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A STUDY OF COST AND INSTRUCTIONAL INPUT:

DOES DOLLAR EXPENDITURE EQUITY EQUATE TO

PROGRAMMATIC EDUCATIONAL OPPORTUNITY?

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By

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ABSTRACT

A STUDY OF COST AND INSTRUCTIONAL INPUT:
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Michael A. Boulus

The purpose of this research was to attempt to answer the question of whether dollar expenditure equity equates to programmatic educational opportunity for children. A means of defining educational equity was developed which reflects the instructional time and programs directed by the personnel most immediately associated with providing educational opportunity to students--the instructional staff at the school building level.

The problem addressed in the research is the need to demonstrate the relationship of cost input differences with programmatic differences and correlate these differences with other recognized variables of educational equity.

Equity was measured in terms of programmatic personnel inputs available to students. This staffing measure consists of noncategorically funded instructional and support staff. Personnel factors at the elementary building level were quantitatively weighted in terms of teacher experience and education in order to obtain a comparable measure of input equity and input units.

The equity measure was analyzed against comparable cost data to answer the question: does educational cost difference measure programmatic differences?

The findings show the economically advantaged suburban districts have the most favorable measure of programmatic inputs per student among the twelve districts in Ingham County. The city school district of Lansing ranks eleventh among the twelve districts surveyed. However, the cost per input unit is highest in the Lansing School District leading one to the conclusion that greater spending does not necessarily yield a more favorable staffing ratio among the districts surveyed. While the urban school district of Lansing has the higher program input costs, there is less general program diversity and opportunity.

The most obvious explanation is differences among the districts in staff compensation. The larger the membership and the more urban a district, the higher the average salary and the higher the cost per student.

The findings further indicate that a district's wealth as measured by State Equalized Valuation per pupil is not a predictor of a district's instructional costs. Are then higher cost districts taxing themselves at a higher rate in order to provide comparable programs and services than their less costly counterparts? The answer is yes.

The correlation between cost per input unit and millage effort reveals that high cost districts are highly dependent upon a high tax effort. High millage districts are typically your high cost districts, and they are higher cost because of higher salaries.

Three variables which describe the community in terms of potential educational needs were then analyzed to identify

communities likely to need extra services from their schools--services which add to the cost of education.

The data revealed that Lansing had the highest indicators of special needs which the district must meet and the lowest capacity to provide additional services as measured by tax load in relation to income.

Virtually all studies which seek to answer whether a system of school finance is an equitable one select local district wealth, and generally property wealth, as the discriminatory criterion of interest. The studies ask "are educational resources (i.e. revenues, staff, programs) distributed among the local districts according to local property wealth?"

While this principle provides the basis upon which many state general membership aid formulas are based, it fails to acknowledge equity in terms of ability to pay, cost differentials and educational needs.

Cost is the key determinant relative to how much a district must pay in order to provide comparable programs, staff and services. If equity is to be achieved, districts facing excessive costs over which they have little or no control must receive help from the state in meeting those costs so that an equitable proportion of funds will be available in each district to meet the proper needs of its students.

DEDICATION

To my loving wife, Marian, and to my wonderful
parents whose support and sacrifice have made
this possible, this volume is dedicated.

ACKNOWLEDGMENTS

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CHAPTER I

THE PROBLEM

Introduction

Since the decision in <u>Serrano v. Priest</u>[1] in 1971 hold-
ing that the quality of education may not be a "function of
the wealth of a pupil's parents and neighbors,"[2] a number
of states have passed major school finance reform legisla-
tion. Common to most of them is a formula which recognizes
that all communities do not have equal property tax bases.
To compensate for these differences, poorer districts tend
to receive greater financial assistance from the state while
wealthier districts receive less assistance. In this manner
some semblance of balance, at least in terms of funds avail-
able to provide potentially similar programs for each child
in the state, is achieved.

Support which achieves equal dollars per pupil when
state and local monies are combined, however, does not
necessarily guarantee that equal amounts of goods and ser-
vice can be purchased with each available dollar. It is
probable that the purchasing power of the dollar will differ
by district or region, depending on factors such as size,
population density, distance from transportation centers,
cost of living and similar variables. Due to these varia-
tions, fluctuations in the cost of providing public

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1.   5 Cal. 3d 584, 487 P.2d 1241, 96 CalRptr 601 (1971).
2.   <u>Ibid.</u>, at 1244.

2

education will obviously occur. For example, where teacher negotiations have produced significantly higher salary schedules and have reduced student-teacher ratios, the cost of providing teachers on a per pupil basis might be expected to increase. Similarly, school district differences and geographic differences may affect disparities in nonsalary costs.

