district revenues from local sources.

Thornton, using data for school districts in 83 large cities, finds that about half of the variance in teachers' salaries[22] is "explained" by a measure of union negotiating strength, the average wage rate in the city or surrounding county, and the population size of the city containing the school district. The relationship is positive in each case.

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[21] Beginning B.A. salary.

[22] Four dependent variables are analyzed: beginning and maximum B.A. and M.A. salaries.

In a rather more elaborate analysis of essentially the same sample of school districts as was used by Thornton, Clement and Gustman estimate the influence of some two dozen independent variables on average teachers' salaries. Their findings indicate a positive statistically significant relationship for a measure of opportunity cost of teaching to male and female teachers, proportion of teachers with an advanced degree, proportion of the district's population that is nonwhite, population size of the city containing the district, per capita value of taxable real property, proportion of school revenue from state sources, and whether or not the district is fiscally dependent. A negative relationship, on the other hand, was found for enrollment size, proportion of teachers who are female, location of the district in the northeast or southern regions of the country, and the proportion of the SMSA population that lives in the central city. Somewhat surprisingly, perhaps, such variables as educational level of the adult population, median family income, and the proportion of public school students attending high school did not meet any reasonable test of statistical significance. In fact, quite contrary to expectations, the sign for both the income and education coefficients was negative.

Hall and Carroll direct their analysis to a sample of 118 elementary school districts in Cook County, Illinois. Their dependent variable is average teachers' salaries in the district. Median family income, percentage of the labor force engaged in white collar occupations, level of attendance in the district, proportion of teachers who are male, whether or not there is a collective bargaining agreement, and pupil-teacher ratio are all found to be positively associated with average teachers' salaries, while the association with the ratio of state aid to total expenditures is negative.

The study by Lipsky and Drotning is more closely akin to our own than any of the others reviewed thus far. The units of observation comprise 696 school districts in New York, all except the New York City district. Their analysis involves the salaries paid to teachers at three levels of education cum experience: beginning B.A.; B.A. plus 30 hours of credit and 7 years of experience; and B.A. plus 60 hours of credit and 11 years of experience. In addition, the district's mean salary is treated as a fourth dependent variable. Statistically significant in one or more of the estimating equations are pupil-teacher ratio, enrollment, percentage of teachers with advanced degrees, proportion of teachers with less than four years of service, taxable value of property per pupil, debt service per pupil, the ratio of instructional costs to taxable value, and whether or not the district is located in one of the three downstate counties, Nassau, Suffolk, or Westchester. Negative signs appear in the estimating equations only for the pupil-teacher ratio variable and even its regression coefficient is strongly positive in the case of the mean salary form of the dependent variable.

Finally, in our brief review, we have Frey's study of 298 school districts in New Jersey. Frey regresses the starting salary for beginning B.A. teachers on enrollment, median family income, taxable value of property per pupil, a measure of opportunity cost (wages paid to industrial nurses in private employment), and whether or not there is a collective bargaining agreement. All of these variables turn out to be positively related to beginning teachers' salaries, and they succeed, jointly, in "explaining" about 60 per cent of their variance, roughly the same proportion as in the case of the one clearly comparable study, that by Lipsky and Drotning.

Taken together, these studies, all but one of which was concerned primarily with measuring the impact of unionization on teachers' salaries, tend to support one's a priori views on the influence of such variables as size of the school district, median family or per capita income, size of the tax base, and education-experience of the teachers. These and other variables account for between one-half and three-quarters of variance in salary levels, the latter seen in terms either of means or at specified points on salary scales. They seem sufficiently promising to justify the view that it may be possible to employ a similar approach in the effort to devise a practical means of developing adjustment indexes designed to facilitate equalization of educational inputs among school districts.

General Methodology

Our objective is to measure the influence on teachers' salaries of factors that may be said to be operating through the demand for teachers on the one hand, and those affecting the supply function on the other. If we can successfully identify these factors, correctly specify the form of the relationships involved, and obtain estimates for the response of salaries to differences among districts in the values of the relevant factors, then we shall be able to compute the desired adjustment index. That index is to be designed in such fashion that, when applied to the initial amount of dollars available, the product of index and that initial amount will be a sum sufficient to permit all districts to acquire the same quantity of inputs -- in this specific instance, teachers.

Our approach is one which, in effect, neutralizes differences in demand among districts and compensates for differences in supply conditions

facing these districts. In simplest terms, let us suppose that we may stipulate the demand function for teachers as one in which salaries paid, S_d, are some function, d, of number of teachers employed, Q, median family income in the community, Y, and tax base per pupil, B. This may be written as:

$$S_d = d(Q, Y, B) \qquad (1)$$

Similarly, the supply of teachers, or the salaries that must be offered in order to employ various quantities of teachers of given levels of education and experience, may be a function of such things as location of the district in rural, suburban, or central city community, L, and characteristics of the pupils, perhaps as indicated by their basic achievement test scores, R. Thus we may write the supply function as:

$$S_s = s(Q, L, R) \qquad (2)$$

Assuming that the market for teachers is in equilibrium ($S_d = S_s = S$), we obtain the following reduced form equation for S:

$$S = f(Y, B, L, R) \qquad (3)$$

The parameters of equation (3) may readily be estimated using standard regression techniques. Our actual regression model assumes linearity and may be expressed as:

$$S = a + b_1Y + b_2B + b_3L + b_4R + u\ , \qquad (4)$$

where a is the intercept or constant term, the b_i's are regression coefficients, and u is an error term.

Let us suppose that the only relevant respects in which school districts differ is in terms of median family income (Y), tax base per pupil (B), location (L), and pupil achievement test scores (R), and that these four variables fully account for all variance in teachers' salaries. Now, clearly, we should not wish to reward rich districts with large tax bases, whose high demand for teachers gives rise to high salaries, in order to facilitate their paying those salaries. On the other hand, if a district, irrespective of its taxable wealth or income, pays high salaries in order to offset an undesirable location, that differential in salaries attributable to the location factor is one which we should wish to incorporate into our adjustment index. Thus, in general, our approach involves, essentially, abstracting from differences in demand factors and compensating for differences ascribable to supply factors. Once the regression equation, such as (4), has been estimated, this may be done by attributing to each district the mean value for all districts of the demand variables, and then arriving at a constructive value for teachers' salaries for each district by applying the parameters of the estimating equation to those means and the actual values of the supply variables.[23] The adjustment index for each district is, then, the ratio of this constructive estimated value for a given district, i, to the mean value for all districts of teachers' salaries. In terms of our estimating equation (4), the adjustment index for district i is:

$$\frac{\hat{S}_i = a + b_1\bar{Y} + b_2\bar{B} + b_3L_i + b_4R_i}{\bar{S} = a + b_1\bar{Y} + b_2\bar{B} + b_3\bar{L} + b_4\bar{R}}, \text{ i. e., } \frac{\hat{S}_i}{\bar{S}}. \qquad (5)$$

[23] The teachers' salary level so estimated for a given district may be defined as the level that would have obtained if income (Y) and tax base (B) in the district had been equal to their averages for all districts, given the district's location (L) and pupil characteristics (R).

In pursuit of this methodology our prime concern is to avoid the obvious pitfalls involved in simply adjusting the availability of funds to school districts to reflect existing differentials in prices or wages without regard to why those differentials exist. This places a heavy burden on the validity of the a priori reasoning specifying those factors that may influence demand, those influencing supply, and those that may enter on both sides of the market.[24] Despite this burden, however, the effort seems worth pursuing, partly because equal dollars simply do not produce equal inputs -- prices or costs do vary -- and any alternatives of which we are aware seem highly unpromising.

It should be entirely clear, of course, that the kind of adjustment we are concerned with can help to insure only equality of educational inputs and that differences in costs attributable to differences in identifiable educational "needs" remain unadjusted and unaccounted for, except to the extent that they are reflected in demand or supply factors. But, if one is concerned with compensating both for disparities in input prices and in needs, in order to pursue something approaching equality of educational outputs rather than merely inputs, a second index designed to measure need differentials must be estimated. Conceivably, of course, the task of estimating such an index may not be very different in terms of methodology from the one undertaken here, but it is outside the purview of this study.

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[24] Inevitably, perhaps, some normative judgments may well be involved in the specification of variables as demand or supply factors. Sensitivity of our results to such choices will be tested by the presentation of several variants of the adjustment index.

The Regression Analysis

The Sample

The school districts making up our sample are the 177 districts in Michigan which were included in the combined 1970 Census Fourth Count (Population) School District Data and the 1970 Elementary-Secondary General Information Survey Tapes, known as the "Combined SDDT-ELSEGIS III (SDEL3) Data Tapes."[25]

Salaries, the Dependent Variable

There are several possible forms that the variable "teachers' salaries" may take in the regression analysis required for construction of the adjustment index. In fact, of course, there is not, even in any given district at any one time, simply one "price", but many. Teachers' salaries vary with education, experience, and sometimes nature of responsibilities, and there is no reason to expect that these factors will give rise to the same differences in salaries in each district. It may be argued that the "key" price is the salary paid to the new, inexperienced teacher with only the baccalaureate degree. If most new teachers are hired at this salary it provides the closest reflection of current market forces. And yet it must be recognized that the beginning teacher may be as much or more influenced by prospective increments and future benefits as by those offered in the initial year of employment. Moreover, from the standpoint of the district

[25] The ELSEGIS III sample of 182 districts is a probability sample drawn from the total of 626 Michigan school districts, including the 530 K-12 that account for 99.7 per cent of enrollment and 96 elementary districts. The sampling ratios employed were 1.00 for districts with enrollment in 1969-70 of 4,000 or more, .32 for 2,500-3,999, .13 for 300 to 2,499, and .03 for under 300. In order to achieve comparability we dropped the 2 elementary districts and data do not appear on the Michigan SDEL3 tape for 3 others, leaving a sample of 177 K-12 districts.

and its taxpayers, the overall cost of maintaining a staff of teachers compatible with its educational objectives may be far more important than any particular points in the salary scale, although they are clearly related. Thus the most relevant form of the teachers' salaries variable appear to be the mean.[26] Average teachers' salaries in the district (ATS)[27] is, therefore, the dependent variable in our regression analysis.

Demand Variables

The demand variables in the reduced form equation to be estimated are those which are believed to represent, directly or indirectly, ability and willingness to pay for education and the preferences of the community. The ability to support education is represented by the state equalized value of taxable real and personal property per pupil in the district (SEVP) and by the proportion of families in the district whose 1969 income as reported in the 1970 Census was $15,000 or more (PRICH). In preliminary analysis mean family (MFY) and the proportion of families with income of less than $4,000 (PFPOV) appeared to contribute less well to the predictive power of our equations. When all three variables were included in the analysis severe problems of intercorrelation were encountered.[28]

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[26] For the sample of 177 Michigan school districts the first-order correlation coefficients between average teachers' salaries in 1972-73 and starting B.A., maximum B.A., starting M.A., and maximum M.A., are .65, .68, .66, and .74, respectively.

[27] For definitions and sources of data for ATS and all other variables used see Appendix A.

[28] The correlation matrix for PRICH, mean family income (MFY), and proportion of families with income of less than $4,000 (PFPOV) is as follows:

PRICH	1.00		
MFY	.95	1.00	
PFPOV	-.80	-.74	1.00

Willingness to support education is indicated in our analysis by that part of the tax levy for school operations that is subject to approval by referendum at irregular intervals, known as "extra-voted" millage, as distinct from "allocated" millage. The latter is the portion of the levy, ranging among counties from about 6 to 11 mills, that is imposed without voter approval. For most districts extra-voted millage (MILLV) is at least equal to allocated millage and for many it is two to three times as high. Given the system of state aid and the value of taxable property in the district it is the level of extra-voted millage that the community approves that largely governs the amount of revenue available, for teachers' salaries as well as other objects of expenditure.

Other things equal, the larger the proportion of the local tax base that consists of residential property (RES) the higher is the "price" to individuals as taxpayer-voters of a dollar of tax revenue. This follows, of course, from the assumption that school district residents do not see themselves as "paying" taxes levied on industrial, commercial and other non-residential property. As this price rises we should expect support for schools to fall and with it the level of teachers' salaries.

We also enter as demand variables three measures expected to reflect or govern the community's preferences with respect to education. The first of these variables is the proportion that kindergarten through grade 12 public school pupils represent of the total population (PPUPOP). It combines a measure of the population age mix with reliance on the public, as opposed to private and parochial schools. Our hypothesis is that the larger the proportion of the population that is enrolled in the public schools the stronger will be the support for those schools, including such elements of

support as teachers' salaries. The second of this group of variables is the proportion of the population of "foreign stock" (PFOR), that is, who were not born in the United States or whose parents were not born here. Traditionally the immigrant's entry into the "mainstream" of American society, his route to social acceptance and material [illegible], has been and continues to be through education, primarily public school education. We expect, therefore, that the demand for educational inputs, including teachers, is in part a positive function of the relative size of the school district's population of immigrants and children of immigrants. The third characteristic believed to be related to preferences for education, and hence to demand for teachers, is the stability of the district's population. It is measured by the proportion of the population aged 5 and older in 1970 who resided in the same house in that year as in 1965 (MOB). Our hypothesis is that long-term residents identify closely with the community and its school system, tend to feel that they have a larger stake in its quality, and thus are likely to be more supportive of local public education than people who are more mobile. The value of this variable may also reflect inversely the rate of growth of the district and, directly, its age. We believe that slower growing, older districts capture a closer sense of "community" and show a greater interest in collective enterprises, including the public schools. We expect, therefore, that districts with stable populations (high MOB) will, other things equal, exhibit high average teachers' salaries.

In summary, the demand equation suggested is the following, allowing S to represent ATS:

$$S_d = d(O, SEVP, PRICH, MILLV, RES, PFOR, MOB, PPUPOP). \quad (6)$$

Supply Variables

We classify as supply variables those factors related to, or characteristic of, a school district that we should expect to influence the salary level at which, other things being equal, teachers are available for employment. For the most part these variables are assumed to influence teachers' perception of the school district as one that is more or less attractive as a place to teach than available alternatives. In addition, we anticipate that with increasing education and experience, teachers demand higher salaries and that average salaries reflect this.

The hypothesis that as the size of the school district increases salaries must rise to compensate teachers for the increasing subjective costs of working in an environment bounded by rising levels of bureaucratic red tape and frustration imposed by additional layers of supervision and regulation finds considerable support in the literature.[29] Nevertheless, having deleted "Q" or quantity in order to arrive at the reduced form equation, it is clearly wrong to re-insert it for purposes of estimating that equation. And there does not appear to be any way to include a measure of district size in the estimating equation without confronting that obstacle.[30]

Like everyone else, teachers are presumed to have preferences regarding the kinds of communities in which they wish to live and work. Thus we classified school districts according to the nature of the predominant community in which they are located, as central city of a SMSA, suburb of a central city, "independent" city, and "rural". A district is classified as being in an independent city if it is located in or contains a city that

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[29] See, for example, Lipsky and Drotning, op. cit., Hall and Carroll, op. cit., Thornton, op. cit., and Frey, op. cit.

[30] The appropriate solution to the problem lies in estimating the structural demand and supply equations rather than the reduced form equation. We hope to pursue this approach in further work on the subject. We are indebted to George E. Johnson for calling our attention to these issues.

is not within the boundaries of a SMSA but has a population of 4,000 or more.[31] This classification gives us three "dummy" or dichotomous variables. A district is assigned a value of 1 if located in a central city (CE), 0 otherwise; 1 if rural (RUR), 0 otherwise;and 1 if suburban (SUB), 0 otherwise. The independent city class acts as the "control" group.

Our hypothesis is that, other things being equal, teachers require extra compensation to accept and keep employment in a central city school district. This hypothesis stems in part from observation of the exodus of non-teaching employment opportunities from the central city which, coupled with the large proportion of teachers who are second earners in the family, makes a position in the central city less attractive. Central city school buildings tend to be older and offer less attractive teaching environments, anticipated slower growth may offer fewer opportunities for "advancement" to supervisory and administrative jobs, and so forth.

By the same token the suburbs would appear to be relatively attractive, but in general not, perhaps, as appealing as modest sized independent cities. The more attractive suburbs may be viewed as relatively costly places to live. In addition, both suburbs in SMSA's and central cities are likely to have stronger, more firmly entrenched unions than places outside the metropolitan areas, thus again suggesting higher salaries.[32] The reasoning

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[31] By Census definition a central city must have a population of 50,000 or more. The classification "independent city" is limited to cities that do not qualify as suburbs and whose populations range between 4,000 and 49,999.

[32] We have not taken unionization of teachers into account in this study because all Michigan K-12 districts are now organized and their teachers are working under negotiated contracts. Moreover, outside of Wayne County, where the American Federation of Teachers is strong, virtually all districts are organized by the Michigan Education Association. Given more time and resources, it might have been possible to derive a variable or variables reflecting such things as union militancy, aggressiveness, and other attributes which, one easily supposes, could be important as arguments in the supply function for teachers.

leading to the expectation of higher salaries in suburbs and central cities implies, at the same time, lower salaries in rural and smaller city districts.

Teachers tend to be predominantly middle class, and, having gotten through high school and college, presumably average or better academic achievers. We assume that they are most comfortable teaching children who may be similarly characterized. Thus it is our hypothesis that teachers' salaries are negatively related to the socio-economic status of the pupils in the district (SESP) and to their achievement levels as measured by the district's fourth grade "Basic Skills Composite Achievement" scores (SKCF). That is, the higher the socio-economic status and achievement scores of the pupils, the lower will be the salary required to bring forth the desired number of teachers of a given education-experience level.[33]

Similar reasoning suggests that teachers view non-white pupils and parents with less favor than they do whites. Hence we expect that the level of teachers' salaries rises with the proportion of the community's population that is non-white (PNW).[34]

Furthermore, we expect that the drop out rate for pupils in grades 9 through 12 (DROP) is an additional indicator of the attractiveness of a school district as an employer of teachers. It is our hypothesis that as

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[33] Throughout this paper we avoid the attempt to define teacher "quality", for we have no means of measuring it. Education and experience are generally built into salary scales and by inference may be assumed to say something about "quality". But it is, perhaps, equally plausible to believe that higher salaries for teachers with more formal higher education credit hours or degrees and more years of teaching experience may merely reflect school boards' and administrators' -- indeed even almost everyone's -- views with respect to "fairness" in the salary structure.

[34] PNW is actually the proportion of the school district's population that is black and Spanish surname. Data by school district on other Census-recognized minorities are not available.

this rate increases, higher salaries may be expected as compensation for this "disamenity".[35]

Next we consider as arguments in our supply function two teacher characteristics that universally tend to be associated with higher salaries. They are proportion of teachers in the district who hold master's or other advanced degrees (PTECM), and the mean number of years of teaching experience (AYTE). Once inexperienced teachers with B.A. degrees have been hired and granted tenure, if we assume the salary scale to be given in terms of rewards for longevity and further degrees or degree-credits, district officials cannot control the movement of these teachers along that salary scale.[36] But they can control or at least negotiate about the structure of the scale. And it is this fact that makes us somewhat uneasy about counting PTECM and AYTE as supply variables the parameters of which are to be allowed to enter into our adjustment index. Having failed to find an acceptable means of resolving the issue, we shall present alternative estimates of the adjustment index, in one of which these variables are treated as supply factors, while in the other, their mean values are assigned to all districts, thus enabling us to "control for" these measures of teacher quality.

Thus we count nine variables in our supply equation. It may be expressed as follows:

$$S_s = s(Q, CE, SUB, RUR, SESP, SKCF, PNW, DROP, PTECM, AYTE) \quad (7)$$

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[35] In an earlier draft we included the pupil-teacher ratio as a supply variable. It seems clear, however, that this ratio is likely itself to be a function of the same factors that enter into the determination of teachers' salaries. Thus, we encounter problems of simultaneity that introduce bias into our estimates and require that this variable be dropped.

[36] For discussion of this point, see Levin et al, op. cit., pp. 22 and 72.

Intuitive logic, coupled with our review of the literature, suggests other variables that might have been added to our demand or supply functions. One of these, clearly, is a measure of district monopsony power. Following the suggestion of Landon and Baird,[37] we considered the use of this variable in the form of the logarithm of the number of school districts in the county. We decided after some preliminary analysis, however, that as the value of this variable increases so does the likelihood that we are dealing with suburban districts. It is only in SMSA counties in Michigan that the number of districts tends to exceed five or six, while it reaches a peak of 36 in Wayne County (Detroit). Thus it is difficult to interpret any relationship that may be estimated. Other variables, such as proportion of teachers who are female and a measure of the opportunity cost of teaching, in the form of salaries or wages paid in competing occupations, are not immediately available. Among those which were considered and then dropped after some analysis, either because they presented problems of multi-collinearity with other variables or because they proved to be unrelated to teachers' salaries in terms of average or beginning or maximum salaries for B.A.'s and M.A.'s, are proportion of revenue from local sources,[38] mean family income, proportion of the population of school age, proportion of the population aged 25 and over who have attended college for at least one year, and the percentage of employed persons aged 16 and over who are employed in managerial, professional and technical occupations.