It is apparent that expenditures per pupil vary widely across the state and that school staffing ratios are similarly unequal. In 1977-78, for example, general instructional expenditures in Michigan ranged from less than $707 per pupil in some districts to more than $1,707 in others, while instructional staffing ratios ranged from fewer than 42 to more than 76 staff per thousand pupils across the districts.[3]

While there have been attempts to deal with the equal dollars aspect of school funding, the questions of whether equal dollars equates to a comparable measure of programmatic equity has not been thoroughly studied.

A major objective of the researcher in this study is to determine the extent to which cost differences across districts can be compared and correlated with variations in the purchasing power of the dollar as reflected by quantitative programmatic measures. In pursuing this objective, the researcher attempts to answer the question for the sample study: does educational cost differences measure programmatic differences (equity differences)?

3. James L. Phelps, Michael F. Addonizio and Thomas S. Nicol, "State Aid for Michigan Public Schools: An Analysis of Two Proposals," Michigan Department of Education (mimeo), Lansing, Michigan 1979.

Need for the Study

Equal dollars, because of input cost variations, may not buy equal services. This basic assumption needs to be researched more closely as it has been ignored in most school finance litigation and educational policy decisions. To cite one instance, the Michigan state aid legislation purports to serve the basic purpose of equalizing educational opportunities. A number of considerations draw this stated purpose of the legislation into question. Even with a fiscally neutral state aid plan, wide variations in expenditures exist among school districts. This raises the subsequent question: Are expenditure differences related to local preference or to exogenous local conditions that force higher costs for the same or less services? This question is not fully answered by research or by the courts. The legal questions of equal educational opportunity has dealt, until recently, almost exclusively with equality of dollar expenditures. The cost of educational inputs has not been factored into the equity questions and consequently the assumption that equal dollars mean equal opportunity has prevailed.

There is a difference, however, between the standard of equality of educational opportunity and the standard of fiscal neutrality. The concept of equality of educational opportunity roughly stated means treating everyone in a manner befitting their needs. Fiscal neutrality, as advanced by John Coons of the University of California at

Berkeley, requires that each state create a finance system that provides every district the same number of dollars per pupil for the same tax rate.[4] As the subsequent review of the literature indicates, fiscal neutrality works well as a rough legal remedy. It is judicially manageable and does not attack the concept of local control. It does not, however, address the larger questions of what differences other than wealth are legitimate and should be considered.

If school districts pay different salaries to teachers and other personnel, as well as different ratios for non-personnel inputs, then clearly the ratio of expenditures to quantity or quality of inputs will vary. Therefore, expenditures per pupil are probably not a good index of programmatic input per pupil.

Recently the school finance reform movement has begun to move in a new direction. The Serrano approach to school finance reform, relying solely on variations in local property tax capacity, has slowed. Courts in Ohio and New York have ruled that a system with equal tax yield for equal property tax effort discriminates against the big cities.

In effect, the state courts are intervening in issues that go beyond Serrano and its concept of equity. Courts and legislatures are now putting forward the elusive idea

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4. John E. Coons, William Clune and Stephen Sugarman, Private Wealth and Public Education, Harvard University Press, Cambridge, Massachusetts 1970.

of differential costs of education, but are unsure about how to identify and adjust for uncontrollable costs.

As Senator Jason Boe, President of the Oregon State Senate and President of the National Conference of State Legislators, states: "Most legislators are not willing to retreat from their commitment to quality education, but quality can no longer be judged purely in terms of expenditures."[5]

A major problem confronting researchers and policy-makers attempting to measure cost differentials is the lack of meaningful data provided by most local school districts. Such data are usually maintained on a districtwide basis rather than on a school-by-school or program-by-program basis. An additional problem is that researchers have encountered difficulty reconciling state and local records, thereby raising questions as to the accuracy and validity of records from other sources.[6]

While it has been contended that it costs more to provide the same educational services in some districts, knowledge of the extent and impact of these differences in terms of programmatic equity and the complexities of determining comparability are crucial issues for current discussions on school finance plans. If there is to be significant progress toward improving the equity and equality of

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5. Jason Boe, "State Legislators and Quality Education" Compact, Summer 1979, at 27.

6. K. Forbis Jordan, "Cost Differentials in State Aid Programs in Selected States," paper presented at the Annual Meeting of the American Educational Research Association, (Washington, D.C.; March 31 - April 3, 1975), at 2.

educational opportunity, a method needs to be developed for relating operating expenditures to an acceptable standard of programmatic equity.

Statement of Problem and Purposes

Succinctly, the problem addressed in the research is a need to demonstrate the relationship of cost input differences with programmatic differences and correlate these differences with other recognized variables of educational equity. The purposes of this research are stated as follows:

1. To attempt to answer the question of whether dollar expenditure equity equates to programmatic educational opportunity for children.

In order to accomplish this purpose, a means of defining educational equity was developed. After a detailed review of the judicial standards and various methodological studies related to educational equity, the author concluded that a rational and quantifiable system is a measure expressed by instructional personnel inputs at the building unit (see Definition of Terms). Such a measure of equity reflects the instructional time and programs directed by the personnel most immediately associated with providing educational opportunity to children—the instructional staff of the building unit.

The population under study was a representative sample of 24 elementary schools in each of the twelve school districts in Ingham County. Personnel factors of the elementary building level were quantitatively weighted in terms of teacher

experience and education in order to obtain a comparable measure of input equity and input unit. The cost per input unit was computed by dividing the total salary of identified personnel (via a direct review of payroll records) by the number of personnel input units.

2. To determine how current state cost data reflect differences in the cost of personnel input units across school districts.

The author examined ways in which generally available cost data can be modified to represent more accurately input equity in terms of dollars. In order to obtain cost data that are reflective of the basic operational costs of the general program of a school district, a method of modifying state published per capita cost statistics was used. This allowed for greater uniformity and comparability of costs across districts. Because state generated data serves as the raw material for educational policy analysis, the question of how state computed current cost data represents realistic programmatic differences across districts becomes extremely important as a research topic.

3. To determine the correlation of recognized school district and community variables with the computed cost of programmatic variables for the sample districts. Educational literature increasingly references such variables relating to educational equity such as student need and taxpayer ability to pay. This research identified such variables and correlated them with per student cost and computed programmatic

measures.

The purpose of the study was thus three-fold. First, to develop a measure of program equity across school districts separate from cost data and to test such measures against cost measures to answer the question: does educational cost differences measure programmatic differences? Secondly to analyze and modify state published cost data and determine how the data reflect programmatic differences. And thirdly, to select and correlate district and community need measures with program and cost measures to determine the extent that need is reflected in programmatic measures.

Knowledge of these issues is crucial to current discussions on school finance reform aimed at providing equal dollars for equal tax effort.

This research is exploratory and developmental in nature. It is intended that it will contribute to a better understanding of cost variations for comparable services. If the findings can contribute to a better understanding of cost variations for comparable services, it will enhance and provide new direction for further research in program equity as a goal of educational finance.

Research Procedures

The problems and purposes can be broadened in terms of the following procedural steps and methods:

(1) A uniform method of weighting and pricing personnel factors (input units) at the elementary building level was constructed for use as a measure of comparing programmatic

equity across school districts.

(2) Elementary school budgets were purged of categorical expenditures and the programmatic input units they represent in order to obtain a consistent measure of basic programmatic opportunity.

(3) The number of personnel units, the cost per personnel unit, the personnel units per student and the cost of personnel input units per student were calculated for each of the sample buildings and school districts.

(4) The data was analyzed to determine the relationship across schools between students per personnel input unit and cost per personnel unit.

(5) State published cost statistics were modified to isolate basic educational expenditures per student.

(6) State published district cost statistics as well as basic education cost data (as computed in number five above) were examined to determine the relationship of these data with the personnel unit cost per student as computed for the sample schools.

(7) A series of independent variables not fully controllable by board policy were identified in an attempt to assess community needs which could have an impact on educational cost.

(8) The relationship between the dependent variable (cost per input unit) and each of the independent variables were analyzed to determine what significance existed between cost and district needs.

Research Questions To Be Investigated

(1) Do equal dollars equate to programmatic educational opportunity?

(2) What is the relationship between personnel input units per student (as a measure of programmatic equity) and the cost for these units across select elementary schools?

(3) Are the districts with the higher input unit cost per student the very same districts with the more favorable programs (as measured by personnel input units per student)?

(4) What is the nature and magnitude of the cost variations for comparable services among the sample school districts in Ingham County?

(5) Can state published per student cost statistics for school districts be modified in order to reflect more accurately basic operational cost expenditures across districts?

(6) What factors, other than personnel costs, are determinants in cost variations among school districts?

(7) How does the level of personnel input units per student correlate with other school associated independent need variables?

(8) To what extent has Michigan's state school aid formula distributed educational resources among local school districts so as to achieve equity and equality?

Assumptions and Limitations

Defining Equity

The author seeks to provide a conceptual framework to correlate educational costs with a measure of programmatic equity. This requires a definition of programmatic equity.