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[37] Op. cit.

[38] Which, as expected, is highly correlated with State equalized value of taxable property per pupil. Appendix B presents a correlation matrix for the variables considered in our analysis.

Regression Results

Putting together equations (6) and (7) gives us the reduced form equation to be estimated directly by means of ordianry least squares for average teachers' salaries (ATS). The form of the regression equation is assumed to be linear.[39] Its estimated parameters are presented in Table 1, along with other relevant statistics.

We have 15 demand and supply variables that account together for 72 per cent of the variance among school districts in average teachers' salaries. As expected, AYTE, PTECM, DROP, CE and RUR enter as major influences from the supply side. The regression coefficients for SKCF, SUB, and PNW have the expected signs, but they are not statistically significant.[40] SEVP, PRICH, PPUPOP, PFOR, MOB, and MILLV as demand factors contribute significantly to explaining variance in average teachers' salaries. The one variable in the equation for which the regression coefficient does not take on the expected sign is the proportion of the tax base that is in the form of residential property (RES). Our hypothesis suggested a negative influence on salary levels, whereas the estimated coefficient is positive, although not statistically significant.[41]

The interpretation of the regression equation is fairly straightforward. Thus, for example, each additional mill of extra-voted millage (MILLV) adds $31.86 to average teachers' salaries of the district (ATS), while each

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[39] The regression equation was also estimated in a log-linear form, with no substantial difference in results.

[40] That is, the probability is higher than .10 that their true values are equal to zero.

[41] This result may be due to the multicollinearity between RES and such other variables as PRICH and SUB. See Appendix B.

Table 1. Regression Results, Average Teachers' Salaries (ATS) in 177 Michigan K-12 School Districts, 1972-73

Independent Variables	Regression Coefficient	Mean (Unweighted)
Demand Variables	ATS = $11,811	
MILLV	31.86*	16.36
	(1.821)	
SEVP	.0243**	20,150
	(2.157)	
RES	3.531	49.2
	(.5918)	
PFOR	27.35**	17.7
	(2.506)	
MOB	17.86**	55.9
	(1.984)	
PRICH	26.99***	26.7
	(2.972)	
PPUPOP	62.50***	25.5
	(2.679)	
Supply Variables		
ATE	155.3***	8.8
	(3.900)	
PTECM	37.24***	29.6
	(4.316)	
DROP	42.98*	5.2
	(1.692)	
SKCF	-58.22	51.1
	(-1.490)	
CE	752.7**	---
	(2.287)	
RUR	-429.3*	---
	(-1.774)	
SUB	136.4	---
	(.5918)	
PNW	7.729	4.6
	(.8457)	
Constant Term	7004	
R^2	.72	
S.E.	818.4	σ = 1476.7

't' statistics are in parentheses
*** significant at $p < .01$
** significant at $p < .05$
* significant at $p < .10$
N = 177

additional dollar of state equalized value of taxable property per pupil (SEVP), is associated with an addition of-$.024 to ATS. In the case of the "dummy" variables such as CE and RUR, we find that the district being located in a central city rather than in an independent smaller city adds $753 to average salaries, while location in a rural area subtracts $429.

Salary Adjustment Indexes

Following the methodology outlined above,[42] and using the estimated coefficients presented in Table 1, we have constructed adjustment indexes for a selected group of Michigan school districts for average teachers' salaries. These indexes are reproduced in Table 2.

The first column of Table 2 presents the observed average teachers' salaries for each of 35 districts selected from our sample expressed as a ratio to the mean value of average teachers' salaries for all districts in the sample. The selected districts include the six largest central cities, two or more residential and industrial suburbs of each of them, a group of four independent cities, and six rural districts. The ratio of ATS in the district to the mean ATS for the sample may be viewed as one possible adjustment index. It would be the appropriate one if our objective were to compensate school districts directly and proportionately with variation in the level of salaries actually paid. Since our objective is, rather, to compensate for those differences attributable only to variance in supply factors in teacher labor markets as opposed to differences in demand factors, clearly a ratio that reflects both demand and supply influences is not appropriate. Nevertheless, it is useful as an indicator of the extent to

[42] See pp. 13-16.

Table 2. Illustrative Salary Adjustment Indexes, Selected Michigan School Districts

District	Adjustment Index for Average Teachers' Salaries (ATS) $\frac{ATS_i}{ATS}$	Variant I[a]	Variant II[b]	Variant III[c]	Variant IV[d]
Detroit (CE)	1.086	1.194	1.151	1.145	1.102
Birmingham (SUB)	1.209	1.061	0.966	1.061	0.966
Dearborn (SUB)	1.220	1.171	0.982	1.085	0.897
Ecorse (SUB)	1.306	1.214	1.059	1.305	1.150
Highland Park (SUB)	1.041	1.072	1.078	1.118	1.125
Livonia (SUB)	1.232	1.006	0.994	1.157	1.145
Oak Park (SUB)	1.360	1.087	0.976	1.183	1.072
Walled Lake (SUB)	1.059	1.003	1.007	1.017	1.021
Flint (CE)	1.114	1.132	1.099	1.140	1.108
Beecher (SUB)	1.009	1.039	1.053	1.037	1.051
Lake Fenton (SUB)	0.854	0.914	0.994	0.825	0.905
Swartz Creek (SUB)	0.989	0.945	0.990	0.987	1.032
Grand Rapids (CE)	1.079	1.066	1.088	1.115	1.137
Forest Hills (SUB)	0.933	0.964	0.980	0.905	0.910
Kentwood (SUB)	0.904	0.933	0.988	0.918	0.972
Wyoming (SUB)	0.960	0.994	1.009	0.967	0.982
Ann Arbor (CE)	1.324	1.168	1.049	1.325	1.206
Willow Run (SUB)	0.908	1.032	1.033	0.919	0.920
Ypsilanti (SUB)	1.082	1.127	1.056	1.171	1.110
Lansing (CE)	1.141	1.158	1.090	1.173	1.106
E. Lansing (SUB)	0.908	1.132	0.988	0.983	0.839
Waverly (SUB)	0.913	1.029	0.982	0.878	0.831
Saginaw (CE)	1.118	1.153	1.113	1.147	1.107
Bridgeport (SUB)	0.882	0.969	1.015	0.903	0.949
Swan Valley (SUB)	0.825	0.891	0.988	0.857	0.954
Adrian (INDC)	0.990	1.015	0.991	1.045	0.975
Iron Mountain (INDC)	1.016	1.034	0.946	1.032	0.944
Marquette (INDC)	0.939	1.014	0.984	0.984	0.954
Midland (INDC)	1.093	1.027	0.968	1.062	1.003
Au Gres-Sims (RUR)	0.721	0.873	0.942	0.782	0.851
Deckerville (RUR)	0.845	0.964	0.964	0.901	0.901
Forest Park (RUR)	0.921	1.039	0.924	0.878	0.763
Harbor Springs (RUR)	0.948	0.959	0.947	1.005	0.993
Litchfield (RUR)	0.822	0.890	0.963	0.891	0.964
Rapid River (RUR)	0.815	0.901	0.959	0.873	0.931

[a] Based on estimating equation assuming AYTE and PCTEM are supply factors.

[b] Based on estimating equation assuming AYTE and PTCTEM are demand variables.

[c] Based on observed value of ATS corrected for differences from means of observed values of demand variables.

[d] Variant III amended to include AYTE and PCTEM as demand variables.

which our methodology leads to results that depart from compensation according to actual divergence of district salaries from the mean for all districts.

In column 2, labeled "Variant I," we have the salary adjustment indexes calculated from the regression coefficients shown in Table 1, the mean values of the demand variables, and the observed values of the supply variables, in accordance with the methodology described earlier. The values of the index range from 1.194 for Detroit and 1.214 for Ecorse, one of its industrial suburbs, to .873 and .890 for the rural districts of Au Gres-Sims and Litchfield. All of the central cities except Grand Rapids have indexes well above 1.1, while the rural districts and some suburbs, those that are primarily residential in function, outside the Detroit SMSA, tend to have low indexes.

The interpretation of the index values and their suggested application are simple and straightforward. If school districts in Michigan are to be compensated for differences in supply factors affecting their teachers' average salaries, then the base amount made available to each district would be multiplied by the district's index value. Suppose, for example, that the State undertakes to provide to each district in support of teachers' salaries an amount equal to $600 per pupil, adjusted for cost differences attributable to differences in supply factors. Then the actual amount for Detroit would be $716.40 ($600 x 1.194), for Flint, $679.20, Grand Rapids, $639.60, Livonia, $603.60, Au Gres-Sims, $523.80, and so forth. Thus, rather than each district receiving a uniform $600 per pupil, for the selected

group of 35 districts, the amount distributed would range from $728.40 for Ecorse to $523.90 for Au Gres-Sims, a difference of $204.50. Assuming a pupil-teacher ratio of 24, this would amount to a difference of $4,908 per teaching position.

Referring back to Table 1, we find that high index values are ascribable to high drop-out rates, low achievement scores (SKCF), high proportion of non-whites in the population, location in a central city as opposed to a rural area or independent city, and high values for average years of teacher experience (AYTE) and percentage of teachers having degrees beyond the baccalaureate (PTECM). Contrary to the view cited earlier, however, it may be argued that school districts can, and do, exert substantial control over AYTE and PTCEM. To the extent that this is so, the Variant I adjustment index unjustifiably (in terms of our objectives) rewards districts like Adrian and Ann Arbor, where the AYTE's are, respectively, 11.1 and 9.9 years, compared to an average for the sample, of 8.8, and Ann Arbor does well with respect to PCTEM, with a value of 62.6 per cent, relative to the sample mean of 29.6 per cent.

In response to this argument we have constructed the Variant II adjustment index. It differs from Variant I in that the mean values of AYTE and PTCEM are assigned to each district rather than the observed values. The effect is to "control for" these characteristics of teachers, characteristics which some would label "quality" indicators. The general effect is, of course, to narrow the range and variance in the adjustment index. But the general pattern of differences tends to remain basically unchanged. The principal "losers" are relatively high income suburban

districts such as Birmingham, Dearborn, and Oak Park, the independent cities, and Ann Arbor among the central cities.

Thus far, in the construction of our cost adjustment indexes we have ignored the fact that our regression equation fails to explain some 28 per cent of variance among school districts in the sample in average teachers' salaries. Our methodology involves expressing the constructively estimated value of ATS for each district as a ratio to its mean value for all districts (equation (5)). This procedure may be said to sweep under the rug the existence of substantial residuals, that is, differences between the observed values of ATS and the values given by the regression equation of Table 1. An alternative approach that permits these residuals to be reflected in the adjustment indexes involves adjusting the actual observed values of ATS for the differences between the observed and the mean values of the demand variables. The effect is to obtain an index value that reflects both the measured influence of supply variables and the influence of variables omitted from our estimating equation. In terms of the variables actually employed in computing the Variant III index values, the adjustment index for district i is:

$$ATS_i - b_1 (MILLV_i - \overline{MILLV} - b_2 (SEVP_i - \overline{SEVP}) - b_3 (RES_i - \overline{RES}) - b_4 (PFOR_i - \overline{PFOR}) - b_5 (MOB_i - \overline{MOB}) - b_6 (PRICH_i - \overline{PRICH}) - b_7 (PPUPOP_i - \overline{PPUPOP})$$

divided by $\overline{ATS}$.

Again, Variant III, like Variant I, permits teachers' experience and advanced degrees to influence the adjustment index. Variant IV adds to

the variables in expression (8) AYTE and PCTEM and, like Variant II, it holds these factors constant. The choice between Variant II and IV is not self-evident. Clearly the preferred course to follow is one that, by including the presently omitted variables in the analysis, would bring Variants I and III and II and IV into equality or near-equality. As the proportion of explained variance approaches 1, obviously, the size and, therefore, the relevance, of the residuals diminishes.

Thus the results presented in Table 2 and their basis in the regression equations of Table 1 obviously could profit from further efforts to refine them. They are presented here not as finished products but, rather, as means of illustrating with some precision the way in which the methodology suggested in this paper could be applied in the effort to attain equality of educational inputs. Thus further experimentation with several dimensions of the empirical portions of the paper seem warranted. As already indicated, several additional or alternative variables might be obtained and employed in the analysis; alternative specifications of the demand and supply equations might be developed; and it is likely that some problems encountered through the use of ordinary least squares to estimate a reduced form of the demand and supply equations could be resolved by means of two-stage least squares estimation of the structural equations.

Against the background of the foregoing caveats, disclaimers, and suggestions, we turn now to brief treatment of non-instructional current operating expenditures (NIXCP).

NON-INSTRUCTIONAL EXPENDITURES

Teachers' salaries constitute a price or set of prices in a manner for which we have no analog with respect to non-instructional current operating expenditures (NIXCP). These expenditures averaged $278 per pupil in 1972-73 for the 177 Michigan districts in our sample, with considerable variance, as evidenced by a standard deviation of $54. They comprise a wide range of kinds of expenditure, for such things as transportation, fuel, power, repairs to and maintenance of buildings, books, supplies, and so on. Since we are dealing with a broad composite of different kinds of input purchases it does not appear sensible to attempt to define explicit demand and supply functions. We can, however, attempt to identify factors which appear, on *a priori* grounds, to be related to variance in this expenditure category.

Larger school districts tend to be in urban locations where transportation costs are less because fewer pupils are transported. They may also enjoy economies of scale and may be able to obtain lower utility rates. Thus we expect that increasing size, as measured by the logarithm of the number of teaching positions (LTEAC), is accompanied by falling levels of NIXCP.

An increasingly costly element of non-instructional expenditures consists of outlays for security and repairing the damages wrought by vandals. Such costs may be associated with the proportion of the children in the district who are culturally or educationally deprived, particularly in the central cities of SMSA's. Thus our hypothesis is that NIXCP is positively associated with location of the district in a central city (CE)

and with the proportion of school age children in families with 1969 income of less than $3,000 (PCHPOV). We expect, on the other hand, a negative association with composite basic skills achievement scores (SKCF). By the same token, we anticipate that the more stable the residents of the district, measured by the proportion of people aged 5 and over who lived in the same house in 1970 as in 1965 (MOB), and the larger the proportion of families without children (PFNCH), the smaller will NIXCP be.

Finally, we have the indicators of willingness and ability to support school expenditures, in the form of MILLV and SEVP, respectively, and MILLD, debt-service millage, as a measure of activity in the acquisition of new buildings and land. We expect that all three of these variables exert an upward influence on NIXCP.

The estimated regression equation is as follows (with 't' statistics in parentheses):

$$\begin{aligned} NIXCP = {} & 302.6 - \underset{(2.52)}{20.99}\ LTEAC + \underset{(2.67)}{31.33}\ CE + \underset{(2.61)}{2.755}\ PCHPOV \\ & \underset{(2.70)}{-3.072}\ SKCF + \underset{(1.72)}{8.748}\ PFNCH - \underset{(3.31)}{.9792}\ MOB + \underset{(11.72)}{.0037}\ SEVP \\ & \underset{(9.57)}{+5.452}\ MILLV + \underset{(4.04)}{4.870}\ MILLD \qquad (R^2 = .67;\ S.E. = \$31.90) \end{aligned}$$

Thus, in the case of all variables except PFNCH, for which the sign of the regression coefficient is positive rather than negative,[43] our hypotheses find support. As in the case of teachers' salaries, in seeking

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[43] This is the only regression coefficient that is not significant at the $p < .05$ level or better. Other variables tested in preliminary analysis but which added nothing to explained variance are PUPT, AYTE, PTECM, SESP, DROP, RUR, SUB, RES, PNW, PFOR, PPP, PRICH, PPUPOP and POP.

an adjustment index for NIXCP, one which is far less unambiguously a "price" adjustment, we assign to each district the mean values of MILLV, MILLD and SEVP. The index for each district is then obtained in the manner described for the index for salaries, the numerator in this instance being the constructive estimate for the i^{th} district, while the denominator is the mean value of NIXCP for the sample of districts as a whole.

For some of the districts listed in Table 2, the following adjustment indexes for NIXCP were computed:

Detroit, 1.15

Dearborn, 0.89

Oak Park, 0.95

Flint, 1.12

Ann Arbor, 1.13

Adrian, 1.01

Au Gres-Sims, 1.19

Harbor Springs, 1.19

Marquette, 1.03

This index is relatively high for central cities such as Detroit and Flint and also for the rural districts of Harbor Springs and Au Gres-Sims. The values for Detroit suburbs are low, while smaller city district indexes are close to 1. The index appears to reflect need for inputs such as those used in transportation in the case of the rural districts, and perhaps security and maintenance and repairs of older building subject to heavy vandalism in the larger central cities. In any event, its use cannot be seen in the same light as the indexes for teachers' salaries.

At best, it may combine the impacts of differences in prices or costs and differences in needs as given by the circumstances, societal and geographic, surrounding the school district.

CONCLUSIONS

For the more than half of school operating expenditures that is accounted for by teachers' salaries, we are confident that the methodology suggested in this paper is capable of providing appropriate guidelines for adjusting dollars per pupil so as to compensate for price differences confronting school districts. The estimates of adjustment indexes herein presented, while offered only as first approximations, have, to us, a "reasonable" look about them, in the sense that they vary in directions and magnitudes that appear to be conant with observed experience and circumstances in the State.

In the area of salaries we are much closer, we believe, to the objective we set out to attain than is the case with respect to non-salary expenditures. Here the available data are much less satisfactory, and it is not entirely clear that one can identify and distinguish among elements of demand and supply in a manner that permits differentiating between expenditure differences due to price variance and those due to circumstances of geography, climate, age of structures, and so forth. Perhaps, however, what is wanted is really an index that is a composite price-need index.

If school finance systems are ultimately to move toward the goal not simply of equality among districts in educational inputs, but equality in meeting educational needs, then what is wanted for all parts of school outlays are adjustment indexes that reflect both price and need differences. Much obviously remains to be done. This paper is offered as a vehicle for carrying one set of suggestions as to the direction that might be taken by larger efforts.

APPENDICES

Appendix A

Definitions of Variables and Sources of Data

ATS — Average teachers' salaries. Michigan Department of Education, Ranking of Michigan Public High School Districts by Selected Financial Data, 1972-73, Bulletin 1012 (Lansing, n.d.). Hereinafter cited as Bulletin 1012.

NIXCP — Difference between "current operating expenditure" and "total instruction expenditure" per pupil. Bulletin 1012.

AYTE — Average years of teaching experience. Michigan Department of Education, Local District Results, The Fourth Report of the 1971-72 Michigan Educational Assessment Program (Lansing, 1972). Hereinafter cited as Local District Results.

CE — Dummy variable, 1 if the district is located in the central city of a Standard Metropolitan Statistical Area, as defined by the 1970 Census of Population, and the City of Pontiac, 0 otherwise.

DROP — Drop-out rate, grades 9-12. Local District Results.

INDC — Districts other than those classified as CE, SUB, or RUR.

LTEAC — Common logarithm of the number of teaching positions in the school district. Michigan Department of Education, 1972-73 Summary of Expenditure Data for Michigan Public Schools, Bulletin 1013 (n.p., n.d.). Hereinafter cited as Bulletin 1013.

MILLD — Number of mills (dollars per $1,000) levied by the school district for debt service. Bulletin 1012.

MILLV — Number of extra-voted mills approved by electorate of the school district for operations. Bulletin 1012.

MOB — Proportion of population in the school district aged 5 and over who lived in the same house in 1970 as in 1965. National Center for Educational Statistics, U.S. Office of Education, Combined SDDT-ELSEGIS III (SDEL 3) Data Tapes, Michigan Tape. Hereinafter cited as SDEL 3.

PCHPOV	Proportion of children aged 5-17 in families with income of less than $3,000. SDEL3.
PFNCH	Proportion of families with no children under 18. SDEL3.
PFOR	Proportion of the population not born in the United States or whose parents were not born in the United States. SDEL3.
PNW	Proportion of the population black or Negro and Spanish surname. SDEL3.
POP	Total population. SDEL 3.
PPP	Proportion of total K-12 enrollment in private and parochial schools. SDEL3.
PPUPOP	K-12 enrollment in the public schools as a proportion of the total population. SDEL3.
PRICH	Proportion of families with income in 1969 of $15,000 and over. SDEL3.
PTECM	Proportion of teachers in the school district with M.A. degree. Local District Results.
PUPT	Number of pupils per teaching position. Bulletin 1013.
RES	Proportion of taxable value of property real residential in major municipality in the school district, in 1968. The value for the county used where municipal or township data not available. A.P. Snyder and J. Lepczyk, 1968 Value of Taxable Property in Michigan (East Lansing: Institute for Community Development and Services, Michigan State University, 1969).
RUR	Dummy variable, 1 if the district is located outside of a SMSA and does not contain a city with a population of 4,000 or more, 0 otherwise.
SESP	Socio-economic status of pupils as measured by the Michigan Educational Assessment, 1971-72. Local District Results.
SEVP	State equalized value of property per pupil. This is the effective local tax base per pupil. Bulletin 1012.