Ideally it would be desirable to have some universally accepted concept of educational equity which would permit the comparison of levels of programmatic services across schools. But neither the courts, policymakers nor researchers have established such a concept.

For the analysis that follows, equity is measured in terms of programmatic personnel inputs available to students. This staffing measure consists of non-categorically funded instructional and support staff. Other measures of equity and need are examined through the course of the study, but the primary thrust of this research is the issue of input cost treatment of persons in like circumstances and the second is the different or disparate treatment of persons in unlike circumstances.

Isolating the Equity Function

The analysis and discussion which follows assumes that programmatic equity can and should be studied in isolation from other factors. Others, such as H. M. Levin, have used a "capital embodiment" approach to suggest that the formal schooling process must be considered in conjunction with other activities that affect the student population such as medical services, dental services, nutritional services,

etc.[7] The framework that Levin supports is viewed to be valid but a partial view is taken here primarily as a starting point for developing a measure of equity in terms of whether state aid should be adjusted to recognize cost differences for comparable services.

While it may be argued that equity should be viewed in relationship to the distribution of individual and societal benefits that are produced by the educational system, there are two reasons why this is not appropriate for this study. One, the social and individual benefits from education are difficult to measure with an acceptable degree of accuracy. Two, it is almost impossible to trace the effect of a school finance plan in terms of societal benefits and educational inputs. Recognizing some shortcomings and limitations, the research supports the concept of measuring programmatic equity in terms of input units for the following reasons:[8]

(1) Personnel input units are perceived as being related to the education process;

(2) there has been growing support for a shift to a classroom input unit distribution system (e.g. Michigan State Senator Jack Faxon's Weighted Pupil approach for distributing state aid); and

(3) unlike other measures of educational equity, personnel input units are manageable, measurable and something that can be understood.

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7. H. M. Levin, "Equal Educational Opportunity and the Distribution of Educational Expenditures," Education and Urban Society, Volume 5, 1973, at 149-172.

8. Russel E. Wilson et al., The Equal Quality Plan, Prepared by the Task Force on Public School Finance, Lansing, Michigan, June 1969.

Measuring Equity

Programmatic equity is assessed in terms of a direct measurement of building level, instructional personnel input units per student. These personnel factors include teachers, support staff, instructional aides, building administrators and other instructional-related building staff. This research, then, measures only the building level cost of instruction input units.

The author recognizes that in order to capture all cost variations across schools one must also account for differences in the prices of such components of the budget as instructional materials, construction costs, land prices, interest charges, overhead, etc. Total school district costs are used to determine the relationship of programmatic equity as determined through the author's measurement to the traditional per student cost measures. The major problems associated with state statistics reflecting total costs such as the inclusion of categorical expenditures and the difficulty in isolating non-instructional expenditures to individual schools are reviewed in Chapter Two.

The review of the literature which follows in the subsequent chapter indicates that variations in the prices of non-salary school inputs are a less significant source of educational cost variations. This supports the design of this study which focuses on instructional salaries, which amount to approximately 80 percent of the building level budget. This researcher isolates cost related to direct

programmatic benefits to students.

Accounting for "Quality Differences in Personnel Factors"

One of the problems which needs to be addressed in utilizing personnel inputs as a measure of the equity function is how to assess the differences in "quality" of personnel inputs. For example, as all teachers are evidently not alike, a simple teacher count could possibly be misleading.

In order to quantify "quality" differences, the assumption is made that the education and experience level of teachers should be recognized in measuring the equity function. The research is mixed as to whether teacher inputs, such as educational training and experience, make a difference in determining outputs, and if so, how important are they? Although difficult to measure, there is a general acceptance that training and experience contribute to teacher competency. This is reflected in almost every master agreement in this state which recognizes differences in experience levels and training and compensates teachers accordingly.

Inasmuch as overall instructional expenditures can be attributed to cost differences resulting from variations in teacher experience, education and teacher-pupil ratios, such differences will be controlled in order that comparable resources can be examined. To establish a teacher equity measure, a procedure has been developed for weighting and unitizing these personnel factors. The procedure is described in Chapter Three of this study.

Source and Nature of Cost Variations Supply and Demand
Functions

It is hoped that an additional outcome of this research
would be to provide a better understanding of the source and
nature of the variations in the cost of providing comparable
instructional services. Specifically analyzed are variables
selected to identify communities likely to need extra services
from their schools--services which add to the basic cost of
education. The assumption made is that state aid formulas
should not recognize cost variations solely attributable to
local demands but only those exogenous to the school district.

Sample Size

This study is not intended to be a statewide examina-
tion of the cost of education in Michigan schools. Rather,
this researcher seeks to study a model for examining cost
differentials in terms of a comparable measure of programma-
tic equity. It is hoped that the model and approach used
will contribute to a better understanding and awareness of
the variations in programmatic equity and input costs per
student.

Because of the developmental nature of the model and
because the type and nature of data to be collected are not
easily attainable, on-site elementary school visitations
were required. The researcher has limited the school survey
to the twelve school districts in Ingham County. The Ingham
County school districts provide a meaningful grouping in
terms of size, geographic structure, community and expendi-

ture levels (see Appendix B). A representative sample of
24 elementary schools from the selected districts constitute
the research sample. Ingham County is very diverse economi-
cally and socially. The twelve school districts of the sample
include the core city of Lansing with a 28 percent minority
student population, five suburban districts and six rural
districts. The districts range in student size from 29,260
in Lansing, to 900 in Webberville.

Definition of Terms

"Instructional Related Staff" -- The following are the
instructional staff recognized in the personnel input count:

(a) Classroom teachers

(b) Auxiliary Instructional Staff (such as music,
physical education, certified librarians, coun-
selors, aides, etc.)

(c) Building principals and assistant principals.

"Personnel Input Units" -- A weighted measurement re-
flecting the number of instruction-related staff at the
elementary building level whose salaries are derived from
the general fund budget purged of categorical revenues
(i.e. local revenue, state aid membership). The basic unit
is the measure weighted in terms of experience and level of
education.

"Personnel Input Units Per Student" -- The number of
personnel input units divided by the number of students in
the regular membership.

"Cost Per Input Units" -- Total salaries of identified

personnel in a building divided by the number of personnel
input units.

"Operating Expenditures Per Student" -- General fund
expenditures of the district pertaining to education (as
found in MDE Bulletin 1012) divided by the number of students
in the regular membership.

"Basic Operating Expenditures Per Student" -- General
fund expenditures of the district purged of categorical funds
and special allotments, divided by the number of students in
the regular membership.

"Equity" -- Equal treatment of equals. This principle
states the requirement that equals should receive appropriately
equal treatment. This definition recognizes that district
costs and needs may not be alike and as such should receive
disparate treatment.

Overview

The survey instrument found in Appendix A provides an
overview of how building level personnel inputs were factored
to provide a comparable measure of programmatic equity across
schools. Chapter Two provides a review of the literature
pertinent to the study. The design of the study and the
design of the instrument is provided in Chapter Three. In
Chapter Four, the results are analyzed. In Chapter Five,
survey observations, conclusions and recommendations are made.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The review of the literature is decribed in this chap-
ter under the following headings: Judicial Standards of
Equity, Distribution of Resources and Fiscal Need, Cost
Differences and Educational Opportunity, Measuring Equity,
Development of Comparable School Cost Data, Rationale for
Isolating Instructional Expenditures and Summary.

Judicial Standards of Equity

The 1970's have witnessed an increase of activity in
the area of school finance reform. Much of this reform has
been influenced, indeed compelled, by litigation begun at
the state and federal levels which questioned the equity of
current distributions of state monies to finance education.
The resultant court cases have, in many instances, provided
the impetus for reform of the state school finance plans;
however, the judicial progress in this area has not been
smooth. Its decisions punctuated with a number of conceptual
stops and starts, the judiciary has made its way haltingly
to the goal of educational equity.

Not until recently has the judiciary demonstrated a
greater willingness to entertain, in its deliberations of

the constitutionality of state finance plans, the more
subtle and problematic aspects of educational opportunity
and educational equity. Prior to the New York decision in
Levittown v. Nyquist the judicial response to questions
of school finance equity has been marked by two significant
trends.

The first trend is the transition in judicial reason-
ing from the use of a simplistic negative standard approach
cast in egalitarian terms and which considers only absolute
dollar equality toward a more encompassing approach which
takes into account variations in costs and educational need.

A second trend is the abandonment from school finance
litigation of federal constitutional principles as a viable
reforming force. Instead, the challenges to state finance
plans increasingly rely upon state constitutional provisions
related to education and the provision thereof.

The two trends are related. The gradual abandonment
of the fiscal neutrality standard in favor of one which
accounts for cost and need variations is at least partly
due to the movement of litigation from federal courts back
to state courts which, unlike their federal counterparts,
are more aware of and amenable to the unique characteristics
of their respective states. State courts, perhaps because
of their proximity, seem more willing to apply more sophis-
ticated standards of adjudication than are federal courts.