SKCF — Basic skills composite achievement test scores for fourth grade pupils in the district. Local District Results.

SUB — Dummy variable, 1 if the district is located outside of the central city but within the boundaries of a SMSA, 0 otherwise. (Pontiac is classified as a central city rather than a suburb of Detroit on the basis of the author's arbitrary judgment).

APPENDIX B

CORRELATION MATRIX

Table B.1. Matrix of Correlation Coefficients, All Variables

Variable	Correlation Coefficients														
MILLD	1.000														
MILLV	.026	1.000													
LTEAC	-.025	.462	1.000												
PUPT	.132	-.240	.028	1.000											
SEVP	-.310	.073	.250	-.318	1.000										
NIXCP	-.079	.425	.254	-.363	.586	1.000									
ATS	-.060	.480	.628	.085	.473	.379	1.000								
AYTE	-.254	-.015	.100	.013	.369	.201	.383	1.000							
PTECM	-.120	.474	.500	-.156	.559	.458	.721	.453	1.000						
DROP	-.143	-.046	.236	.172	-.097	.174	.171	.130	.090	1.000					
SKCF	.082	.121	-.042	-.131	.201	-.056	.037	.058	.139	.480	1.000				
CE	-.170	.102	.435	-.034	.136	.322	.260	.217	.254	.450	-.285	1.006			
RUR	-.118	-.471	-.581	-.040	-.115	-.155	-.501	-.078	-.412	-.087	-.056	-.138	1.000		
SUB	.336	.377	.235	.001	.035	.008	.315	-.265	.171	-.176	.133	-.358	-.574	1.000	
RES	.212	.362	.163	.117	-.318	-.146	.119	-.165	.079	-.240	.281	-.135	-.228	.357	1.000
PNW	-.169	.070	.287	-.005	.172	.328	.252	.221	.192	.417	-.608	.370	-.145	-.065	-.259	1.000

Continued

Table B.1. (Continued)

Variable	Correlation Coefficients															
PFNCH	-.337	-.162	-.232	-.168	.274	.258	-.046	.480	.133	.085	-.024	.239	.336	-.568	-.269	.159
PFOR	.045	.329	.268	-.183	.305	.159	.440	.108	.422	-.244	.359	-.078	-.183	.261	.262	-.145
MOB	-.066	-.109	-.206	.079	.077	-.245	.070	.190	-.056	.079	-.040	-.246	.062	.035	-.067	-.089
PPP	-.113	.233	.334	.022	.215	.052	.369	.223	.312	-.072	.201	.156	-.390	.146	.147	-.023
PRICH	.216	.520	.533	.069	.276	.212	.479	-.203	.391	-.178	.412	-.052	-.444	.587	.433	-.160
PCHPOV	-.265	-.256	-.280	-.070	.008	.163	-.188	.149	-.190	.199	-.452	.179	.330	-.440	-.333	.447
PPUPOP	.293	-.128	-.158	.166	-.370	-.336	-.196	-.418	-.406	-.157	-.076	-.429	.054	.362	.088	-.177
POP	-.081	-.029	.496	.120	.064	.099	.193	.092	.156	.278	-.223	.414	-.124	-.095	-.023	.362
	MILLD	MILLV	LTEAC	PUPT	SEVP	NIXCP	ATS	AYTE	PTECM	DROP	SKCF	CE	RUR	SUB	RES	PNW
PFNCH	1.000															
PFOR	.141	1.000														
MOB	.133	.285	1.000													
PPP	-.003	.438	.260	1.000												
PRICH	-.404	.439	-.209	.289	1.000											
PCHPOV	.469	-.192	.087	-.189	-.578	1.000										
PPUPOP	-.646	-.273	.086	-.459	.098	-.196	1.000									
POP	.120	.104	-.050	.152	.057	.124	-.194									
	PFNCH	PFOR	MOB	PPP	PRICH	PCHPOV	PPUPOP									

Note: See Appendix A for definitions of variables.

STATE EDUCATION AID AND SCHOOL TAX EFFORTS IN LARGE CITIES

PREFACE

This report relies on standard, published statistical sources, to provide data that are comparable among States and cities. There are two costs in such an approach: first, the data are not the latest that may be available in some States or cities but rather the earlier data available for all States and cities; and second, some of the quantitative comparisons necessarily abstract from circumstances specific to a given State. Thus, a reader in that State may find this report sounding at times both dated and unrealistic. However, the purpose of this report is to deal with a set of school finance problems common to a number of cities and States, not to design a school finance system for any one State. For the latter purpose, there is no substitute for intensive work on the scene, armed with the latest data that can be produced locally. In this report, the data are illustrative of the problems and possible solutions, not precise quantitative formulations for immediate policy application.

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INTRODUCTION

This report deals with one of the most intractable of policy problems in school finance currently: the prospect that generally-applicable systems for equalizing school financial resources within a state -- a highly desirable objective of public policy -- seem likely to increase tax burdens in large cities, which conflicts with another frequent public policy objective, alleviation of the evident fiscal difficulties in which many large cities have found themselves for a decade or more. This conflict among objectives, and the various fiscal difficulties, are by no means universal among large cities, but the problems are widespread and seem most common among the old large cities in the Northeast and North Central regions.

Therefore, the subject of the report is the circumstances of eight large cities in these two regions: Baltimore, Boston, Chicago, Cleveland, Detroit, New York, Philadelphia and St. Louis. All eight became large cities decades ago and were mature in both physical and economic characteristics well before the onset of the depression of the 1930's. All are the central cities of much larger metropolitan areas to the rest of which these cities have been losing both population and economic activity. With the exception of New York whose total population

has been stable since 1950, all have had absolute losses in population in the past twenty-five years, declines which seem to be accelerating, rather than decelerating. Most have also been suffering absolute losses in employment recently.

The plan of the report is as follows. The next section examines the general nature of the problem facing these cities, that is, the relative fiscal circumstances in which legislatures considering school finance equalization plans find them. This is followed by a section in which the fiscal impact of various hypothetical school finance alternatives is examined, as well as the impact on the cities of general tax relief plans. The final section presents recommendations for appropriate resolution of the difficulties found to be real, not merely apparent.

THE PROBLEM

Put aside, for the moment, all the many real-world complications that must be considered in designing school finance legislation, including the measurement of attendance (or enrollment), the weighting of pupils by grade level or degree of handicap, inter-district differentials in program costs, the evident need for some types of categorical aid; and many more such issues. Assume that these problems have been resolved and that the sole remaining issue is equalization of resources among districts, pure and simple. In this abstract world, the only variable is the taxable capacity of a district relative to that of all districts in its state. Compared to the existing situation, a comprehensive and far-reaching equalization plan is likely to increase tax burdens in districts with taxable resources per pupil well above the statewide average, and vice versa. Simply put, large cities face a problem that amounts to a scissors, one blade of which is the simple fact that, as conventionally measured, most large cities have taxable resources per pupil that are in fact above the state wide averages.

The conventional measure is, of course, the value of taxable property per pupil, since the property tax remains the overwhelming local tax source for the financing of schools. In five of our eight cities, the "full value" of taxable property per pupil is well above the statewide average, one-third above that average in the

case of Cleveland and New York and 10-15 percent higher in Boston, Chicago and Philadelphia. Indeed, in New York and Chicago, central city per pupil property values are a good deal higher than in their generally affluent suburbs, taken as a class (the reverse is true for our other six cities). Baltimore is well below the statewide average in this respect, while Detroit and St. Louis are close to the statewide averages.[1] Thus, holding other things equal, a comprehensive school finance equalization plan almost surely will raise tax burdens in five of our eight cities.

The Fiscal Circumstances of the Cities

The other blade of the scissors consists of the overall fiscal situation of these cities, notably the existing relatively high taxes collected from residents and businesses in the cities. Some summary comparisons are presented in Table 1 (the sources of the underlying data are described in Appendix A). In this table, the value of the variable for the central city is set at 100, with the statewide average and the average for the rest of the metropolitan area expressed as percentages of the central city value. The data

[1]These per pupil valuation comparisons are as of 1971-72; they are estimates, based on U.S. Census data, of what would result from a system of completely uniform assessment within each state and reflect the estimated current market value of taxable property. No state has this degree of assessment equalization in practice; thus, none of these comparisons match the data to be found in conventional school finance sources. They are abstractions, designed to highlight the fundamental economic situation.

Table 1. OVERALL FISCAL AND ECONOMIC COMPARISONS, 1971-72

	Baltimore			Boston			Chicago			Cleveland		
	Central City	Rest of SMSA	Statewide Average	Central City a/	Rest of SMSA a/	Statewide Average	Central City	Rest of SMSA	Statewide Average	Central City	Rest of SMSA	Statewide Average
Per capita:												
Personal income, 1971	100	126	120	100	121	109	100	123	103	100	146	113
Market value of taxable real property, 1971	100	222	193	100	139	128	100	142	121	100	160	100
Market value of residential property, 1971	100	240	N.C.	100	228	N.C.	100	221	N.C.	100	237	N.C.
Local taxes, 1971-72	100	92	92	100	85	78	100	104	86	100	90	69
Local property taxes, 1971-72	100	83	89	100	61	79	100	113	90	100	99	72
Other local taxes, 1971-72	100	117	103	100	41	57	100	64	66	100	59	58
Percent of personal income:												
Local taxes, 1971-72	100	74	78	100	70	72	100	86	84	100	63	61
Local property taxes, 1971-72	100	67	75	100	71	72	100	93	88	100	69	64
Other local taxes, 1971-72	100	94	87	100	36	55	100	53	66	100	41	52
Residential property taxes, 1971-72	100	92	N.C.	100	137	N.C.	100	185	N.C.	100	141	N.C.
Effective property tax rates, 1971-72:												
All real property	100	45	54	100	64	64	100	92	81	100	86	86
Residential property	100	49	N.C.	100	73	N.C.	100	102	N.C.	100	86	N.C.
Exhibit: "Locally borne" local taxes as percent of personal income, 1971-72	100	80	N.C.	100	98	N.C.	100	97	N.C.	100	78	N.C.

N.C. - Not Calculated

a/ The comparisons here are for Suffolk and the rest of Massachusetts State Economic Area 3, respectively.

OVERALL FISCAL AND ECONOMIC COMPARISONS, 1971-72 (cont'd)

	Detroit			New York			Philadelphia			St. Louis		
	Central City	Rest of SMSA a/	Statewide Average	Central City	Rest of SMSA b/	Statewide Average	Central City	Rest of SMSA c/	Statewide Average	Central City	Rest of SMSA d/	Statewide Average
Per capita:												
Personal income, 1971	100	125	103	100	116	93	100	127	103	100	137	106
Market value of taxable real property, 1971	100	151	132	100	130	99	100	157	120	100	133	113
Market value of residential property, 1971	100	166	N.C.	100	166	N.C.	100	189	N.C.	100	176	N.C.
Local taxes 1971-72	100	89	77	100	98	84	100	81	70	100	73	63
Local property taxes, 1971-72	100	117	96	100	161	107	100	176	119	100	113	88
Other local taxes, 1971-72	100	8	25	100	19	54	100	13	35	100	25	32
Percent of personal income:												
Local taxes, 1971-72	100	71	76	100	85	90	100	65	69	100	55	60
Local property taxes, 1971-72	100	94	94	100	140	115	100	141	117	100	86	85
Other local taxes, 1971-72	100	7	25	100	16	59	100	10	35	100	19	31
Residential property taxes, 1971-72	100	109	N.C.	100	207	N.C.	100	170	N.C.	100	120	N.C.
Effective property tax rates, 1971-72:												
All real property	100	80	75	100	125	108	100	114	100	100	88	77
Residential property	100	82	N.C.	100	145	N.C.	100	114	N.C.	100	93	N.C.
Exhibit: "Locally borne" local taxes as percent of personal income, 1971-72	100	75	N.C.	100	92	N.C.	100	80	N.C.	100	67	N.C.

N.C. - Not Calculated

a/ 1970 Census SMSA definition. b/ 1970 Census SMSA definition. c/ Pennsylvania portion of SMSA only. d/ Missouri portion of SMSA only.

are for 1971-72, the latest year for which comprehensive and comparable data are available, from Federal sources; as of mid-October 1974, there were only very partial data in these sources for 1972-73 and none for 1973-74.

Income and wealth. Personal income per capita statewide is higher than in seven of our eight cities, by from 3 to 20 percent (New York is the exception, with per capita personal income 7 percent above the New York State average). The disparities would be even larger, in this as in all the other measures, if the central city had been removed from the statewide averages. It should be noted that the phenomenon of relatively low per capita income in central cities is rather new: twenty years ago, average incomes were above the statewide averages in nearly all cities with populations of 100,000 or more. The conventional image of a relatively poor central city surrounded by relatively well-off suburbs is supported by data for our cities: in all cases, per capita income in the parts of the SMSA outside the central city is well above that in the central city, by from 16 to 46 percent. The disparity is 25 percent or more in five of the eight cases.

In addition, central city property values per capita are relatively low in most cases. The estimated market value of locally-assessed taxable real property per capita (line 2 of Table 1) in six of our eight states is higher on a statewide basis than in the central

cities, by from 3 to 20 percent; in Cleveland and New York, the central city and statewide averages are about equal. Per capita real property values in the metropolitan area outside the central city are above the central city figure in all cases, by from 30 to 122 percent, with the disparity 50 percent or more in four of the eight cases. These property value estimates do not include locally-assessed personal property or state-assessed property, but when those excluded classes of property are taken into account in the crude way permitted by the available data, the relationships do not change, except for Cleveland, where personal property comprises a large fraction of the property tax base. Using this more comprehensive definition of property values, Cleveland appears to have substantially more property per capita than its suburbs and slightly more than the statewide average.

In all cases, the per capita market value of residential real property is at least 66 percent greater in the suburban areas than in the central cities, with a disparity of 100 percent or more in four of the eight cases.[2] This of course is not surprising; per capita residential property values have always been relatively high in suburban areas and central city residential disinvestment in recent years has widened the gap. However, as in the case of per

[2]There are no statewide comparisons in the table for this variable, although very crude ones are possible using published Census Bureau data. However, the resulting statewide figures would not be precisely comparable to the rather more refined estimates made for the central cities studied here.

capita income, the relatively low central city total property values per capita represent a reversal of a situation that prevailed for many years. Historically, low central city residential property values have been more than offset by high commercial and industrial property values; this clearly is no longer the case.

Local taxes. Local government tax collections per capita on a statewide basis are below local tax collections in the central cities in all cases, by from 8 to 37 percent; the disparity is 25 percent or more in five of the eight cases. Local taxes per capita in the outside-central-city parts of metropolitan areas exhibit less disparity, but nonetheless are below central city levels in seven of the eight cases, by from 2 to 27 percent; the exception is Chicago, where suburban tax collections per capita are 4 percent above the central city level.

The combination of relatively high per capita tax collections in the central cities with relatively low per capita income and property values means, of course, that there are very large disparities in taxes expressed as percentages of income or wealth, which are measures of apparent tax burden.[3] On a statewide basis, total local taxes as percentages of personal income are less than in the respective

[3]The word "apparent" is used here because it is not reasonable to assume that all of the locally-imposed taxes are economically borne within the jurisdiction in which the taxes are collected; see the discussion below.

cities in all cases, by from 10 to 40 percent; the disparity exceeds 20 percent everywhere except New York and Chicago. The outside-central-city parts of metropolitan areas are even further below the central cities in this respect, with a disparity in excess of 25 percent in all cases except New York and Chicago.

Because central cities tend to be heavier users of nonproperty taxes than are suburban local governments, there are extremely sharp differences in the apparent burden of nonproperty taxes, but these differences are not always meaningful. Even so, the central cities' apparent property tax burdens are relatively high in all cases except New York and Philadelphia. In these two instances, the central cities rely very heavily indeed on nonproperty taxes, while local governments elsewhere in their states and metropolitan areas remain heavily dependent upon property taxes.

Residential property taxes as a percentage of personal income, on the other hand, are <u>higher</u> in suburban areas than in central cities, except in the Baltimore area. At first glance, this might seem surprising, since the table shows that effective tax rates on residential property (the tax divided by the estimated market value) are lower in suburbs than in central cities, except

for Chicago, New York and Philadelphia, by from 7 to 51 percent.[4] However, as previously noted, residential property values per capita are much lower in central cities than in suburbs; moreover, the central city property tax base includes relatively more nonresidential property and the total central city tax base includes more nonproperty taxes, in most cases, which suggests that, however hard-pressed they may be, central cities can get by with residential property taxes that are low relative to personal income.

This outcome can best be amplified by an illustration, which is presented in Table 2 for the Cleveland SMSA. In 1971-72, residential property taxes provided only about 19 percent of all local taxes in the central city; the corresponding figure for the rest of the SMSA was 43 percent. This meant that although the total apparent tax burden -- relative to personal income -- was very much higher in the central city (8.4 percent versus 5.3 percent), the residential property tax burden so measured had a reverse relationship.

[4]There are no statewide comparisons in Table 1 for residential property taxes, as percentages of either personal income or market value. A proper calculation of the numerators of these fractions would require data on the composition of the tax base of all jurisdictions in the state and their tax levies, with separate calculations for each before summing. This method would recognize the wide variations in tax base composition, tax rates and assessment ratios, variations that are rarely correlated with each other. However, this set of calculations would be inordinately expensive, even if all the raw data were at hand (which they are not).

Table 2 RESIDENTIAL PROPERTY TAX BURDENS AND RATES, CLEVELAND, 1971-72

	Central City	Rest of SMSA
Residential property as percent of total property tax base	24.9	50.9
Property taxes as percent of total local taxes	77.3	85.1
Residential property taxes as percent of total local taxes	19.2	43.3
Local taxes as percent of personal income:		
All local taxes	8.4	5.3
Residential property taxes	1.6	2.3
Estimated market value of residential property per capita	$3,045	$7,204
Estimated market value of residential property as a percent of personal income	83	134
Estimated effective rate, residential property taxes	2.0	1.7

Source: Derived from Census data as described in Appendix A.

Yet, because the value of residential property per capita or in relation to personal income was so very much higher in the suburbs, the tax burden result was consistent with lower effective tax rates on suburban residential property.

Returning to Table 1, we find that overall effective property tax rates statewide are well below those in the central cities, by from 19 to 46 percent, except for New York and Philadelphia. With the same exceptions, the outside-central-city areas have effective property tax rates well below those of their respective central cities, by from 8 to 55 percent. New York and Philadelphia are exceptions because of the very great importance of local nonproperty taxes in these two cities, as previously noted. To telegraph a message more fully presented below, one can draw the implication that any school finance equalization plan based mainly on the property tax, such as full state funding with a statewide property tax, is likely to affect New York and Philadelphia with particular severity simply because their heavy reliance on other taxes results in relatively low property tax rates in these cities, a relationship that surely does not suggest that these cities are fiscally well off.

One way of summarizing these comparisons of apparent tax burden is to indicate the percentage change in local tax collections --

presumably caused by increases or decreases in state aid -- that would have been required in 1971-72, if local taxes as percentages of personal income had been equalized to the statewide average in each of our metropolitan areas. The following are the calculated percentage changes, or indicators of "excessive" or "sub-normal" tax burdens:

	Central City	Rest of SMSA
Baltimore	-22	+5
Boston	-28	+3
Chicago	-16	-2
Cleveland	-39	-3
Detroit	-24	+7
New York	-10	+6
Philadelphia	-31	+6
St. Louis	-40	+9

(+) required percentage increase
(-) required percentage reduction

This summary suggests that an apparent tax burden problem of the central city vis-a-vis the state at large exists in all eight cases, but is most severe in St. Louis and Cleveland and least serious in New York and Chicago. In most cases, outside-central-city areas seem under-burdened relative to the statewide averages, but only by modest amounts. Such areas are under-burdened relative to the central cities in all cases, and heavily so except in New York and Chicago. In this regard, St. Louis and Cleveland again appear worst off, with Philadelphia a close runner-up. Relative to the metropolitan areas and states surrounding them, St. Louis and Cleveland could be described as fiscal paupers.

The Schools' Role in the Fiscal Problems

It is widely perceived that the existing systems of school finance play a relatively minor role in creating the differentially heavy apparent central city tax burdens. This perception is supported by the data for our eight cities. First, as Table 3 shows, the percentage of locally-raised revenue devoted to the schools in central cities is well below that for all local governments in their respective states and even further below that for the outside-central-city parts of their respective metropolitan areas.[5] Were the central city data removed from the statewide averages in the third column of Table 3, those percentages would be more than 50 in nearly all cases, far above the central city levels. Clearly, the heaviest pressure on the relatively low central city tax bases -- income and wealth -- comes from non-school expenditure requirements.

Another approach is to examine per capita locally-financed expenditure. In seven of our eight cases, total locally-financed expenditure per capita is substantially higher in the central city

[5]The data in Table 3 are for 1969-70, utilized because Sacks and Callahan had already performed the elaborate calculations necessary, for that year. There is no reason to believe that more recent data would reverse any of these relationships. Indeed recent changes in school aid formulas have no doubt reduced the central city percentages relative to those of the states and outside-central-city areas, in a number of cases.