Initial efforts to obtain judicial relief in the area
of school finance were unsuccessful probably because the

plaintiffs presented to the courts issues not well suited for judicial resolution at least at that time. In McInnis v. Shapiro[9] the plaintiffs challenged the Illinois school finance system as being in violation of the equal protection and due process clause of the fourteenth amendment. They argued that the system provided some students with a quality education while depriving others with equal or greater educational need of the same. The disparities in educational expenditures were the result of a greater ability and willingness to pay.

The plaintiffs demanded, therefore, that "expenditures" be made only on the basis of pupils' educational needs without regard to the financial strength of local school districts."[10] Complaining that educational need was a "nebulous concept," the Federal District Court declared that there was no "discoverable or manageable standards by which a court can determine when the Constitution is satisfied and when it is violated."[11]

Similarly, the federal district court hearing Burruss v. Wilkerson[12] upheld the Virginia system of school finance. The court, relying on McInnis, noted that it had "neither the knowledge nor the means nor the prowess to allocate the public monies to fit the varying needs of these students

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9. 293F.Supp. 327 (N.D. Ill.1968), McInnis v. Shapiro, 394 U.S. 322 (1969).
10. Ibid. at 336.
11. Ibid. at 335.
12. 310 F.Supp. 572 (W.D. Va. 1969), Burruss v. Wilkerson, 397 U.S. 44 (1970).

throughout the state."[13]

The courts clearly were reluctant to adjudicate an issue to which they felt themselves ill-equipped to apply a norm such as educational need. The debate and disagreement which surrounded the concept of educational need at the time certainly worked against the court's acceptance of it as a judicial standard. The courts needed a workable norm the provision of which had not occurred and, consequently, the courts presumptive deference to legislative enactments carried the greatest weight in their deliberations. In areas like school finance, more a policy than a legal area, the courts are dependent on the litigants and experts in the field for information. In the absence of such information the prudent alternative is to refuse to act. As John Coons has pointed out: "Without experience -- without phenomena delivered to the judicial mind -- there is no substance for the work of adjudication."[14] Hence inaction.

The breakthrough that allowed the courts to assume an active role in school finance reform came in 1969. A workable judicial norm was delivered to the courts in the form of a study published by John Coons, William Clune and Stephen Sugarman entitled <u>Private Wealth and Public Education</u>.[15]

13. <u>Ibid.</u>, at 574.
14. John E. Coons, "Recent Trends in Science Fiction: <u>Serrano</u> Among the People of Number," <u>Journal of Law and Education</u>, Vol. 6 at 24, 1977.
15. _____., William Clune and Stephen Sugarman, <u>Private Wealth and Public Education</u>, Harvard University Press, Cambridge, Mass., 1970.

In it Coons and his colleagues suggested that the equal protection be interpreted not to require any particular funding level tied to educational need, but to prohibit allowing the level of funding to vary as a function of such irrational factors as the accidental location of taxable wealth. Denominated as Proposition 1 in Private Wealth and Public Education, the principle stated that "the quality of public education may not be a function of wealth, other than of the state as a whole."[16]

Now known as theory of fiscal neutrality, the principle requires that each school district receive the same revenue for the same tax rate and that only those expenditure disparities resulting from differences in local district taxable wealth are unlawful. Fiscal neutrality provided the courts with a legal theory that seemed easier to grasp and one with which they could adjudicate school finance disputes without becoming bogged down in the issue's complexities.

In 1971 the California Supreme Court formally adopted and articulated the principle in its landmark decision, Serrano v Priest.[17] The court found for the challengers of the California school finance system, holding that it discriminated against the poor in violation of the equal protection clause of the California and federal constitutions "because it makes the quality of a child's education a function of the wealth of his parents and neighbors."[18]

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16. Ibid., at 339
17. 5 Cal. 3d 584, Serrano v. Priest, 96 CalRptr 601 (1971).
18. Ibid., at 1244.

The _Serrano_ decision touched off a footrace of school finance litigation. As of the 1973 decision by the Supreme Court in _Rodriguez_, some 59 cases had been filed in more than 30 states. The fiscal neutrality principle appeared to provide the courts with flexible (i.e. judicially manageable) standard by which to judge the constitutionality of state finance schema. _Van Dusartz v. Hatfield_[19] followed a month-and-a-half after _Serrano_ and, in adopting the _Serrano_ rule for Minnesota, the federal district court stressed the flexibility the case, and its principle, made possible.

Because of the early success of fiscal neutrality, a flurry of judicial activity followed between 1971 and 1973.[20] Nearly all of these decisions followed the reasoning of _Serrano_ and relied on the fourteenth amendment. The progress of litigation seemed unyielding when the United States Supreme Court's decision in _San Antonio v. Rodriguez_ applied the brakes and brought to a premature halt this phase of the school finance litigation.

The _Serrano_ decision and its immediate descendants had broken the connection between community wealth and educational expenditures, yet fiscal neutrality proved not to be

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19. See, _Parker v. Mandel_ 344 F.Supp. 1068 (D. Md.1972); _Rodriguez v. San Antonio Independent S. District_, 337 F.Supp. 280 (W.D. Tex. 1971); _Van Dusartz v. Hatfield_, 40 U.S.L.W. 2228 (D.Minn. 1971); _Hollins v. Shofstall_, Civ. No. C-253652 (Ariz. Sup.Ct., June 1, 1972); _Caldwell v.Kansas_, Civ. No.50616 (Johnson Co.Dist.Ct., Kansas, Aug.30, 1972); _Milliken v. Green_, 389 Mich. 1, 203 N.W.2d 457 (1972), _vacated_, 390 Mich. 389, 212 NW 2d 711 (1973).
20. 40 U.S.L.W. 2228 (D. Minn. 1971).

the egualitarian panacea its proponents had envisioned. Rely-
ing solely on variations in local property tax capacity, the
Serrano approach ignored variations in pupil needs or expendi-
tures. A negative standard, fiscal neutrality is "content to
condemn particular and manifest injustices, leaving definition
of the good society to the political process. It merely says
no to a particular order of things--wealth discrimination in
education; to every other order it offers a presumptive yes."[21]
To paraphrase Coons, then, to understand fiscal neutrality is
to discover what it ain't, "and principally it is not."[22]
Fiscal neutrality as an instrument of reform lacks refine-
ment; it cuts away the most visible, surface forms of inequity
and discrimination only to reveal more intricate forms beneath.

This is, perhaps, characteristic of adjudication in any
area of pressing social or economic concern. Granted that
when major societal problems have not been resolved in the
political process the judiciary customarily fills the void,
yet the judiciary is often reluctant to enmesh itself in
cases demanding creative improvisation, preferring instead
to stay its hand until no other avenue is available. Once
commitment is unavoidable, the judiciary is more apt as not
to limit the breadth of its decisions so as to defer again
to the legislative-political process. Judicial activism is

21. John E. Coons, "Fiscal Neutrality After _Rodriquez_,"
Law and Contemporary Problems, Vol. 38, 1974, at 300.
22. _Ibid_.

not typical of the Supreme Court; even the most judicially active court of the century, the Warren court, tempered its desegregation mandate in Brown v. Board of Education with the order of "all deliberate speed." Thus arises the need for a judicially manageable standard like fiscal neutrality which allows courts to address themselves to issues which obtain generally with clear perimeters, leaving the framing of a comprehensive remedy to the legislative branch.

This reluctance surfaced in San Antonio v. Rodriguez[23] where, by a five to four margin, the U.S. Supreme Court ruled that it was inappropriate for the Court to intervene on constitutional grounds in school finance. The Court was asked to overturn the Texas system because, plaintiffs argued, it discriminated against a "suspect" class, depriving them of a fundamental right to education. The Court, however, found that the Texas system did not discriminate against any class of persons considered "suspect" since the case dealt with property poor districts, not poor persons. Moreover, the Court pointed out that the deprivation complained of was relative, not absolute.

Arguing that "the marketplace of ideas is an empty forum for those lacking basic communicative skills" and "a voter cannot cast his ballot intelligently unless his reading skills and thought processes have been adequately developed,"[24] the plaintiffs held that a fundamental

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23. San Antonio Independent School District v. Rodriguez, 411 U.S. 1, 36 L.Ed. 2d 16, 93 S.Rptr. 1278 (1973).
24. Ibid., at 35-36.

constitutional right to education was implicit in the right of free speech and in the right to vote. The Court answered this claim that education is the sine qua non of an effective practice of these other guaranteed rights by stating that "we (the Court) have never presumed to possess either the ability or the authority to guarantee to the citizenry the most effective speech or the most informed electoral choice."[25] Education is neither explicitly nor implicitly mentioned in the Constitution, and though it is an important service, its importance does not determine whether it is a fundamental right.