Table 3. LOCALLY-FINANCED SCHOOL EXPENDITURE AS A PERCENTAGE OF ALL LOCALLY-FINANCED GENERAL EXPENDITURE, 1969-70[a]

Area	Central City	Rest of SMSA	Statewide
Baltimore	46	57	53
Boston[b]	37	47	43
Chicago	27	53	43
Cleveland	39	52	44
Detroit	27	49	48
New York	19	44	28
Philadelphia[b]	21	57	45
St. Louis[b]	27	54	43

[a]Adapted from data in Seymour Sacks and John Callahan, "Central City Suburban Fiscal Disparity," Appendix B of Advisory Commission on Intergovernmental Relations, City Financial Emergencies: The Intergovernmental Dimension, Commission Report A-42, July 1973. The principal adaptation by the author has been to remove expenditure and aid for higher education from the Sacks and Callahan "education" classification. "Locally-financed" expenditure is total expenditure less Federal and State aid.

[b]Official SMSA definition, which differs from that used in Table 1.

than it is statewide (there is virtually no difference for Detroit). But only in Cleveland is locally-financed school expenditure per capita above the statewide average. In all cases, locally-financed non-school expenditure per capita is considerably above the statewide average in the central cities. The central city figure is 20-40 percent above the statewide average in Baltimore, Boston and Detroit; it is 40-75 percent higher in Chicago, Cleveland and New York; and it is double or more the statewide average in St. Louis and Philadelphia. The central cities are also far above the outside-central-city parts of the SMSA's in this respect.

It is, of course, possible that even if locally-financed school expenditure is relatively small on a per capita basis, it may burden a relatively poor central city disproportionately. However, this is not the general situation in our cities. Recall that in all cases total local tax collections as a percentage of personal income in the central cities are significantly above the statewide averages. But local school taxes relative to personal income are above the statewide average in only four cases -- Cleveland, Baltimore, Boston and St. Louis -- and in the latter two cases, the difference is trivial. In Cleveland, as noted above, locally-financed school expenditure per capita is higher than the statewide average; school finance arrangements explain about one-half of the differentially high central city tax burden. In Baltimore, locally-

financed school expenditure per capita is on a par with the statewide average and the school finance arrangements account for about two-fifths of the total tax burden differential.

It is worth repeating at this point that the analysis so far focuses entirely on fiscal and economic differentials; it says nothing about the appropriate levels of school support in terms of educational needs. School finance reforms helping the central city may be needed in order to cope more adequately with program requirements. But, with the exceptions of Cleveland and Baltimore, the overall fiscal difficulties of the central cities do not originate in school finance problems. Rather, those difficulties arise from the financial requirements of non-school services. That, of course, does not warrant exacerbation of the difficulties via the adoption of a school finance equalization plan that hurts large cities, which is the concern of this report. Nor does the conclusion that school finance per se is not the large city fisc problem conflict with the presumption underlying the "municipal overburden" argument, that the large-city non-school fiscal difficulties effectively sterilize part of the taxpaying capacity that might otherwise be available to finance schools, thus calling for a more suitable definition of taxable capacity for school finance purposes.

Real and Apparent Tax Burdens

The bottom line of Table 1 shows a variable described as "locally borne" local taxes as a percent of personal income. Those figures represent the end-result of an elaborate series of calculations, based on partial data and arguable assumptions, that were made in order to deal with a basic difficulty in conventional tax burden calculations, the fact that the economic consequences of local taxation cannot be confined within the boundaries of individual jurisdictions imposing taxes. To put it more directly, it is not appropriate to define, as the "resident tax burden," total local taxes collected per capita or relative to resident personal income. To some not inconsiderable extent, the burden of locally-imposed taxes can be "exported" to people resident in other jurisdictions and there is every reason to believe that the exporting possibilities differ significantly between central cities and suburbs. Exporting possibilities depend upon the relative importance of the different local taxes utilized, the composition of the bases for the individual types of tax and the specific economic characteristics of individual cities and metropolitan areas.

For most taxes, there is some real possibility that part or all of the burden of the tax can be shifted backward to the factors of production that combine to give rise to the taxable event -- labor and owners of land and capital, or forward to those who consume goods and services whose production, distribution and/or consumption gives rise to tax. If there is shifting, there will also be exporting of

tax burdens to the extent that the owners of land, labor and capital are not residents of the taxing jurisdiction, or if consumers of the taxed product are not residents. And even if there is no shifting of the burden from the taxpayer having legal liability for the tax, there will be exporting if the initial taxpayers are non-residents (for example, owners of inner-city rental residential property may be unable to shift property taxes at all, but if they live in the suburbs, these taxes are exported from the central city.)

Economists are by no means agreed on the extent to which shifting occurs in general, as well as in specific cities, and the data on non-resident ownership of productive inputs and non-resident consumption of taxed outputs are anything but adequate. Therefore, there is no way to deal with tax exporting in a manner that is at all precise. Nonetheless, some recognition of the issue is necessary, if only because there is a presumption that the heavy central city tax burdens, when tax exporting possibilities are ignored, overstate "true" economic burdens to a greater extent than do data on tax burdens outside the large central cities. This presumption rests on, first, the relatively greater extent to which the central city property tax base consists of business property and, second, the relatively greater use by central cities of local non-property taxes, some of which seem amenable to a fair amount of exporting.

Appendix B sets out the methods and assumptions used to estimate exporting of local tax burdens, and some details of the results.

Both conceptual and data difficulties preclude making estimates on a statewide basis in which one can have even the limited confidence that inheres in the estimates for central cities and the outside-central-city areas found in Appendix B. The Appendix shows that central cities do indeed export larger percentages of their taxes than suburban areas, although in Baltimore and Detroit the differences are trivial ones. They are quite large for Philadelphia, Boston and St. Louis, and since the methods used tend to understate the extent of central city tax exporting for cities with relatively flourishing central business districts (like Boston, Chicago and New York), the differences for New York and Chicago may be more important than these estimates suggest.

In Table 4, we compare tax burdens, expressed as percentages of personal income, for all local taxes and only those local taxes estimated to be locally borne, that is, after the allowance for exporting. The first thing that is evident from this table is that allowing for tax exporting not only reduces the level of apparent tax burdens, but also the very large differences among metropolitan areas. More to the point here, such allowance reduces the differentials in tax burdens <u>within</u> metropolitan areas. It virtually eliminates the central city-suburban differential for Boston and Chicago, and comes close to doing so for New York. Given the bias noted above, it is possible to conclude that the true outside-central-city tax burden may well be higher than the central city tax burden in these three cases. Central city tax burdens continue to be well above suburban ones

Table 4. LOCAL TAXES AS PERCENT OF PERSONAL INCOME, 1971-72

	All Local Taxes	Estimated "Locally Borne" [a]
Baltimore		
Central city	6.73	4.51
Rest of SMSA	4.98	3.61
Boston		
Central city	9.96	5.52
Rest of SMSA	6.99	5.39
Chicago		
Central city	6.84	3.88
Rest of SMSA	5.88	3.78
Cleveland		
Central city	8.44	4.49
Rest of SMSA	5.28	3.49
Detroit		
Central city	6.99	4.00
Rest of SMSA	4.98	3.01
New York		
Central city	9.05	5.65
Rest of SMSA	7.66	5.21
Philadelphia		
Central city	7.10	4.84
Rest of SMSA	4.58	3.89
St. Louis		
Central city	8.65	5.25
Rest of SMSA	4.74	3.53

[a] Local taxes after adjustment for exporting.

in the other five areas, and spectacularly so in St. Louis.

As noted earlier, it would be a huge and questionable undertaking to attempt similar estimates on a statewide basis. However, economic reasoning suggests that in most cases allowance for tax exporting would reduce the central city versus statewide tax burden differential somewhat more than such allowance does for the central city versus suburban differential. It is a reasonable guess that the true statewide average tax burden is equal to or greater than that of Boston, Chicago and New York, 80-90 percent of the central city burden in Baltimore, Detroit and Philadelphia; Cleveland and St. Louis remain seriously overburdened, especially the latter. These differences are important to keep in mind in reading the following section: the serious nature of the overburden problem in two cities, its marginal nature in three others and the possibility that the real situation may be one of municipal underburden in Boston, Chicago and New York, the cries of their mayors to the contrary notwithstanding.

However, one caveat is in order. A city may design its tax system so as to maximize the extent of tax exporting at the time tax changes are made, and this is frequently, if not usually, done. But there can be long-term adverse consequences of this strategy: differentially high taxes on business property, retail sales or nonresident earnings which initially are exported in time can trigger shifts in the location of economic activity, undermining

the city's tax base and resulting in more of the tax burden falling on residents. Moreover, the long-term trend toward decentralization of economic activity away from the inner parts of large metropolitan areas means that central cities over time will be less able to export tax burdens. This caveat does not imply that the present tax exporting situation should be ignored, but rather that fiscal reforms designed in the light of the existing relative tax burdens will need re-examination in time, since those relative tax burdens will surely change.

SCHOOL FINANCE ALTERNATIVES

In this section, we discuss the impact of the more commonly discussed school finance reforms on the eight cities in question. To set the stage, there is need to examine the existing school finance situation. Once again, the examination is in terms of 1971-72 data, to provide for maximum comparability. Thus, the situation described are not really the "existing" ones, for almost all states (not just the eight ones considered here) have changed their state school support programs to some extent since then. There were major changes in Michigan and Illinois enacted in 1973 and more modest one in our other states (such as those enacted in 1974 in New York and Massachusetts), with an impact on the large cities. The comparisons that follow thus accurately describe the existing situation and the impact of school finance reforms only in states that continue to have school finance systems that are more or less conventional.

Because the data for 1971-72, while comparable, are somewhat dated, an examination in terms of precise magnitudes would be pointless. Instead, we rely here on looser characterizations of the relationship of the large central city to the average for its state. The four sections of Table 5 each contain a comparison of two school finance variables. Table 5A deals with relative property values and the percentage of state-local revenue for schools provided by state aid.

In three cities--Philadelphia, Boston and Baltimore--the state school aid percentage for the cities was above the statewide average; in Detroit, the percentages were about equal. In the other four cities, the state aid percentage for the large city was below the statewide average. The relative size of the property tax base by itself can explain these differences, for the most part. All four cities with below-average state aid percentages had above-average property values per pupil. Boston and Baltimore, with relatively high state aid percentages, had below-average property values. Detroit was close to the statewide averages on both counts. Philadelphia was the only sport in the system, with both moderately high relative property values and a high state aid percentage.

How did differences in the relative state aid percentages affect financial resources per pupil, relative to the statewide averages? This is shown in Table 5B. Only two cities, Philadelphia and New York, had above-average revenue per pupil. In Philadelphia, state aid is clearly an explanatory factor, since the state aid percentage was relatively very high, but this was not the case in New York. In Baltimore and Boston, even a relatively high state aid percentage was insufficient to raise revenue per pupil to the statewide average, especially in the Baltimore case. In Detroit, an average state aid percentage left revenue per pupil well below the statewide average. In St. Louis, Chicago and Cleveland, the two variables combine in an expected way--relatively low-state aid

Table 5. THE CENTRAL CITY VS. THE STATEWIDE AVERAGE, SELECTED COMBINATIONS OF SCHOOL FINANCE VARIABLES, 1971-72[a]

A. Property Values and State Aid

Estimated Per Pupil Property Values	State Aid as % of State-Local Revenue for Schools			
	Central City % Substantially Higher Than State Average	Central City % Moderately Higher	Central City % Moderately Lower	Central City % Substantially Lower
Central City Substantially Higher Than State	--	--	New York	Cleveland
Central City Moderately Higher	Philadelphia	--	Chicago St. Louis	--
Central City Moderately Lower	Boston	Detroit[b]	--	--
Central City Substantially Lower	Baltimore	--	--	--

B. Per Pupil Revenue and State Aid

State-Local Revenue Per Pupil				
Central City Moderately Higher Than State	Philadelphia	--	New York	--
Central City Moderately Lower	Boston	--	St. Louis Chicago	Cleveland
Central City Substantially Lower	Baltimore	Detroit[b]	--	--

See last page of Table 5 for notes.

Table 5. THE CENTRAL CITY VS. THE STATEWIDE AVERAGE, SELECTED COMBINATIONS OF SCHOOL FINANCE VARIABLES, 1971-72 (cont'd)

C. Per Pupil Revenue and School Tax Rates

State-Local Revenue Per Pupil	Estimated Effective School Tax Rates[c]: Central City Rate Moderately Higher Than State Rate	Central City Rate Moderately Lower	Central City Rate Substantially Lower
Central City Moderately Higher than State	--	New York	Philadelphia
Central City Moderately Lower	Boston	St. Louis Cleveland	Chicago
Central City Substantially Lower	--	--	Baltimore Detroit

D. School Tax Rates and Property Values

Estimated Per Pupil Property Values			
Central City Substantially Higher Than State	--	New York Cleveland	--
Central City Moderately Higher	--	St. Louis	Philadelphia Chicago
Central City Moderately Lower	Boston	--	Detroit[b]
Central City Substantially Lower	--	--	Baltimore

[a] Calculated by author from NEA and Census Bureau data.
[b] Detroit is virtually equal to the statewide average in regard to both the state aid percentage and per pupil property values.
[c] The school tax rates here are total local taxes for school purposes, expressed as if they were all property taxes, divided by equalized property values.

percentages and relatively low revenue per pupil.

The other main element in school finance, aside from state aid, is local tax effort. Table 5C deals with local school tax rates and revenue per pupil. Above-average revenue per pupil in New York and Philadelphia was associated with relatively low, not high, school tax rates, in Philadelphia in good part because of the favorable state aid percentage. Only in Boston was the city's school tax rate above the statewide average (and only slightly so, at that), but it left revenue per pupil below average. In the five other cities, both school tax rates and revenue per pupil were below the statewide averages, which tends to support the municipal overburden argument, in the sense that non-school claims on the tax base may lead to seemingly low school tax rates which in turn result in below-average resources. However, as noted in the preceding section, the facts appear to deny that municipal overburden truly exists in Chicago.

To complete the circle, consider the relation between relative tax base, that is, per pupil property values, and relative school tax rates, shown in Table 5D. Five of the cities had both relatively high values and relatively low tax rates, an expected relationship. But Detroit and Baltimore had very low relative school ta. rates in combination with below-average values. As the preceding discussion indicates, for these two cities, even a relatively favorable state aid percentage was not sufficient under

such circumstances to yield per pupil revenue anywhere near the statewide average. Finally, Boston had a not surprising combination of relatively low property values and a relatively high school tax rate. But that high tax rate, even in combination with a favorable state aid percentage, was not adequate to bring its revenue per pupil to the statewide average.

These comparisons lead to some summary evaluation of the overall directions of school finance reform for our cities, based on two additional assumptions: first, large cities surely require relatively high revenue per pupil to cope with all the handicapping conditions that exist; and second, additional revenue per pupil should not be generated by increased local school taxes that would bring large-city school rates to levels that are above those in the surrounding areas (in view of the low incomes and relative economic deterioration in the central cities). In this light, the situation of Philadelphia in 1971-72 was the most nearly satisfactory. In New York and Chicago, as of 1971-72, improvement seemed to call for both more local tax effort and a higher state aid percentage. In Detroit and Baltimore, it would have been possible to argue for more local tax effort, but the real case was for a higher state aid percentage despite the fact that the state aid percentage was already relatively favorable. A similar argument would apply to Cleveland and St. Louis, especially in view of the discussion in the preceding section of this report, showing that these two cities can be considered fiscal paupers.

In Boston, where the school tax effort was above average in 1971-72 and tax base below average, the argument must be for a state aid percentage even more favorable than that existing in 1971-72.

Special Urban Aid

These comparisons suggest an implicit answer to the question, to what extent did the provisions for special urban school aid existing in 1971-72 offset the presumptive depressant effects of municipal overburden on the level of big-city school expenditure? The relative state aid percentages shown in Parts A and B of Table 5 include all state aid, general and categorical, among which is any special aid for large-city school systems that existed in 1971-72. The answer, from Table 5C, is that only in the case of Philadelphia does a high state aid percentage succeed in raising per pupil resources to levels that are high relative to the statewide average.

In 1971-72, five of our eight states had features in their state school support systems that provided significant extra state aid to large-city school systems; Illinois, Massachusetts and Missouri were the exceptions. Of the five states, only Ohio labelled its special aid explicitly as money designed to deal with municipal overburden, although the "density" aid in Maryland and Pennsylvania presumably was so designed. However, it is possible to treat any special school aid to large cities, however labelled, as having something to do with nonschool fiscal problems. Aid that is called

compensatory, calculated on the basis of the numbers of pupils in poverty or with poor academic achievement, can be interpreted as designed to provide the extra school funds that the cities are unable to raise themselves because of those nonschool fiscal problems. More generally, both compensatory aid and density aid (or municipal overburden aid, in Ohio) can be construed as having to do with either high-cost pupils or the high nonschool municipal costs related to the heavy incidence of poverty in large cities, or some combination of these two conceptually distinct rationales.

Compensatory aid is often (although not always) in the form of a categorical grant financing a specified package of additional school services. When compensatory aid does in fact result in spending that would be eliminated if the compensatory aid were withdrawn, such aid does not reduce local fiscal burdens, although it does partly overcome one result of excess large-city fiscal burdens, the presumably depressing effects on the quality of school programs. In two of the five cities with special urban aid programs in 1971-72, Baltimore and Philadelphia, the aid was virtually all explicitly directed at municipal overburden. In Detroit and New York, the aid was designated compensatory, but it is not clear that the special aid was really closely tied to services whose provision depended upon those specific dollars of aid. In Cleveland, part of the aid was for municipal overburden, but most was compensatory and tied to special services. To some extent, therefore,

the special urban aid received by Cleveland did not provide fiscal relief.

However, because it is impossible to disentangle purposes and difficult to determine whether compensatory aid really finances services that would be eliminated if the aid were withdrawn, we have calculated the dollar amount of special urban aid to the five large cities in 1971-72, however that aid is labelled. This can be compared to what in this report is considered the best available measure of municipal overburden, namely the higher percentages of personal income absorbed by "locally-borne" local taxes in central cities than in the rest of their SMSA's, as shown in Table 4, above. Those excess percentages can be converted to a dollar amount. In line (2) of Table 6, the dollar amount of special urban school aid is compared to the dollar amount of this excess tax burden, for the five cities with significant special urban school aid programs (however labelled) in 1971-72. As Table 6 shows, special urban school aid was in fact substantial relative to the excess local tax burdens, exceeding one-fourth of the small excess burden in New York, 30 percent of more substantial excess burdens in Baltimore and Detroit and two-thirds of the excess in Cleveland; in Philadelphia, the special urban aid equalled the excess local tax burden.

However, it is important to recall that the excess local tax burdens of the central city residents calculated for 1971-72 already reflect the impact of the special urban school aid programs. This is, without the special programs, the excess tax burdens would have been even higher, had the city schools spent the same amount by raising local taxes even more. The effect is shown quantitatively in line (3) of Table 6; the estimates there assume that the degree of tax exporting estimated in Appendix B would also apply to any additional city tax efforts. As indicated, municipal overburden would have continued to be a minor (if at all real) problem in New York, even after the adjustment. But in the other cities, the excess local tax burden would have increased significantly, bringing the tax burden on residents to a level approximately 40 percent above that on residents of the surrounding metropolitan areas in Cleveland, Detroit and Philadelphia.

Earlier in this report, it was suggested that true resident tax burden in Baltimore, Detroit and Philadelphia may be only marginally above the statewide averages and that serious excess tax burden problems may be confined to Cleveland and St. Louis. Table 6 suggests that special urban school aid has been a significant alleviating factor in all this. State school finance reforms that significantly increase relative

Table 6. "MUNICIPAL OVERBURDEN" AND SPECIAL URBAN SCHOOL AID, 1971-72

	Baltimore	Cleveland	Detroit	New York	Philadelphia
(1) Excess "Locally-Borne" Local Taxes Relative to Personal Income in Central City, in Percent[a]	25	28	33	9	25
(2) Special Urban School Aid as Percent of the Dollar Amount of Excess "Locally-Borne" Local Taxes[b]	31	69	31	27	100
(3) Excess "Locally-Borne" Local Taxes, as in Line (1), without Special Urban School Aid[c]	30	38	38	11	42

[a] This represents the excess burden comparing the central city to the rest of its SMSA (as defined in Table 1): the figures are taken from the bottom line of Table 1, but in this case the rest of the SMSA equals 100.

[b] See text for discussion of the aid covered here.

[c] Assumes that the dollar amount of special urban aid would have been raised in local taxes in the central city, and that the tax exporting percentages shown in Table B-2 would have applied to the incremental local taxes.

central city tax burdens, for example by stripping away the special urban aid in the reforming process, could make a problem that seems only marginal in some of our cities a serious one, a point that should not be neglected in reading the subsequent passages of this report.

Full State Funding

The first, and simplest, school finance equalizing plan considered here is full state funding, in the first instance financed by a statewide property tax. A relatively pure full state funding plan is assumed, with all existing state-local school funds pooled and replaced by a uniform per pupil distribution and a uniform statewide property tax. The level of program assumed is the existing statewide average, in terms of state-local revenue per pupil, where the central city in 1971-72 was below that average. In the two cases in which the city was above the statewide average in this respect--New York and Philadelphia--it was assumed that the statewide average would increase by the modest amount necessary to maintain the existing central city per pupil revenue level; the whole exercise necessarily lacks realism, but to base a simulation on an assumed reduction in city per pupil revenue seems even more unrealistic.[6]

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[6]In this, and some of the other, simulations, the method used paralleled that used in John J. Callahan, William H. Wilken and M. Tracy Sillerman, Urban School and School Finance Reform: Promise and Reality, National Urban Coalition, 1974. Some, but not all, of the present quantitative results are identical with those in the Callahan, Wilken and Sillerman study.

Table 7 shows the simulated effects of such a plan, as of 1971-72. It would have made little difference in either tax burdens or revenue per pupil in Boston and Cleveland. In Balitmore, Chicago, Detroit and St. Louis, per pupil revenue would have increased, but at the price of a larger percentage increase in school tax rates, especially in Chicago. Chicago might be relatively rich enough to afford such a plan, but it would be a poor buy for Chicago residents. In Baltimore and Detroit, all the increases are big ones; the policy choice posed by the simulation is whether a sizeable increase in per pupil resources is worth so large an increase in tax burdens (the policy choice, of course, is moot for Detroit, in view of the August 1973 Michigan school tax reform which in fact caused an increase in both Detroit's school resources and its school tax rate). Given the very poor fiscal condition of St. Louis, it may be questioned whether any increase in tax burdens would have been a sensible policy choice. Both New York and Philadelphia would have experienced tax increases without additional school resources; for Philadelphia, the tax increase would have been very large, a reflection of the large magnitude of the existing urban school aid program, wiped out in this simulation.

Full state funding of schools of course could be financed from traditional state government revenue sources, rather than a statewide property tax; after all, none of our eight states currently relies

Table 7. SIMULATED EFFECT OF FULL STATE FUNDING FINANCED BY A STATEWIDE PROPERTY TAX, AS OF 1971 - 72[a]

City	Percent Change in State-Local Revenue Per Pupil	Percent Change in Local School Tax Rate	Percent Change in Total Local Taxes
Baltimore	+27	+34	+17
Boston	+ 3	- 2	- 1
Chicago	+13	+46	+18
Cleveland	+ 1	+ 3	+ 1
Detroit	+30	+39	+12
New York	--	+24	+ 5
Philadelphia	--	+73	+20
St. Louis	+ 9	+16	+ 4

[a]Assumes that full state funding will take place at the actual 1971-72 level of statewide state-local per pupil revenue, where this exceeds the central city level, or at the central city level, where the latter exceeds the statewide average. Only New York and Philadelphia exceeded their state's averages in 1971-72, and therefore they show no change in the first column of this table.

significantly on the property tax as a source of state government revenue.[7] It is rather difficult to estimate the consequences for central city resident tax burdens of full state funding so financed. A simplified--and therefore unrealistic--approach to the estimation problem appears in Table 8. There we assume that all local school taxes are replaced by additional state taxes necessary to finance the program levels assumed in Table 7. Then the geographic locus of the added state taxes is estimated on two alternative bases, first, in proportion to the city's share of statewide personal income and second, in proportion to the Advisory Commission on Intergovernmental Relations estimates of "non-property revenue capacity," a concept that reflects the typical composition of state revenue systems with significant reliance on sales, excise and business (as well as personal income) taxes.

As Table 8 shows, on either basis, taxes collected in the city of Boston would decline somewhat under this plan; taxes collected in Cleveland would decline on one basis and be roughly unchanged on the other. Tax collections in Baltimore would decline if the plan were financed mainly by increased personal income taxation, but otherwise would increase and perhaps substantially. It is thus conceivable that taxpayers in these

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[7] In no case does the property tax provide more than 3 percent of state government tax revenue nor do state-collected property taxes amount to more than 5 percent of total state-local property tax collection in any of the eight states.

Table 8. FULL STATE FUNDING FINANCED BY NONPROPERTY TAXES AND CENTRAL CITY SCHOOL TAXES, AS OF 1971 - 72[a]

City	Additional State Taxes Imposed to Finance Schools Collected in City as Percent of Existing City Local School Taxes, with Distribution of State Taxes Estimated on the Basis of:	
	Personal Income Shares[b]	Revenue Capacity Shares[c]
Baltimore	92	155
Boston	85	87
Chicago	116	141
Cleveland	69	101
Detroit	143	176
New York	163	177
Philadelphia	129	168
St. Louis	114	241

[a]See footnote (a), Table 7, for description of assumed level of program.

[b]That is, assumes that incremental state taxes will be proportional to personal income in the city and its state.

[c]That is, assumes that incremental state taxes will be proportional to the revenue capacity (excluding property taxes) of the city and its state, as estimated in Advisory Commission on Intergovernmental Relations, Measuring the Fiscal Capacity and Effort of State and Local Areas (Information Report M-58, March 1971). Detroit revenue capacity estimated by the author of this report.

three cities might benefit significantly from full state funding so financed; as noted earlier, full state funding financed by a statewide property tax would have had only trivial or equivocal results in these same cities.

Tax collections would increase in all the other cities however full state funding was financed. Taxpayers in Chicago and Philadelphia would be better off with nonproperty tax financing than with a statewide property tax, although they would be hurt badly in either case. The statewide property tax is a better deal for Detroit and New York taxpayers. In St. Louis, the outcome depends on which nonproperty taxes are used.[8]

Two important cautionary observations are in order at this point. First, there is no system of additional state government financing of schools that will fail to involve tax collections in the large cities that amount ot sizeable fractions of the additional amounts to be raised. Thus, for example, if the state-financed share of school finance is increased in Illinois, taxpayers in Chicago are likely to face tax increases, not reductions, unless the Chicago City School District receives, as school aid, considerably more than one-third of the total additional funds distributed. It is misguided to believe that state government financing by itself--without regard to the way

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[8] The figure for St. Louis in the second column of Table 8 is suspect, for a number of reasons, including the rapidity of the central city's economic decline in the years since the dates to which the ACIR estimates apply.

in which the funds are distributed--must be advantageous or detrimental to the cities.

Second, and to some extent contradicting the first point as well as the implications of Tables 7 and 8, there can be long-term advantages to central city economies even if statewide financing produces short-term increases in the taxes collected from central city taxpayers. Over time, central city economies have been declining relative to the rest of their states and, moreover, uniform statewide taxes, even if high ones, are less damaging to the competitive position of central cities than differential taxes.

Power Equalizing

A pure power equalizing plan assures that a given local school tax rate will yield a specified amount of revenue per pupil, regardless of the size of the local tax base. The simplified plan simulated here, shown in Table 9, indicates, first, what would have happened under the plan to revenue per pupil if the local school tax rates existing in 1971-72 had been maintained. Only in Boston is there an increase, and a small one at that. There would have been small declines in Cleveland, Baltimore, St. Louis and Detroit and large declines in New York, Chicago and Philadelphia; in Philadelphia, the decline would have been 42 percent. The second column indicates the percent change in tax rate required to have kept per pupil revenue at precisely the

Table 9. SIMULATED EFFECT OF POWER EQUALIZING FINANCE PLAN, AS OF 1971-72[a]

City	Percent Change in State-Local Revenue Per Pupil, Holding Existing Local School Tax Rates Constant[b]	Percent Change in Local School Tax Rate Required to Maintain Existing Revenue Per Pupil Level
Baltimore	-5	+5
Boston	+5	-5
Chicago	-23	+29
Cleveland	-2	+2
Detroit	-7	+7
New York	-17	+21
Philadelphia	-42	+72
St. Louis	-6	+7

[a]This is a pure proportional power equalizing plan, without constraints, ceilings or "save-harmless" provisions, that simply redistributes the entire existing pool of funds.

[b]Put in other terms, this column shows the state-local revenue per pupil guaranteed by the actual 1971-72 local school tax rate under the plan, divided by the actual revenue per pupil (expressed in percent), less 100.

level actually existing in 1971-72. The results are, of course, the obverse of those in the first column, with higher tax rates everywhere except in Boston and a huge percentage increase in Philadelphia.

Suppose now that legislatures, whether for reasons of political necessity or simple concern for the big cities, provided for special urban aid to the large city schools from state funds that were outside the power equalizing plan. We show the consequences of this revised scheme in Table 10. The urban aid specified in that table is the amount actually provided by the urban aid programs included in Table 6, above, and discussed in the text earlier, or $50 per pupil, which ever is the larger amount.[9] Under this plan, Boston and Cleveland gain significantly, compared to actual 1971-72 experience. Detroit, St. Louis and Baltimore gain, but to a very modest degree. Chicago, New York and Philadelphia continue to be substantial losers, albeit to a lesser degree than under the plan depicted in Table 9, with either sizeable revenue declines at existing tax rates or sizeable tax rate increases required to maintain existing revenue levels.

It may be presumed that states adopting power equalizing plans in the future will emulate to some extent the Michigan program adopted in 1973. If, as in Michigan, they provide a high guarantee level (per pupil revenue yielded by a given tax rate), such plans are likely to result in significantly increased per pupil revenue in large cities because what economists refer to as the "tax-price" of a dollar of school

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9 Obviously, different levels of urban aid could be used in this simulation. The ones chosen seem reasonable in the light of existing practices in 1971-72.

Table 10. SIMULATED EFFECT OF POWER EQUALIZING FINANCE PLAN WITH SPECIAL URBAN AID PROVISIONS, AS OF 1971-72[a]

City	Percent Change in State-Local Revenue Per Pupil, Holding Existing Local School Tax Rates Constant[b]	Percent Change in Local School Tax Rate Required to Maintain Existing Revenue Per Pupil Levels[c]
Baltimore	*	-1
Boston	+10	-10
Chicago	-17	+22
Cleveland	+16	-16
Detroit	+2	-2
New York	-14	+17
Philadelphia	-16	+28
St. Louis	+1	-1

*Less than 0.5 percent.

[a]This is the plan depicted in Table 9, except that from sources outside the plan the state government provides special urban aid (of the types included in Table 6) at the levels existing in 1971-72 or $50 per pupil, whichever is the greater.

[b]Revenue per pupil guaranteed by the actual 1971-72 local school tax rate, plus the special urban aid noted in (a), above, compared to actual 1971-72 revenue per pupil.

[c]Local school tax rate required to maintain 1971-72 revenue per pupil levels excluding the special urban aid amounts noted in (a), above, compared to the actual 1971-72 local school tax rate.

revenue will be lowered--that is, local tax effort for schools will be a better buy than it has been, at least in most cases. But as Table 10 implies--and as the actual experience of Detroit under the 1973 law demonstrates--large increases in revenue per pupil are likely to require significant increases in local school tax rates, even in the presence of reasonably generous special urban aid provisions. None of our cities could have achieved an increase in per pupil revenue in 1971-72 of more than 10 percent, under the power equalizing plan depicted in Table 10, without increasing local school tax effort.

Percentage Equalizing

Percentage equalizing plans explicitly distribute state aid in inverse proportion to per pupil property values in the districts within the state. The pure form simulated here is a simplified one that differs from any existing state system (such as that in New York) in excluding all sorts of special features and exceptions, including minimum-level flat grants (among other things). The calculations in Table 11 simply redistribute the pool in inverse relation to property values, holding constant the state share in the average wealth district and recognizing for aid calculations only expenditure (defined here as state-local revenue per pupil) up to the existing statewide average in 1971-72. The first column of Table 11 shows the impact on revenue per pupil, holding local school tax rates constant, had such a plan been in effect in 1971-72,

Table 11. SIMULATED EFFECT OF CONVENTIONAL PERCENTAGE EQUALIZING FINANCE PLAN, AS OF 1971-72[a]

City	Percent Change in State-Local Revenue Per Pupil, Holding Existing Local School Tax Rates Constant	Percent Change in Local School Tax Rate Required to Maintain Existing Revenue Per Pupil Levels
Baltimore	+22	-36
Boston	+3	-5
Chicago	-11	+17
Cleveland	+5	-5
Detroit	*	-2
New York	-6	+11
Philadelphia	-12	+29
St. Louis	-3	+5

*Less than 0.5 percent.

[a]This is a percentage equalizing plan that redistributes the entire existing pool of funds, with the state share of revenue in the average wealth district maintained at existing levels and city revenue per pupil constrained to the average statewide level, for calculation of state aid.

and the second column shows the obverse, the impact on tax rates had existing revenue levels been held constant.

Baltimore would have had a substantial increase in revenue or reduction in tax rates. Cleveland, Boston and Detroit also would have gained, but to a small extent. St. Louis would have lost modestly, while New York, Chicago and Philadelphia would have been heavier losers. But, comparing Table 11 with Table 9, seven of the eight cities would have been bigger gainers or small losers under percentage equalization than under power equalization (Boston fares roughly the same in both schemes). The most striking change is in the position of Baltimore, a loser under power equalization, but a heavy gainer from percentage equalization.

The fact that, even without the special urban aid features that already exist (much less expanded ones), percentage equalizing is less damaging or more beneficial than either of the other reforms simulated suggests that adding special urban aid to a percentage equalizing plan may create a system that will benefit large cities. This is borne out by Table 12, where once again we add special urban aid of the types included previously, either the urban aid existing in 1971-72 or $50 per pupil, whichever is the greater. Doing this makes all of our cities, except Chicago and New York, gainers. Some of them gain handsomely. It should be noted that

Table 12. SIMULATED EFFECT OF CONVENTIONAL PERCENTAGE EQUALIZING FINANCE PLAN WITH SPECIAL URBAN AID PROVISIONS, AS OF 1971-72[a]

City	Percent Change in State-Local Revenue Per Pupil, Holding Existing Local School Tax Rates Constant[b]	Percent Change in Local School Tax Rate Required to Maintain Existing Revenue Per Pupil Levels[c]
Baltimore	+28	-52
Boston	+ 9	-13
Chicago	- 6	+10
Cleveland	+22	-25
Detroit	+10	-18
New York	- 3	+ 6
Philadelphia	+14	-47
St. Louis	+ 4	- 5

[a]This is the plan depicted in Table 11, except that from sources outside the plan the state government provides special urban aid (of the types included in Table 6) at the levels existing in 1971-72 or $50 per pupil, whichever is the greater.

[b]Revenue per pupil guaranteed by the actual 1971-72 local school tax rate plus the special urban aid noted in (a), above, compared to actual 1971-72 revenue per pupil.

[c]Local school tax rate required to maintain 1971-72 revenue per pupil levels excluding the special urban aid amounts noted in (a), above, compared to the actual 1971-72 local school tax rate.

for the three cities that gain the most, Baltimore, Cleveland and Philadelphia, the Table 12 calculations reflect the impact of actually existing urban aid in 1971-72. That is, had those three states had a simple percentage equalizing system in 1971-72 together with the existing urban aid programs, these cities would have improved their positions greatly. That improvement alone would have virtually eliminated any real excess local tax burden in Baltimore and close to one-half of the true excess tax burden in Philadelphia and Cleveland.

The improvement provided by such a plan would have been rather modest in St. Louis, which is disappointing in the light of the extremely poor relative fiscal position of that city revealed by Table 1, above. Its very large excess tax burden would have been negligibly reduced by this school finance plan. Indeed, it is doubtful that ary conceivable school finance system can have much of an impact on the excess tax burden in St. Louis. Percentage equalizing combination with special urban aid of $350 per pupil, seven times larger than is assumed in Table 12 and far above any existing urban aid program, would have reduced the St. Louis excess tax burden by only about one-third.

As noted, Chicago and New York fo lose moderately in Table 12. However, we have concluded previously that there is no real excess

tax burden problem in those two cities. Consequently, the plan simulated in Table 12 seems seriously at fault in our group of cities only for St. Louis, and even in St. Louis the problem is not one of losing out, but rather not gaining enough.

"Circuit-Breaker" Property Tax Relief

Another avenue to resolution of the problems with which this report is concerned is the introduction of measures to relieve high central city tax burdens directly, rather than through adjustments in the system of school finance. Alternatively, if equalizing school finance systems that will increase large-city tax levels are being considered, general property tax relief schemes adopted at the same time in a given state might serve to minimize the damage done by such school finance reforms.

Within a very few years, about half the states have adopted a variant of the "circuit-breaker" scheme for residential property tax relief. Most of these apply solely to the elderly, but in a few states, including Michigan, the plan extends to all age groups. The essence of the circuit-breaker is that the state government provides rebates (in cash or as a credit against state personal income tax liability, where there is any income tax liability) of property tax payments that are deemed to be excessive in relation to household income. Usually, a threshhold is defined, a percentage of income above which property taxes are considered excessive (the threshhold may

decline as income increases); in most cases, only a percentage of the excess payment is rebated and there is a dollar ceiling on the rebate, designed both to hold down program costs and keep from paying large rebates to high-income households that happen to own property with extraordinarily high tax liability. In most cases, renters as well as home owners are eligible for rebate. This is handled by assuming that some specified percentage of rental payments consists of property taxes borne by renters.

In Appendix C, we present a detailed discussion of the calculation of estimates of the value of a circuit-breaker rebate plan modelled on the Michigan law in each of our eight cities and surrounding metropolitan areas, as of 1971-72. That discussion (and Table C-1 of the Appendix) shows that the plan can indeed provide significant tax relief: the rebates in the aggregate amount to 20 percent or more of total residential property tax payments in four central cities (Baltimore, Boston, Detroit and Philadelphia) and between 13 and 16 percent in the other four cities. The aggregate rebates range from 6 to 17 percent of residential property tax payments in the outside-central-city parts of the SMSA's. The relative size of the rebate thus does tend to be considerably higher in central cities than in suburbs, a consequence of both lower incomes and higher effective property tax rates in central cities in most (but not all) cases.

Nonetheless, the rebated sums are substantial in the outside-central-city areas. This has two implications for this report. First, if a circuit-breaker program is urged primarily as a devise to relieve central city tax burdens, such relief will costs state governments substantial additional sums for the relief of tax burdens outside the central cities. In short, it may not strike state governments as a cost-effective way of helping central city taxpayers. Second, a circuit-breaker program of the dimensions explored here does not do much to reduce differentially high central city tax burdens: the size of the rebate is small relative to the differential in burdens (except where those differentials are themselves minor), and the rebate amounts do not differ enough among city and suburbs to make much dent in the problem. Indeed, in most of our SMSA's, the dollar amounts of rebate total more in the suburbs than in the central city.

This is illustrated by our two worst-off central cities. For St. Louis, a reduction of roughly $39 million in locally-borne local taxes would have been necessary to bring central city tax burdens relative to personal income down to outside-central-city levels in 1971-72. The circuit-breaker plan used here would have reduced the central city tax burden by less than $6 million; moreover, it would have reduced the outside-central city tax burden by $19 million. In Cleveland, the circuit-breaker similarly would

have widened, not narrowed, the tax burden differentials. There was an estimated central city excess tax burden of $27 million in 1971-72. The circuit-breaker would have provided $7 million in rebates for central city residents and $10 million outside the central city. Baltimore provides the only case in which the circuit-breaker would do a significant part of the job of reducing tax burden differentials (somewhat over one-third).

Even if the circuit-breaker offers little help on this score, it might be considered desirable as a means to help lower-income central city households with particularly high tax burdens. It is of some use in this regard. In all of our central cities, more than half the tax relief goes to households with incomes of less than $10,000, although there are only three cases in which two-thirds or more goes to such households. However, most of the outside-central-city rebates generally goes to over-$10,000-income households. Moreover, the higher the aggregate amount of rebate relative to residential property tax collections, the higher the proportion of aggregate rebate received by better-off households. Thus, even as a means of helping the least well-off, the circuit-breaker is flawed -- it does so only at the price of devoting substantial state funds to tax relief for above-median-income households. A more restrictively designed circuit-breaker (such as that existing in Vermont) could concentrate the relief more on lower-income households, but such a plan would provide even less aggregate tax relief for the

central cities.

Finally, the circuit-breaker can be considered largely as something to be introduced along with school finance reforms, to offset the tax rate increases that such reforms might produce in the central cities. Because of the threshhold for eligibility, circuit-breaker rebates under a given plan increase very rapidly when effective tax rates rise.[10] Thus, in most cases, introduction of a circuit-breaker like the Michigan one would more than offset the tax increases indicated in Tables 7, 9 and 11. But it would take a large amount of state money to do so, because so much of the rebate would go to raxpayers outside the central cities.

In summary, the circuit-breaker is a costly and not necessarily effective way of coping with the general problem of high central city tax burdens. A carefully designed and relatively restrictive circuit-breaker can be effective in reducing the very high residential property tax burdens that some low-income households confront, of particular utility in places like Baltimore where there are many low-income homeowners occupying grossly-overassessed properties which therefore bear high effective property tax rates. Also, introduction of a circuit-breaker can provide <u>absolute</u> tax relief for city residents, even if not relative tax relief, and

[10]The calculated elasticity of the aggregate rebate as a percent of total residential property tax collections with respect to the effective rate in this plan is 0.8, which suggests, for example that a rise in effective property tax rates from 2.50 to 2.75 percent would increase the rebate percentage from 15.0 to 16.2 percent.

therefore might have some attraction at a time when tax-increasing measures are being instituted.

Homestead Exemptions

Homestead exemptions, usually taking the form of an exemption of a specified dollar amount of the assessed value of an owner-occupied house from property tax, have existed for many years in this country. At present, about half the states, including some of those with circuit-breakers, provide some type of homestead exemption. They are mixed bag. Some are restricted to the elderly and/or have income ceilings. Some have companion provisions applying to renters, although most do not. In some cases, the state makes up the tax revenue lost by the exemption, while in others, the exemption simply reduces the local tax base, period. In most states, the nominal value of the exemption is small, but in some the average ratio of assessed to market value is so low that the exemption, expressed in assessed value terms, is a large fraction of the market value of the average owner-occupied house.

It does not seem worthwhile to make elaborate city-by-city calculations of the quantitative impact of homestead exemptions. Instead, we consider the issue here in looser terms, since the impact of a homestead exemption of a given form will be similar among the cities; the variations in form are perhaps the more important variable.

As the base case, consider a homestead exemption set at a level below

the assessed value of nearly all housing units, so that the dollar value of the exemption differs among households only to the extent that property tax rates differ. The base case is further defined to be a state-financed exemption (with nonproperty taxes used for this purpose) that extends to all ages and income groups, and formally treats homeowners and renters equally. That is, if owners receive a $1,000 exemption, renters are paid a rebate during the year equal to the tax rate times $1,000 in property value. In this case, the state is in effect paying to each household in the state a grant that differs only by the variation in property tax rates. Because in six of our eight cities, property tax rates are above the respective statewide averages, the benefit per household will be higher in the central city than elsewhere in the state. Because central cities have relatively small household sizes, the benefit per capita will be even more differentially high in the central cities. Because per capita income is lower in the central cities than statewide in most of our cities, the benefit as a percentage of per capita is likely to be very high indeed, relatively, in the central cities. In fact, the exemption program described here as the base case amounts to a percentage of personal income above the statewide average in all our cities, even in New York City with its below-average property tax rates.

Within any taxing jurisdiction--the city or a suburb--the benefit

is entirely distributed in proportion to the number of households, which means that low-income households will get a sizeable fraction of the total benefit and, since the benefit amount is equal among all households, it will be a declining fraction of income as income rises. This then is a pro-poor program, even without imposing income limits.

The picture changes radically if the program is restricted to owner-occupants, as is done in most of the states with homestead exemptions. Because renters are more important in the central cities than statewide, a considerably smaller fraction of the total benefit accures to central city taxpayers; the extreme case is New York, where the city's share of the total benefit drops from 42 percent in the base case to 21 percent in this case. And because renters are on the average poorer than owner-occupants, low-income households will get a fairly modest share of the total benefit and the program will be only slightly pro-poor (although it will remain highly favorable to poor owner-occupants, especially those living in high-tax areas within a state; Baltimore is again a case in point).

While it is discriminatory to exclude renters entirely from property tax relief benefits, there is little economic justification for assuming that <u>all</u> taxes on rented housing are borne by tenants. If these economic realities are recognized in the program design and

some lesser tax relief is provided for renters, then the results are intermediate between those of the base case and those in the homeowner-only case. That is, the tax relief benefit per capita and relative to p rsonal income in most of our cities will not exceed the statewide averages, but only in New York will thc e measures fall well below the statewide averages. The incidence of the benefits will be pro-poor on balance almost everywhere.

These observations apply to a state-financed program. The more common approach is for the state to authorize or require homestead exemptions, without any provision for state financing. Such a program does not reduce central city tax burdens, but merely shifts them among properties.[11] The shift will be to business property, if all housing qualifies for the homestead exemption, a shift which on balance may be biased in favor of lower-income households; moreover, the consequences will also be to shift the tax burden within the residential property class from lower-value to higher-value housing, which may be considered an advantage especially where the high-value housing is relatively under-assessed. However, if the homestead exemption is confined to owner-occupied housing, the shift in local tax burdens in central city will increase taxes on renter-occupied housing, which is on balance a regressive shift.

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[11] To be sure, the shifts may increase the possibility of tax exporting, at least in the short-run but it is doubtful whether any observer would treat such a program as providing significant help with whatever municipal overburden problem is thought to exist.

In short, it is possible to design a homestead exemption program that differentially benefits central cities and is pro-poor in its effect. But the more conventional design can easily have opposite effects on both counts. There is a more general question, however: is any homestead exemption the most suitable way to achieve any of the goals sought? Unlike the circuit-breaker, in which there is at least an attempt to scale the tax relief offered to the level of individual tax burdens relative to household income, the homestead exemption does not directly reflect relative burdens. The ideal form, the base case, amounts largely to a flat state grant per household that is independent of both income and housing consumption. It is difficult to understand why a state should go through the elaborate homestead exemption procedure in order to disburse what amounts to a flat grant per household--it would be far simpler to make such a grant directly, through a state's personal income tax system. If the purpose is to shift the property tax away from residential property, then that too can be done more directly and with surer beneficial consequences, at least for the residential housing stock in central cities. And if the purpose is to shift local government costs to the state, then there are tried and true methods for doing so, namely increased state aid to local government for general or specified purposes. We conclude that the homestead exemption at best is an inferior substitute for more direct and purposeful means of achieving public policy goals.

CONCLUSION: POSSIBLE SOLUTIONS

It is best to begin this section with the negative findings of the preceding discussion:

1. Not all large cities in the Northeast and North Central regions presently confront seriously excessive local tax burdens, relative to the rest of their states, although most of them do (apparently including most of the large cities in these regions not examined here, like Buffalo, Newark and Pittsburgh). Boston, New York and Chicago stand out as central cities in which this problem is more apparent than real under present conditions, although continued relative economic deterioration of the central cities can and probably will change this in time. Moreover, the fact that such cities do not now have a significant municipal overburden problem is no justification for school finance reforms that produce large increases in city school taxes, relative to school taxes elsewhere in a state, for such reforms can create an excess tax burden problem where none now exists.

2. Full state funding in a fairly pure form is, from the large-city point of view, the least attractive of the major school finance reform plans examined, but it seems especially unattractive when financed by nonproperty taxes rather than a statewide property tax. This conclusion stems from both the quantitative material

examined earlier and another reason not mentioned heretofore: the disruptive effect of so massive a change in a state-local tax system as abolition of all school property taxes. There is something to the maxim that an old tax is a good tax. Most of the economic adjustments to it have long since been made; its replacement by a collection of large new taxes will give rise to the need for a whole set of new adjustments, not all of them predictable and many of them unfavorable. Repeal of school property taxes will provide major windfall gains to some property owners, many of whom are unlikely beneficiaries of deliberate public subsidy. A statewide property tax with suitable reforms and relief provisions, providing some degree of statewide equalization of effective property tax rates, seems very much preferable to abolition of school property taxes and their abrupt replacement by higher state taxes on consumption expenditure and/or business and personal income. This is not to argue that the property tax is a superior tax instrument, but rather that its abrupt replacement would be bad policy. A gradual diminution of its role in American public finance, continuing the long-term trend in that direction, is quite another matter.

3. The problem of excess large-city tax burdens cannot be resolved by the popular property tax relief devices, like the circuit-breaker and homestead exemptions, simply because these measures do not

necessarily aid central city tax payers differentially. A carefully designed circuit-breaker may be useful in dealing with high property tax burdens confronted by individual low-income households, wherever they live in the state, but that is the only sensible public policy objective to be sought via the circuit-breaker. Homestead exemptions seem a poor choice as a means of achieving any public policy objective.

Turning to the positive findings, it is clear that any pure-form school finance equalization plan will be unequivocally beneficial -- in a fiscal sense -- only for large cities with per pupil property values below the statewide average and school tax effort above the statewide average. Among our eight cities, only Boston had these characteristics, but there are other cities that would qualify, notably Newark. It is also clear that adding special urban school aid to any of pure-form school finance equalization plans will make it fiscally more attractive, and the more generous the special aid, the more this will be the case. For example, every one of our eight cities would be a significant net gainer if a pure-form percentage equalizing plan were combined with special urban aid as generous (on a per pupil basis) as that provided Philadelphia in 1971-72. As noted earlier, even with the far less generous provisions simulated in Table 12, all the cities except Chicago and New York are gainers.

There is a fundamental policy problem, however, with special urban aid designed to deal with whatever municipal overburden may exist in the large cities. In a very real sense, such state aid is not school aid at all, but rather aid occasioned by and designed to help finance non-school public services. This is obvious for cities, like New York, Boston and Baltimore, without independent school districts; in such places, any external aid that is not explicitly granted as reimbursement for part or all of the costs of narrowly-defined categorical programs in reality goes into a central pool and serves to alleviate overall fiscal problems (the leakage problem exists even for narrowly-defined categorical programs, to some extent). But even where the school district is independent, a lowering of the school tax rate permitted by special urban aid may not result in high school outlays, only a reduction in overall tax burdens. Indeed, reduced taxation for schools may do no more than permit increased taxation for other purposes.

Since the special urban aid is in fact caused by non-school burdens, none of this may be objectionable to proponents. Nonetheless, there are objections. The first is a political one: how receptive are legislators to school aid proposals seen by them as doing no more than inflating large-city non-school payrolls? Second, it is seldom good policy to try to do good by stealth, which in effect this form of school aid does; all too often, round-about approaches

to the solution of a given public problem produce entirely unintended toxic side-effects in the course of the necessary and inevitable legislative compromises. Third, once we depart from school costs and school resources as measures of school aid, there are no rationales on which to hinge school aid formulas: why a $50 per pupil "density correction" in Baltimore? Why not $10, or $250? To be sure, an apparent rationalization can be offered in an elaborate multi-factor formula, each factor of which has something to do with the existing fiscal situation. But there is no obvious reason why more, rather than fewer, factors should be employed, nor any obvious reason for the specific formulations of the factors or their weighting. One must suspect that such formulas are really designed ex post, to provide the dollars of aid that have been more or less arbitrarily fixed in advance.

In short, the conclusion here is that analysis cannot support special urban aid as any kind of reasoned solution to the basic problem addressed. However, this conclusion does not imply that the only possible outcome of equalizing state school finance reform is the worsening of the fiscal position of those large cities that have serious excess tax burdens even now. The simulations earlier in this report were based on the numbers of pupils, pure and simple, implicity assuming either that program costs per pupil are equal throughout a state or that the state

is indifferent to differences in program costs. Once it is accepted that the state school finance system should recognize cost differences, the outcome of an equalization plan can change radically.

The conceptual distinction between municipal overburden aid and aid to compensate for cost differentials was alluded to earlier in this report. This distinction is muddy in practice, although it need not be. One way of illustrating the potential impact of combining recognition of cost differentials with equalization plans is to consider the National Education Finance Project "needs weighting," admittedly a rather extreme set of estimates of the higher costs of schooling in large cities. We have applied these weights to five of our eight cities and adjusted per pupil property values (that is, increased the number of pupils by which values were divided) accordingly. Once this is done (and the statewide property value averages appropriately adjusted), it makes both power equalizing and percentage equalization highly favorable to all five cities.

For example, in Table 9, it was shown that power equalizing in a pure, simplified form would have resulted in school tax increases of moderate proportions in Cleveland, Detroit and St. Louis, to guarantee the same level of revenue as existed in 1971-72, a

large school tax increase in Chicago and a small decline in Boston. With the NEFP weights, there would have been large school tax reductions to yield the same revenue in all five cities, ranging from 19 percent in Chicago to 34 percent in Cleveland. Similarly, Table 11 shows that simple percentage equalization would have reduced school taxes, holding revenue constant, by small amounts in Boston, Cleveland and Detroit, with a small increase in St. Louis and a large one in Chicago. With the NEFP weights, there would have been very large school tax reductions, ranging from 25 percent in St. Louis to 38 percent in Cleveland. Indeed, the NEFP weights do a lot more for these cities than does the variant of special urban aid simulated in Tables 10 and 12.

This weighting for cost differentials also has a powerful effect on the outcome of full state funding. Recall that in Table 7, full state funding produced school tax increases in four of these five cities, and a small reduction in Boston, with revenue per pupil increases in all cases. Adding the NEFP weights to the calculations results in school tax reductions in four of the cities and a virtually unchanged school tax rate in Detroit--but Detroit receives nearly 40 percent more revenue per pupil at this constant tax rate.

On balance, a rather conventional set of measures is attractive as the preferred solution for the problem addressed here: ordinary percentage equalization combined with a set of weights that fully reflect cost differentials. Both concepts, percentage equalization and cost differentials, have wide acceptance, are readily understood and, however difficult, can be expressed in non-arbitrary quantitative terms.

Although the arithmetic of percentage equalization seems advantageous to our group of cities -- compared to power equalizing and full state funding -- it is appropriate to write a few words in defense of both these alternatives. Both represent rigorously logical ways to achieve goals dictated by alternative value systems, goals that include a substantial degree of equalization of school resources and, if cost differentials are recognized, attention to the overall fiscal problems of the large cities. The value system underlying power equalizing arrangements is that recognition of differences in local preferences regarding education is highly important, provided that local preferences are rendered independent of tax base differentials by appropriate state guarantees of the yield of a specified tax rate (or rates). If it is agreed that local preferences should be permitted to affect school finance outcomes, then power equalizing is a highly efficient means -- in the economist's broad definition of

efficiency -- of doing this. It provides for rather direct recording of voter preferences.

In theory, percentage equalization can be designed to work in a way similar to power equalizing in reflecting local preferences, albeit somewhat less directly. However, a percentage equalization plan with a low ceiling on the school expenditure per pupil recognized for state aid calculations and/or a high minimum grant to rich districts will be highly inefficient relative to most power equalizing plans considered or adopted. Thus, provided that the large cities can be protected from actual fiscal damage by recognition of cost differentials, a strong advocate of local choice should prefer power equalizing, even though it is not quite as beneficial to large cities as is percentage equalization.

The value system underlying full state funding holds that education is simply too important to permit much rein to local choice within a state. If this belief predominates, then full state funding with appropriate recognition of cost differentials is the right system, despite the fact that the large cities do not fare as well as under other systems. Moreover, it is possible to argue that the fiscal disadvantages to the large city under full state funding are illusory. A rigorous full state funding plan in time should provide for so much uniformity that the whole

system of school finance becomes a state one and is no longer any element of local government finance.

The analysis in this report and in nearly all discussion of school finance reform treats the fiscal arrangements within a state as consisting of two systems: (1) the existing state-financed services; and (2) the existing locally-financed services, with the latter divided into two sub-systems, local schools and local non-school services. We then consider the impact of proposed changes in school finance on the tax rates required to support the local government system. Full state funding perhaps should be considered in a rather different way, as transferring the entire school sub-system from the local finance system to the state finance system. It has been noted at several points in this report that uniformly high statewide taxes are less damaging to central cities than differential local taxes. The fact that some central city taxpayers pay higher taxes than at present under full state funding thus may be an irrelevant consideration in the present context.

There are analogous situations outside the schools. It is rarely argued that large central cities are worse off when a state government assumes full fiscal responsibility for a public service traditionally financed partly or wholly from local government

revenue sources; recent examples of this in northeastern states include state takeovers of community colleges, categorical public assistance programs, local courts and local correctional institutions. Instead, the conclusion is usually that the central city benefits from reductions in local tax rate differentials, despite the fact that some central city taxpayers end up paying more in combined state and local taxes than they did before the state takeover. If full state funding of the schools really amounts to a state fiscal takeover, then the central cities are no more disadvantaged by this reform than they are when other state takeovers occur.

If full state funding is rejected on the grounds that more local choice should be permitted, there is one feature in the alternative plans that could be designed to help some large cities substantially. This feature concerns the geographic basis for calculation of state aid. In most states outside the South, and in all of our states except Maryland, the geography of school organization -- and the basis for calculation of aid -- can be described as a handful of very large central city school districts that are islands in a sea of very small districts. In our metropolitan areas other than Baltimore, the mean size of outside-central-city school districts (in terms of pupil enrollment) ranges from 0.5 percent (in New York and Chicago) to 5 percent (in Boston and St. Louis) of

the central city system.

If there is a percentage equalization plan with a minimum level of state aid per pupil or a power equalizing plan with no recapture of revenue in excess of the state guarantee level, no matter how rich the district, then the school finance system treats the central cities differentially solely by virtue of their size. In the central cities, pockets of high-value taxable resources are averaged into the overall tax base for aid calculation. Outside the central cities, individual small districts that amount to such pockets are not so averaged, but rather benefit fiscally from the minimum grant (under percentage equalization) or the lack of recapture (under power equalizing). It would be entirely appropriate to divide the central city into small districts for aid calculation purposes, thus providing parallel treatment. As a result, high central business district values or high residential values in a few neighborhoods would not be washed out, as they are under the conventional rules.

An illustration of this approach is found in the New York experience in the mid-1960's. At that time, the basis of calculation was changed from citywide to borough-wide. Previously, the very high central business district property values had made the entire city a minimum-grant district under the percentage

equalizing plan. After the change, two of the boroughs remained minimum-grant districts, but the other three, with lower per pupil property values, had higher state aid percentages; two of them were far above the statewide average aid percentage. State school aid to New York City increased by about one-fifth as a result of the change in the geographic basis for calculating aid.

This does not necessarily argue for decentralized management of central city schools, although the change in state aid in New York was associated with decentralization shortly thereafter. Rather, the argument is for parallel fiscal treatment, if the basic state school finance plan contains the "impurities" that nearly all such plans do have in practice.

A final note. It was noted early in this report that some large cities are dreadfully poor in fiscal terms relative to their states and metropolitan areas. Cleveland and St. Louis among our cities fall into this category, but there are others not studied here. State school finance reform should treat such cities generously, but there is no sensible way for the school finance system to remedy all, or even a large part, of the fiscal distress of the pauper cities. Instead, relief must come from outside the school finance system, from non-school fiscal measures explicitly tailored to the specific circumstances of the cities. More generally, we should avoid loading onto the school finance system

all the fiscal problems of local government, just as we should avoid loading onto the schools themselves all the social problems of our country.

APPENDICES

APPENDIX A
DERIVATION OF DATA IN TABLE 1

It was noted in the Preface that this report is based, wherever possible, on standard published statistical sources that permit comparison among places (and comparison among variables, for any given place). Comparability is maximized by heavy reliance on Census Bureau data, and other Federal statistical sources linked to Census definitions. Some Census data for years beyond 1971-72 are available, but not a complete set, and therefore the basic comparisons are for 1971-72. As will be seen, some of the estimates for 1971-72 are based on relationships revealed by data for even earlier years, but only where nothing better is available.

Metropolitan area definition. Five of the metropolitan areas follow the official Federal designation as that designation was when fiscal data for 1971-72 were being tabulated by the Census Bureau (the definitions for Detroit and New York have changed subsequently). For Philadelphia and St. Louis, the New Jersey and Illinois portions, respectively, of the SMSA's have been excluded; since this study deals with state school finance arrangements, it makes little sense to include the out-of-state parts of an SMSA in the analysis. For Boston, the area is not the SMSA per se, but rather Massachusetts State Economic Area 3; the "central city" is not Boston, but Suffolk County. This area

definition stems from the availability of Census data on local finance and property values in New England only on an SEA basis; similarly, Department of Commerce personal income data are an SEA basis in New England.

Personal income. The personal income concept used here is that developed by the Department of Commerce for the national income accounts. State and metropolitan area personal income estimates are published annually in the Survey of Current Business. To distinguish between central cities and the outside-central-city areas and to adjust for the boundary differences noted above, the money income per capita relationships in the 1970 Census of Population were used, thus assuming that the ratio of central city to SMSA money income per capita in 1969 also applied to personal income per capita in 1971, for example.

Property values. Except for New York, the basic source here was the 1972 Census of Governments, Volume II. Assessed values were converted to estimated market values on the basis of assessment-sales ratios published in the 1972 Census, in some cases supplemented by unpublished assessment ratio data and/or data from the previous Census, in 1967. The residential component was broken out in a similar fashion. In a few cases, the author had access to locally-applicable information that supplemented the Census data. For New York, local, not Census, data were used as

the basis, with substantial adaptation by the author. The 1972 Census of Governments does not provide assessment ratio estimates for "high-value" property; the cut-off excludes a very large fraction of all New York City real property, including a substantial proportion of the housing stock. State government data do provide coverage of the entire universe, in contrast.

Local tax collections. The basic source here was the annual Census Bureau release on the finances of local governments in large metropolitan areas. Except for Chicago, Cleveland and Detroit, our central cities are independent of the surrounding counties, and no adjustment or manipulation of the published Census data is required (Boston is part of Suffolk County, but we used Suffolk as the central-city equivalent in this study). For Chicago, Cleveland and Detroit, the annual release on metropolitan areas provided data for selected large units of local government and the 1972 Census of Governments provided similar data on other units. For those units covering an area larger than the central city (e.g., the county government or the Chicago Metropolitan Sanitary District), tax collections were allocated between the city and outside-central-city areas on the basis of assessed values (for property taxes), Census of Business data on retail sales (for sales taxes) and similar indicators (for minor county taxes).

"Locally borne" local taxes. These comprise local tax collections less the portions whose economic burden is estimated to have been shifted. See Appendix B for a full discussion of this.

APPENDIX B
TAX EXPORTING ASSUMPTIONS AND ESTIMATES

In making estimates of the extent of tax exporting, one must frame assumptions and piece together data that deal with three general situations:

1. Taxes that involve some shifting from the initial impact of the tax to burden-bearers some of whom may be external to the jurisdiction in question.
2. Taxes that involve no shifting at all, but the initial impact of which may be on non-residents. Examples include property taxes on vacant land, some of which may be owned by non-residents; local personal income taxes paid by commuters; and local sales taxes on purchases by visitors or commuters.
3. Taxes exported in the sense that they reduce Federal income tax liability. State-local taxes on property, retail sales, personal income and gasoline are deductible items for the Federal individual income tax. It is true that we all share the burden of such reductions in Federal tax liability, as Federal income tax payers, but that burden is uniform nationally. On the other hand, to the extent that one jurisdiction depends more heavily on taxes that are Federally deductible than its neighbors, the locally-borne tax burden will be smaller in that jurisdiction, and it is the differentials in tax burden that concern us here. Of course, all local taxes

are deductible expenses in computing business income for Federal tax purposes but it is extraordinarily hard to take this into account in any reasonable fashion; moreover, to the extent that such taxes are paid by corporations subject to a uniform (non-graduated) Federal corporate income tax rate, the inter-jurisdictional effects of deductibility will be less differential than are the effects of deductibility against the graduated individual income tax.

Table B-1 summarizes the assumptions and methods used in this study for estimating the extent of tax exporting.

Public finance theorists have sharp differences about the shifting and incidence of property and corporation income taxes in general; there is no clear cut consensus among them. Moreover, whatever the theoretical conclusion, the actual process of shifting of tax burdens in individual areas will depend upon the relative height of tax rates, the area's competitive advantages and disadvantages and a variety of other characteristics of the supply of and demand for the goods and services affected by the tax question. Most of these factors are very difficult to measure. The assumptions shown in Table B-1 are essentially a matter of the author's judgment. The critical variable in most cases is not the extent or direction of shifting -- that is, whether it is property owners or consumers or employees that bear the tax -- but whether

property owners, consumers or employees are residents of the taxing jurisdiction or not. For example, little of the tax on rental housing is assumed to be exported, on the presumption that most rental property is owned by resident landlords (and renters are of course local residents). On the other hand, large portions of taxes on nonresidential business income and property are assumed to be exported, on the presumption that many business owners as well as consumers of the goods and services produced by taxed firms are non-resident to the taxing jurisdiction.

A further word is necessary in regard to personal income taxes and in regard to Federal income tax offsets. In 1971-72, all of our cities except Boston and Chicago employed local income taxes; some non-central-city jurisdictions also used this tax in the Cleveland, Detroit and Philadelphia area. The Baltimore tax (and that used by the suburban counties in that area) applies only to residents. For Cleveland, Detroit, Philadelphia and St. Louis, the extent of exporting was estimated from data on commuting patterns and earnings in the 1970 Census of Population, adjusted for the specific features of the local income taxes (e.g., the differential rate in the Detroit tax). For New York, local estimates of the portion of the tax paid by commuters were used.[1]

[1] Whenever possible, supplementary local data were utilized in these estimates; this was more frequently possible for New York than for other places.

Table B-1. PRINCIPAL TAX EXPORTING ASSUMPTIONS AND METHODS

Type of tax	Percent of revenues assumed to be exported	
	Central City	Rest of SMSA
Taxes assumed shifted in part:		
1. Property taxes on rented housing	16.7	16.7
2. Property taxes on commercial realty	61.1	38.9
3. Property taxes on industrial realty	66.7	100.0
4. Property and gross receipts taxes on utilities	25.0	22.2
5. Property taxes on motor vehicles	15.0	5.0
6. Property taxes on business, personal property, n.e.c.	65.0	65.0
7. Corporate income taxes	60.0	60.0
Taxes assumed to involve little or no shifting:		
8. Property taxes on owner-occupied housing	*	*
9. Property taxes on vacant land	33.3	33.3
10. Personal income taxes	*	*
11. Local general sales taxes	15.0	10.0
12. Other local nonproperty taxes n.e.c. (mainly selective excises)	10.0	10.0

Notes to Table B-1

*Exporting due solely to Federal individual income tax deductibility and/or commuting; extent of exporting varies depending upon income levels and/or commuting patterns.

line 1: Assumes that 1/2 borne by owners and 1/3 of this borne by non-resident owners.

line 2: Assumes that 1/3 borne by owners and 1/2 of this borne by non-resident owners; 2/3 shifted forward to consumers, of which 2/3 are non-resident for central cities and 1/3 non-residents for the rest of the SMSA (that is, more of the commercial property tax base in the suburbs consists of resident-serving stores and the like).

line 3: For the central cities, assumes that 1/3 is shifted forward to consumers located elsewhere and 2/3 not shifted or shifted backward, with half of this latter amount exported. For the rest of the SMSA, all the burden-bearers, regardless of the shifting pattern, are assumed to be non-residents.

line 4: For the central city, assumes that 1/2 falls on business customers and half of this is exported. For the rest of the SMSA, assumes that 1/3 falls on business customers, but 2/3 of this is exported.

line 5: These are rough estimates of the relative extent of the non-passenger-car component of the tax base, with half of this exported.

line 6: This is a rough amalgam of lines (2) and (3).

line 7: This is similar to line (6), but reduced to recognize that utilities may be included here; see line (4).

line 9: Assumes that 1/3 of the tax is paid by non-resident owners.

line 11: Estimated share of taxes paid by commuters and visitors and exported taxes on intermediate business purchases. Further estimates are necessary to recognize Federal individual income tax deductibility.

line 12: Arbitrary estimates; this is a diverse group of taxes for which exporting possibilities are generally small.

In all cases, it was assumed that all the tax was borne within the SMSA, except for the impact of Federal income tax deductibility. This procedure makes it possible for suburban areas to have net imports of central city non-property taxes.

The size of the Federal tax offset was estimated on the basis of Census data on family income levels of homeowners (which suggest the appropriate Federal marginal income tax rate) and Census data on the extent of homeownership, on the assumption that few tenants itemize deductions (except in New York, where many tenants have relatively high incomes and find itemization attractive because

of a very high state income tax). The Federal tax offset is not a trivial matter. Its estimated value in respect to property taxes on owner-occupied houses was equal to 13-14 percent of total local tax collections outside the central city in four of the eight cases and between 8 and 11 percent in the other four cases.

Partly for this reason, the percentage of suburban property taxes exported is not as much below the central city property tax export percentage as might have been expected superficially, as Table B-2 shows. Indeed, for Philadelphia, the outside-central-city property tax export percentage is the higher one (although both are low compared to the other SMSA's). The Boston case is the only one with a very large differential in the export percentage. It should be mentioned that the crudeness of the methodology employed here suggests that small differences have no meaning. Also, there is some reason to believe that the assumptions used here have a bias in the direction of understating the export percentages for those central cities with the most successful central business districts, notably Boston, Chicago and New York.

The non-property tax export percentage do not exhibit a consistent pattern, as is to be expected in view of the heterogeneous nature of local non-property taxation. The only general rule seems to be that the central city's export percentage will exceed that of the environs only if the central city imposes an income tax that

reaches non-resident commuters (which Baltimore, Boston and Chicago do not); the more important that tax, the higher the differential in the export percentages between central city and suburbs, with Philadelphia the extreme case: The suburbs "import" large amounts of non-property taxes net, because of the level and nature of the Philadelphia city earnings tax.

As the third column of Table B-2 shows, for all taxes combined, the extent of exporting is greater for the central cities than the suburbs in all eight cases, but the differences are insignificantly small for Baltimore and Detroit. In the other cases, they are large enough to influence one's conclusions regarding the central city-suburban tax burden differential.

Table B-2: PERCENTAGE OF 1971-72 TAX REVENUE ESTIMATED TO HAVE BEEN EXPORTED (NET)

	Property Taxes	Other local Taxes	All Taxes
Baltimore			
Central city	38	19	33
Rest of SMSA	35	23	31
Boston			
Central city	45	9	45
Rest of SMSA	23	10	23
Chicago			
Central city	48	21	43
Rest of SMSA	37	24	36
Cleveland			
Central city	47	46	47
Rest of SMSA	40	-1	34
Detroit			
Central city	44	39	43
Rest of SMSA	42	-58	40
New York			
Central city	39	36	38
Rest of SMSA	34	9	32
Philadelphia			
Central city	26	36	32
Rest of SMSA (Pa. portion only)	32	-151	15
St. Louis			
Central city	41	26	34
Rest of SMSA (Mo. portion only)	32	10	26

APPENDIX C

THE CIRCUIT-BREAKER

As of January 1, 1974, twenty-two states had "circuit-breaker" programs for property tax relief.[1] However, all but five of these confined relief to the elderly; Michigan was the only state, among those covered in this report, with a program for all age groups. The hypothetical circuit-breaker analyzed here applied to all ages, and follows the lines of the Michigan program, with two alterations:

1. Residential property taxes that exceed 4.0 percent of household income are deemed to be excessive and eligible for a rebate from the state government. (Michigan uses 3.5 percent, but the Census data utilized for estimating in this report break at 3.0 and 4.0 percent, not 3.5 percent.)
2. The rebate is 60 percent of the excessive tax payment, with a ceiling of $500.
3. Renters are deemed to pay property taxes equal to a specified percentage of rents. In the Michigan program, this is set at 17 percent; other states use percentages as high as 25 and as low as 10. For example, in programs confined to the elderly, Illinois uses 25 percent, Missouri

[1] A convenient summary of their provisions can be found in Advisory Commission on Intergovernmental Relations, Federal-State-Local Finances: Significant Features of Fiscal Federalism, 1973-1974 Edition, Table 108, p. 187.

18 percent and Pennsylvania 20 percent. Census data indicate that property tax payments as a percentage of rental receipts differ considerably among regions. Moreover, contemporary property tax incidence theory suggests that it is improper to assume that all of the property tax on rented housing is shifted to tenants. Therefore, on the basis of a more appropriate theoretical assumption and the available evidence on the level of property taxes relative to rents and property values in different areas, the following property tax equivalents, expressed as percentages of gross rents, are used:

Cleveland and St. Louis	15
Detroit, Chicago, Philadelphia and Baltimore	17
New York	20
Boston	22

It is not possible to estimate the results of introduction of a circuit-breaker with any precision, in the absence of detailed Census cross-tabulations for each area considered. However, rough estimates can be made, on the basis of published data. For renters, the 1970 Census of Housing HC (2) reports, Metropolitan Housing Characteristics, provide adequate data on rent-income relationships for direct, albeit crude, estimates. For owner-occupants of single-family houses, a starting point is a special tabulation done by the Census Bureau for ACIR, from raw data collected for the Residential Finance part of the 1970 Housing Census.[2] This provides data for regions. For the present purposes, the regional data have been adjusted to reflect the differences between estimated effective residential property tax rates for the entire regions (estimated on the basis of information in Vol. V of the 1970 Housing Census) and those for our metropolitan areas, with a central city-suburb differentiation (estimated on the basis of the 1972 Census of Governments and other sources). An indication of these differences is found in the following summary estimates of effective residential

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[2] This special tabulation was published by the Census Bureau as a Supplementary Report, HC(S1)17, in June 1973.

property tax rates:

	Region, 1970-71	SMSA, 1971-72
Northeast	3.0%	
Baltimore		2.0%
Boston		4.0
New York		3.1
Philadelphia		2.3
North Central	2.1%	
Chicago		2.3
Cleveland		1.8
Detroit		2.4
St. Louis		1.8

The method used in this adjustment assumes that the structure of tax-income relationships for the region applies to each of the cities and its suburbs; only the level differs. A further step is to estimate the consequences for owner-occupants living in other than single-family houses, mainly 2-4 family houses. There are close to one million such households in our eight SMSA's, more than half in the central cities of New York and Chicago. Unfortunately, the data on such households are very fragmentary and the estimates for this group could be very wide of the mark. For this and other reasons suggested above, the results presented here may well differ considerably from estimates made by other investigators.

Circuit-Breaker Results

Some of the results of these elaborate calculations appear in Table C-1. The first column in that table shows the aggregate

Table C-1. ESTIMATED PROPERTY TAX REBATES UNDER HYPOTHETICAL CIRCUIT-BREAKER PLAN[a]

SMSA		Aggregate Rebate as % of Total Residential Property Tax Collections	Percent of Aggregate Rebate Received by: Households with less than $10,000 Income[b]	Renters
Baltimore:	Central City	30	63	11
	Outside	8	49	14
Boston:	Central City	24[c]	58	29
	Outside	17[c]	39	10
Chicago:	Central City	13	63	30
	Outside	8	39	8
Cleveland:	Central City	16	74	13
	Outside	6	50	8
Detroit:	Central City	22	60	8
	Outside	11	39	5
New York:	Central City	13	59	39
	Outside	14	27	5
Philadelphia:	Central City	21	67	11
	Outside	11[d]	46	5
St. Louis:	Central City	15	79	16
	Outside	12[e]	53	5

a Estimated on the basis of published 1970 Census of Housing data and Census fiscal data for 1971-72.
b Household incomes in 1969.
c The SMSA is State Economic Area 3; the central city is Suffolk County.
d Pennsylvania portion only.
e Missouri portion only.

value of the rebate as a percentage of the total residential property tax collections in the eight cities and their suburbs collectively. Other data in this report permit comparison of the rebates with personal income, but the simple comparison in Table C-1 is a rough measure of the tax burden relief yielded by the circuit-breaker.

As the earlier discussion of estimating methods indicates, the relief provided by a circuit-breaker is a function of its formula, the level of effective property tax rates and the height of housing prices relative to personal income in different areas. The extent of aggregate relief is also affected by the relative degree of renting as compared to owner-occupancy, since the formula used here explicity assumes that not all of the property tax on rental property is paid by renters. The third column of the table is included to give some rough indication of the sensitivity of the results in the first column to the size of the renter pass-through; where the figure in the third column is small as in the Detroit and Philadelphia areas and in suburban territory in the Chicago, Cleveland, New York and St. Louis areas, a more generous pass-through for renters would have little effect on the results shown in the first column.

Because effective property tax rates are high relative to the suburbs in most of our central cities and because low-income

households with high housing-costs-to-income ratios are more common in central cities, the rebate provides greater proportionate tax relief in central cities in seven of the eight cases. The exception is New York, where central city residential property tax rates are well-below the suburban average (to be sure, this is offset by much higher local nonproperty taxes in New York City). What is remarkable is how large the suburban rebates are despite these factors.

The second column reveals an even more remarkable fact: the considerable extent to which the rebates do not accrue solely to low-income households, using $10,000 as the dividing line. Only in the central cities of Cleveland, Philadelphia and St. Louis does two-thirds or more of the rebates go to households with incomes below $10,000. And in all the "outside central city" areas other than Cleveland and St. Louis less than half the rebates goes to such households. Moreover, the higher the relative size of the aggregate rebates, the larger is likely to be the proportion received by households with incomes of $10,000 or more. That such large percentages of circuit-breaker relief goes to above-median-income families is a direct result of the nature of the plan: the dollar amount of rebate rises with housing expenditure--which does increase with income (a typical $25,000 family may not spend five times as much for housing as a $5,000 family,

but it will spend three or four times as much, even if the comparison is confined to renters or to homeowners)--until the $500 ceiling is reached, which occurs only when income is relatively high and housing expenditure as a proportion of income is also high. Indeed, this tendency of the circuit-breaker to benefit those who are by no means among the worst-off of the population has been stressed by the critics of the circuit-breaker, like Henry Aaron of The Brookings Institution.

If the circuit-breaker relief is to be more concentrated on low-income households, a more restrictive formula must be used. But such a formula has two drawbacks: it has less popular appeal because fewer benefit from it and it provides less aggregate property tax relief, for central cities as well as for suburbs. Another negative argument might be that the state tax sources used to finance circuit-breaker relief are often not very progressive in incidence; however, that argument applies to any scheme for equalizing school finance or central-city tax relief involving state government fiscal resources.

NOTES

SCHOOL FINANCE REFORM IN NEW MEXICO 1974

The primary intent of the "State Equalization Guarantee" passed by the 1974 New Mexico Legislature was to equalize expenditures among the 88 school districts through a more sophisticated definition 'need". New Mexico statutes require that the Chief of Public School Finance, Department of Finance and Administration, hold annual budget hearings in each of the state's school districts; that process provides excellent feedback to the legislative and executive branches of state government from local school boards and administrators relative to the fiscal needs of districts. It was primarily through that process that inequities were highlighted and made visable.

The previous comprehensive school finance reform legislation was passed in 1969. That distributional method was a Johns-Morphet type of "staffing formula" containing thirteen staff categories of professional and non-professional personnel. Based upon a district's ADM, basic program "need" was determined by allocating a number of staff positions (e.g., one Principal per 400 ADM) and multiplying the allocation by an appropriation unit for each category (e.g., $11,790 for Principals in 1971). After determining the salary costs, 25 percent was added for supportive costs and the state funded 70 percent of the basic program plus 100 percent of approved special education costs, while the school districts were required to generate the remaining 30 percent of "need" through local tax sources. Unfortunately, the state imposed uniform assessment ratio of 33-1/3 percent of market value and limitation on tax rates combined with extremely low property wealth of school districts such that many districts could not generate the 30 percent local contribution to "need". Consequently many

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districts never attained 100 percent of "need" during the five years that the staffing formula was in operation while a few districts generated more than 100 percent of "need" or enjoyed lower property tax rates. Illustrative is the fact that following the first year of operation, an equalization appropriation was added to the distribution which guaranteed a minimum amount of local revenue per ADM and that distribution increased to approximately 14 percent of the basic distribution in four years; thereby recognizing that poor wealth districts could not meet the 30 percent local "contribution to need".

It was against the above background and widespread criticism of the staffing formula from the Chief of Public School Finance, representatives from large and small school districts, teacher unions and legislators that the Governor formed an Advisory Committee on School Finance in the Spring of 1973. The Chief, a staff member of the executive branch, and the State Superintendent were named as Co-Chairmen of the Committee which included representatives of categorical programs, full membership of the Legislative School Study Committee (L.S.S.C.), Parent Teacher Association representatives, union representatives, and School Administrator Association representatives.

The Advisory Committee met approximately once each month between July and December with the Chief playing the key leadership role. The Chief has previously hired an individual who was completing his doctoral dissertation at the University of New Mexico in which he adapted the National Education Finance Project's (NEFP) computerbased simulation model to New Mexico. The advocacy of the Chief and Key members of the Legislative School Study Committee for a student-needs based formula and the absence of alternative

proposals except modification of the discredited existing formula established the NEFP-type weighted pupil approach as the focus of debate.

The initial issues were: (1) how much additional money would be appropriated (the Governor had pledged a 12 percent increase) and (2) how should the money be distributed? The latter issue was readily resolved as to form by acceptance of the weighted pupil approach, leaving only the dimensions to be determined. Simulated distributions of Committee requested alternatives were provided by the Chief. Although the legality of taking credit of P.L. 874 funds as local wealth remained questionable, the Committee adopted that provision. However, given the Governor's recommended 12 percent increase, redistribution of state aid under the new formula indicated that 58 districts would gain revenue compared to existing funding levels and 30 districts would lose, thereby requiring 17 percent of the proposed appropriation for a "save-harmless" provision. The final meeting of the Governors Advisory Committee reviewed a proposal for a maximum increase of 12 percent for previous categorical programs (Kindergarten, Special Education, and Vocational) and a total appropriation increase of approximately 15.3 percent. That recommendation, although above the Governor's commitment, became the package to be introduced by the L.S.S.C. and included only 9 districts in "save-harmless" (primarily due to large receipts of P.L. 874 funds) after district sparsity was amended to it.

During the legislative session, school district sparsity was added and the legislature made it clear that local boards should give first priority to teacher salary increases. The dollars per unit was established at

$616.50 in the Appropriations Bill as were maximum increased of 12 percent for Kindergarten, Special Education and Vocational programs and a maximum increase of 43 percent for Bilingual programs (in the second year of funding).

Provisions of the Reform Legislation

The following weightings were established:

Program	Weight
*Kindergarten	1.1 (F.T.E.)
Grades 1-3	1.1 ADM
Grades 4-6	1.0 ADM
Grades 7-9	1.2 ADM
Grades 10-12	1.4 ADM
*Special Education A/B (itinerate/resource rooms	20.0 (total units for approved program, not ADM)
C Mildly handicapped	1.9 ADM
D Severly handicapped	3.8 ADM
*Vocational	0.8 (F.T.E. add-on)
*Bilingual	0.5 (F.T.E. add-on)

*subject to State Department of Education approval

Sparsity

Schools with ADM less than 200:

Elementary and Junior High: $\frac{200 - ADM}{200}$ X 1.0 X ADM = units

Senior High: $\frac{200 - ADM}{200}$ X 2.0 ADM = units

Districts with ADM less than 4,000:

$\frac{4000 - ADM}{4000}$ X 0.15 X ADM = units

Teacher Training and Experience

A weighted average of teacher training an experience is computed for each district utilizing matrix of 5 aining levels and 5 exper'ence levels. The index is multiplied by the sum of program units (excluding special education units) to yield "adjusted" program units. No district's training and experience index shall be less than 0.95.

Calculation of Need

A district's "need" is determined by summing adjusted" program units, special education units and sparsity units and multiplying the total units by the unit appropriation of $616.50. However, due to the 12 percent increases limited on some programs, the Vocational program unit amount was established at $461 and the Special Education program unit amount was established at $587. The Bilingual program limitation did not necessitate a reduction in the unit funding level nor did the limitation on Kindergarten.

Calculation of the State Equalization Guarantee (90.5 percent of Appropriation)

1. Calculate "need" as described above utilizing the higher of the first 40 days ADM or the first 80 days ADM.
2. Calculate local and Federal revenue received from:
   (a) 95 percent of a uniform levy of 8.925 mills on local assessed real property;
   (b) 95 percent of the district's share of motor vehicle license fees;
   (c) 95 percent of he district's share of forest reserve funds;
   (d) 95 percent of P.L. 874 funds; and
   (e) 95 percent of regular vocational funds (20 U.S.C. 1241-1391)

3. The amount of the state equalization guarantee is determined for each district by subtracting the sum of number 2 above from the "need" determined in number 1 above.

"Save-Harmless" (1.5 percent of Appropriation)

Any district that would receive less state revenue per ADM, except Kindergarten and Special Education, under the state equalization guarantee than under the previous year formula, shall receive an allocation to guarantee the previous year funding level per ADM. However, the save-harmless amounts shall be reduced each succeeding year until no amounts shall be provided under this provision in 1980. A special provision was made to include one district into save-harmless due to the large grants received by that district from the Atomic Energy Commission.

Transportation (6 percent of Appropriation)

The state provides 100 percent of transportation costs.

Textbooks (1.6 percent of Appropriation)

Each school district and private school participates in a special textbook fund appropriated from Federal Mineral Leasing Funds The allocation is made to public school districts and private schools based upon their elementary and secondary ADM as a percentage of the total public and private elementary and secondary ADM in the state. Credits are established with the State Textbook and Materials Depository and the participants draw state approved books and materials up to the amount of entitlement.

Supplementary Distributions (0.4 percent of Appropriation)

(1) Out-of-State Tuition-- 100 percent state support for border students more economically educated in other states.

(2) Emergency-- need based; approved by the Chief.

(3) Program Enrichment-- provides for special education diagnostic services and other special-needs programs approved by the Superintendent.

(4) Special Vocational-- appropriation for shared-time programs for high school students attending post-secondary Area Vocational Schools as approved by the Superintendent.

Capital Outlay

No regular appropriation of state funds is made for capital expenditures. However, the legislature has appropriated approximately $6 million to be distributed on an emergency basis as recommended to the State School Board by an Advisory Council. Participatory limitations are established by law, e.g., extent that applicant district has used bonding capacity, etc. New Mexico's Constitution limits school district debt to 6 percent of the assessed value (33-1/3 percent of market value) of real property in the district.

Horizontal Equity

For the 1973-74 school year, school districts operated under the staffing formula and were required to contribute 30 percent of "need". Property values ranged from a high of $104,084 per ADM to a low of $2,197 per ADM; a property wealth ratio of 47.4 to 1.0. Both the wealthiest and poorest districts were levying 9.45 mills for operational purposes that year but the poorest district was not generating it's 30 percent of "need".

The wealthiest district had no levy for debt service (satisfying capital outlay needs from the operational levy) while the poorest district was levying an additional 3.323 mills for debt service.

Under the reform legislation no assistance is provided for capital outlay or debt service: however, the uniform levy of 8.925 mills will provide 100 percent of need for all districts. Since the state charges-back 95 percent of the amount that the uniform levy would raise, the wealthiest district contributes significantly more (about 47 times more) toward it's "need" per ADM than does the poorest district. The effect of the charge-back is to allow more State resources to flow to the less wealthy districts and for the most wealthy districts to contribute more toward their "need". However, it should be pointed out that less than 5 percent of New Mexico's 88 school districts have property value in excess of $40,000 per ADM; and, over 75 percent of the students live in school districts with less than $10,000 of property value per ADM. The statewide average was $11,142 in 1973-74.

Distributional equity is the central feature of the reform legislation although the uniform mill-rate charge-back provides substantive taxpayer equity. Coupled with the fact that local contribution to "need" represents only about 13 percent of the total current expense, the 5 percent non-equalized variance (State takes credit for 95 percent of 8.925 mills) amounts to less than 1 percent of current expenses for education. This funding provision has long been held to be one of the most equitable methods upon which to base State assistance--dating back to 1923 when Strayer and

and Haig first proposed it.

Legal Considerations

New Mexico had a Rodriquez-type suit filed which became moot upon the U.S. Supreme Court's 5 to 4 decision; and, like California, the New Mexico Constitution does provide for "equal protection" and therefore suggest that a Serrano-type suit (in State Court) may have been forthcoming.

Probably the most often quoted statement from Serrano is that the quality of a child's education should not be a function of the wealth of his parents and neighbors, but based upon the wealth of the state as a whole. Does New Mexico's reform legislation meet that test? In the opinion of this writer, yes! The reform legislation defines program need on a statewide basis, charges back a uniform mill levy for operational purposes (the Montana Supreme Court recently ruled, as in other States, that a uniform levy for education is a State tax), and the state contributes to program-need inversely to local contribution to program-need. However, the State does not provide for systematic fiscal assistance to school districts for capital-outlay and debt-service. Therefore, the quality of educational facilities and equipment in the districts must rely upon the wealth of a child's parents and neighbors. (The 1975 Legislature has a proposal to provide systematic capital-outlay assistance as well as emergency assistance.)

There does remain two areas of potential litigation related to the New Mexico school finance reform. The first regards the provision that takes credit, as local contribution toward need, for 95 percent of P.L. 874 receipts.

Although covered by the Dole Amendment in 1973-74, some questions remain as to the method by which states may do so under the Educational Amendments of 1974 incorporated in P.L. 93-380. The Amendments require that the Office of Education establish guidelines to implement the provision, but those guidelines are yet to be approved. The court has ruled in favor of the State of New Mexico with regard to the taking of credit for P.L. 874 funds but the method must yet be settled.

Another area of potential litigation regards the provision that treats one school district differently than other districts. Testimony in the case has already been given and the Court's decision is expected shortly. The case was not tried on the "equal protection" clause of the State Constitution as expected but on the "supremacy doctrine" of a Federal Agency action over actions of the state.

Summary

The primary intents of New Mexico's school finance reform legislation was to equalize expenditures among the 88 school districts through a more sophisticated definition of "need" and to ensure that all districts would have access to revenue necessary to meet 100 percent of "need". Both distributional and taxpayer equity are provided in the reform; distributional equity through defining "need" on a weighted-pupil basis and taxpayer equity through the uniform property levy and by providing state revenue inversely to local revenue. Local revenue is defined as 95 percent of (1) the receipts of a uniform levy of 8.925 mills, (2) P.L. 874 receipts, (3) districts share of motor vehicle license fees, (4) Forest Reserve funds, and (5) regular vocational funds.

It is suggested that New Mexico meets the Serrano test of fiscal neutrality for operational funds but remains lacking in a systematic provision for capital-outlay and debt-service. It was noted that the 1975 Legislature is considering a popular Capital-outlay Bill.

NEW EDUCATION POLICY IS SET IN GEORGIA

In March 1974, Georgia's General Assembly enacted Senate Bill 672, entitled the "Adequate Program for Education in Georgia Act" which provides for sweeping changes in the administration and financing of the State's elementary and secondary education system. Recognizing the need to provide "an equitably financed public educational structure assuring each Georgian an adequate educational opportunity", the new law redefines the basic education goals for Georgia and provides a new basis for their financial calculation. Georgia will be building on a system of State support which provides more than 60 percent of the combined State and local funds for education, chiefly through a foundation program.

The chief aims of this law are:

1. To provide increased State support through an expanded foundation program;
2. To allow for increased financial support for special education;
3. To include vocational education as an integral part of the general education program;
4. To provide local school systems more flexibility in utilizing State financial aid;
5. To establish a program of compensatory education;
6. To support kindergarten classes;
7. To provide for equalization among school district expenditures.

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The law becomes effective on July 1, 1975 and replaces the minimum foundation program which has been in effect since 1964. For the first time, the new law provides for some equalization in school district expenditures by adding a form of district power equalization. The most important features of Senate Bill 672 are described below.

Pupil - Instructional Unit Ratio Under the new law, authorized instructional unit support of one teacher for 25 pupils in ada is extended to all grades 1-12 in the regular program. At present, instructional support for grades 4-7 is authorized at one teacher unit for each 28 pupils in ada. The new provision is estimated at requiring an additional $14 million in State aid at present levels of State supported teachers salaries.

Special Education Sweeping support for special education is authorized in broad language in the law which states, "All children and youths who have special education needs shall also be eligible for special education services..... Local units of administration shall...provide a special education program for all students with special needs who are residents of their school systems..... The State Board of Education shall have the authority to provide educational and training services for children who have special educational needs..." by contracting with suitable private organizations or public agencies or by making grants to parents of such children, subject to certain limitations. For exceptional children enrolled in public schools, the new law authorizes one instructional unit for each 12 pupils in ada in self-contained

education classes in grades 1-12. Under the present law, some additional teacher units are provided for special education without specific reference to a pupil-unit ratio.

Vocational Education is established as an integral part of the general education program. It is clearly the purpose of the new law to place vocational educational programs on a par with general education programs. The law, in effect, allows the State to finance up to one-third of the authorized local instructional costs for these programs. The State presently provides salary supplements for teachers in vocational education with actual amounts depending on authorized funds. In 1974-75 some $34.5 million in State aid was provided through the Vocational Education Fund, a sum equal to 5.8% of State education aid in that year.

Compensatory Education For the first time, Georgia has taken some tentative steps toward supporting compensatory education by providing:

> The State Board of Education shall promulgate rules, regulations and standards and establish the terms and conditions necessary to implement programs of compensatory education. Compensatory education shall include, but shall not be limited to, programs of remedial reading, mathematics and such other programs as needed.

The Board of Education shall determine the number of students needing compensatory education and estimate the State costs for such programs.

A Preschool Education program is established. Half-day kindergarten classes are authorized for five-year old children in the regular program. For exceptional children, programs for three and four year olds are also authorized.

Provision for non-categorical use of State funds An important feature of the new law allows more flexibility to local school systems in their use of State funds. Up to one-third of the State funds allotted for instructional units may be used for instructional personnel other than teachers, provided the State Board of Education has approved the plan describing how the funds will be used. In effect, this portion becomes a form of general rather than categorical aid.

Other support provisions Additional financial support is allowed for a variety of purposes ranging from funds for instructional materials and media to funds authorized for sick and personal leave expenses. For the first time, allotments are authorized for elementary instructional specialists and for the acquisition of instructional equipment. Transportation aid for independent systems (cities) is also included for the first time.

School Accountability and Assessments The new law contains several provisions relating to the accountability of local school systems and to program improvement. The State Board of Education is required to establish performance-based criteria for the evaluation of the instructional program of each public school. Provision is also made for the establishment of an annual statewide assessment program to be administered at a minimum of three grade levels. Training programs are expanded for public school administrators which are designed to improve the instructional content of local school programs.

District Power Equalization Under the new equalization provision featuring district power equalization (DPE), the Act guarantees a level of financial support equal to the tax yield of any millage levy on the school district ranking at the 90th percentile in dollars of assessed valuation per ada. These valuations are based on 40 percent of the equalized adjusted school property tax digests of the school districts. State equalization support is not tied to any fixed level of per pupil expenditures, rather it is linked to a schedule of tax yields for one of the State's wealthiest districts, i.e. the district with assessed valuation ranked at the 90th percentile. The schedule is computed by calculating the yields from differing millage levies for the district at this 90th percentile.

In 1971-72, equalized property value per pupil in ada at the 90th percentile, $50,745 was 2.74 times greater than the lowest value, $18,457. The median property value per ada amounted to $36,243. Since local support accounts for about 35 percent of State and local monies for education and because of the relatively low dispersions in property values, the amount of State money needed to fund the power equalization provision is currently estimated at 72.5 million at the going local tax rates. This sum equals about 12 percent of total State aid to LEAs ($586,000,000) in the 1974-75 school year.

Minimum local support is specified in a provision which requires that the local contribution be related to the value of the district's share of the total equalized tax digest in the State, irrespective of school attendance. For several years now, the minimum required local support has been frozen at a sum between $78.5 million and $78.6 million.

This amount is pro-rated among school districts in the same ratio as their equalized property values bear to the State total. For each year that the required local support is frozen at this dollar amount, the State share of public school expenditures has been rising. The new law retains the property tax as the sole source of local support for education.

The guarantees of the district power equalization provision limit the annual growth in education expenditures for each school district to $100 or 125 percent of expenditures per ada of the previous year, whichever is greater. Add-ons above the guarantees of DPE will still be allowed. Convergence of district expenditures, if any, cannot be predicted, for it will depend on such diverse factors as: 1) the choice of tax rates by a school district; 2) changes in school district enrollment; 3) the level of state funding of the new school finance measure; and 4) changes in local property values (and tax yields) to growth and inflation.

For 1972-73, the range in per pupil expenditures for instructional purposes alone varied from a low of $380 in Ben Hill County to $768 in Atlanta. These amounts include Federal education aid. At the same time, total pupil expenditures varied from $512 to $1,095 with Atlanta again the highest spending district. Data on school expenditures excluding Federal aid are not available. It is unclear to what extent these expenditure disparities result from regional cost differences or from program differentials for children with special needs.

The law spells out the procedure whereby the DPE allotment can be calculated by a school district. An LEA will: 1) choose its per pupil expenditure level for the following year; 2) determine the millage rate required for this expenditure level on the basis of the guaranteed valuation school district; 3) apply that millage rate to the equalized assessed valuation of its own school district; 4) subtract both the yield from the State-imposed minimum millage rate required for local support and the yield calculated under (3) from the desired per pupil expenditure; and 5) multiply the resulting difference by the number of students in ada to determine the amount of State entitlement. The number of students in ada will be based on estimates of ada of the current year.

Whenever annual appropriations are insufficient to cover the financial requirements of the equalization features of the new law, then provision is made for lowering the guaranteed valuation to a level at which available funds can be equalized.

Funding In March 1975, the Georgia Legislature appropriated some $678.6 million for State aid to local school districts for the 1975-76 school year, an increase of nearly 16 percent over the 1974-75 appropriation of $586.3 million. The increased appropriations were largely distributed as follows:

	Millions of dollars
Increased teachers salaries	$45.0
Reduction in pupil-instructional unit ratio	14.0

	Millions of dollars
Additional teachers for special education	$ 1.6
Vocational education	5.0
Compensatory education	10.0
Pre-school education	9.5
Instructional materials and media services	4.0
Transportation aid for cities	1.0
School lunch	2.0

There was no provision for funding the district power equalization section of Senate Bill 672.

KENTUCKY INTRODUCES PUPIL WEIGHTS IN STATE AID PROGRAM

Starting with the 1975-76 school year, Kentucky will launch a system of school aid based on pupil weights for its foundation program. Under Senate Bill 280, enacted in the spring of 1974, state aid will be calculated in accordance with a pupil weighting system which varies by grade for pupils enrolled in the regular program. For State aid for special education, differing weights are assigned to categories of exceptional children, and for vocational education, weights are established by types of training program.

Kentucky provides one of the highest level of State support for public schools in the country. Through its foundation program, State aid in 1972-73 amounted to $263.3 million or 60 percent of the total State and local education revenues of $433.1 million. Nearly all of this State aid was channeled through a program based on classroom units with one teacher for each 27 pupils in ADA in the previous school year.

The new law culminates three years of concern and activity on the part of the State Legislature, the Department of Education, a 100 member Citizen Advisory Council, and key education associations in the State. Kentucky was also the target of a special study by the National Education Finance Project which developed a model school finance plan for the State. This plan is published in a volume, entitled, Financing the Public Schools of Kentucky. While the NEFP recommendations ranged over the entire education program, those embodied in

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the new Kentucky law reflect the thrust closely identified with this group, namely the introduction of pupil weights for State aid purposes, and the calculation of State aid on a pupil rather than a classroom unit basis.

The new law establishes the following weight differentials in the regular program:

Level	Weight
Kindergarten	1.10
Grades 1 - 2	1.30
Grades 3 - 8	1.00
Grades 9 - 12	1.20

These weights will apply to the full-time equivalent of average daily attendance of pupils enrolled during the first three months of the school year. For special education aid, "add-on weights" are applied to the following categories of exceptional children:

Categories	"Add-on weights"
Physically Handicapped	1.50
Hard of Hearing	1.40
Deaf	2.00
Mentally Retarded Educable	1.10
Emotionally Disturbed	2.70
Neurologically Impaired	2.30
Visually Handicapped	2.70
Mentally Retarded Trainable	2.30

The full-time equivalent attendance during the first three months of the school year for each category will be multiplied by these add-on weights. The sum of these will equal the additional pupil unit aid for exceptional children.

For vocational education, six categories of programs have been designated for weighting. The "add-on weights" range from a low of .30 for programs in business office skills to 1.55 for some programs in mechanics, agriculture and health occupations. The law provides for a regular review and update of the weights designated for all programs.

The weights embodied in the regular program were those recommended by NEFP following their extensive analysis of actual program costs incurred in Kentucky. NEFP also undertook in-depth studies of existing program costs in special and vocational education but their recommendations for these programs were not as closely followed. In the area of remedial reading, NEFP had recommended a weighting of 2.30, while the law omits any special weighting for students enrolled in such programs.

In order to compute program cost indices, NEFP utilized program data files existing in the State for a representative sample of 28 school districts in Kentucky. Information gathered for each of the sample districts and for each program included:

1. The number of full time equivalent students enrolled;
2. The number of instructional personnel;
3. Salaries paid to this personnel;
4. Other current operating expenditures allocated by program.

The data were analysed separately for each sample district and then

aggregated to obtain statewide program costs for the regular program and for the separately identified programs in special and vocational education. No attempt was made to search out the "best" or most effective programs. NEFP quantified available program information in order to obtain existing program cost differentials.

Kentucky's new school aid law becomes effective with the 1975-76 school year. During the transition from the present classroom unit basis of calculating state aid to the pupil unit basis, a hold harmless provision exists in the law which allows each school district to calculate its entitlement under both units and claim the more favorable amount. In subsequent years, the value of the pupil unit will be set for each year by the General Assembly.

Conclusion

Kentucky is now set to introduce a new system of school aid distribution which allows greater flexibility in designing programs around pupils rather than the classroom unit. The introduction of pupil weights recognizes the cost differences apparent in the delivery of the varied program offerings. Nevertheless, the financing of the State's education program still poses serious problems. The level of public support for the education program is well below the national average. Further, substantial disparities in local revenues for education exist, but the new law is silent on equalization.1/

1/ For 1972-73, state and local education revenues per pupil ranged from $457 to $1,027. Combined revenues for the median school district were $597. Between the 10th and 90th deciles, the range was from $519 to $710.

Local support for education is subject to a roll-back provision of the law which limits the local tax rate to that prevailing during the 1967-68 fiscal year, with the tax base adjusted to reflect actual growth in assessments. The original tax rates had largely reflected inter-district differences in assessment ratios. When Kentucky shifted to assessments at full cash value, the original tax rates were allowed to remain in effect. As a result, substantial variations in local tax efforts persist. These rates can only be changed by local vote.

School districts are authorized to supplement school property tax revenue with three permissive levies, namely occupational, utility and excise taxes. However, the NEFP report concludes that these levies further disequalize education revenues among school districts because of the wide disparities in the revenue potential from these sources at the local level.

Additional state revenues may be required to fund the new system of aid distribution. Whether they will be forthcoming is uncertain at this time. A provision in the law allows for a percentage reduction in the school district allotments when the General Assembly does not appropriate sufficient funds to meet the act's requirements.