With neither suspect class (i.e. a party believed to be rightly chargeable with something wrong) nor a fundamental right involved the Court found no reason to apply strict scrutiny, which demands that the state show a compelling interest in maintaining the practice in question. The Court, therefore, applied the less exacting rational basis test and decided that the Texas system, though "chaotic and unjust,"[26] was nonetheless rational and furthered a legitimate state purpose--that is, to encourage "a large measure of participation in the control of each district's schools at the local level."[27]

Explicitly symptomatic of the Court's reluctance to tackle a problem with such policy implications, the Court deferred action to the legislative process: "the ultimate solutions must come from the lawmakers and from the demo-

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25. Ibid., at 35.
26. Ibid., at 58.
27. Ibid., at 28.

cratic pressures of those who elect them."[28] Even the minor-

ity justices seemed reluctant to embark on a constitutional

condemnation of the system. Of the four dissenters, only

two, Justices Marshall and Douglas, accepted the plaintiff's

constitutional argument. The other two, Justices Brennan

and White, dissented on the ground that there was no rational

relationship between the statutory scheme and the goal of

local control.

"It is worth observing," wrote N. R. Anderson in the

Washington Law Review,[29]

> that in Rodriguez the Court was asked to enunciate
> principles of educational finance which would be
> binding on all fifty states. Given the vast differ-
> ences in the educational finance systems of the
> various states, it is perhaps not surprising that
> a majority of the Court was reluctant to confront
> these complexities. Justice Powell, indeed, stated
> as much. Obviously, a much more manageable range
> of issues is presented in a case before a state
> court.

The Rodriquez decision effectively closed the doors to

challenges on a federal level of state finance schema on the

basis of the fourteenth amendment's equal protection clause.

Less than a month after the Texas decision, however, the

New Jersey Supreme Court overturned that state's school

finance system on the ground that it violated the state's

constitutional command to the legislature to provide a

"thorough and efficient system of free public schools."[30]

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28. Ibid., at 59.
29. N. R. Anderson, "School Finance in Washington,"
Washington Law Review, Vol. 50, 1974, at 853-900.
30. New Jersey Constitution, Article VIII, Section 4,
Paragraph 1.

This marked a significant tactical change -- the resort to state constitutional provisions conveyed the message that even though the federal courts were closed, the state courts offered an alternative instrument for school finance reformers.

In addition to "thorough and efficient" clauses, state equivalents to the federal equal protection clause provided another means whereby reformers could challenge inequitable state finance systems. In Serrano II the California Supreme Court upheld a state trial court which, on remand of Serrano I had held that education was indeed a fundamental right under the state constitution, thus requiring the state to satisfy the requirements of strict scrutiny. The California court rejected the claim that the Rodriguez decision affected the trial court's determination of a fundamental right, replying:[31]

> Decisions of the United States Supreme Court
> defining fundamental right are persuasive
> authority to be afforded respectful considera-
> tion, but are to be followed by California
> courts only when they provide no less individual
> protection than is guaranteed by California law.

In Connecticut the Supreme Court of that state held that education was indeed a fundamental right both explicitly and implicitly, thus meeting the standards for strict scrutiny of both the U.S. Supreme Court and the California court. Their decision in the case, Horton v. Meskill,[32] struck down the state's finance scheme as unconstitutional.

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31. Serrano v. Priest, 18 Cal.3d 728, at 764.
32. 172 Conn. 615, 376 A.2d 359.

In summary, though the U.S. Supreme Court's decision
in the Rodriguez case caused a slackening in school finance
litigation, reformers soon discovered the state courts to be
an amenable forum for their views. Another very important
result of the Supreme Court decision was the prevention of
a blanket acceptance on federal constitutional grounds of
the fiscal neutrality principle. By 1973 fiscal neutrality
was still not yet subject to the kind of discussion and de-
bate which would ultimately point up its shortcomings. The
variety of state cases and the arguments and discussions
generated by Rodriguez revealed the inherent restrictions of
fiscal neutrality. Critiques in law and education journals
argued that, as a negative standard, fiscal neutrality lacked
the sophistication to deal with the more complex questions of
inequity which were coming to judicial attention post-
Rodriguez. Its simplistic approach allowed for an easily
understood and readily grasped standard for measuring the
constitutional inadequacies of state school finance laws, but
ignored the variations of state conditions.

The most pointed criticism leveled at fiscal neutrality
and the finance plans born of it point to its inherent limi-
tations -- its inability to account for variations in cost
and educational need among districts. As Berke and Callahan
argue, this is most striking with respect to cities:[33]

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33. Joel S. Berke and Callahan, "Serrano v. Priest: Mile-
stone or Millstone," Journal of Public Law, Vol 23, 1972.

>...cities have higher costs for providing
>education in terms of the prices paid for
>educational items. Land acquisition costs,
>insurance rates, vandalism expenses, and non-
>professional personnel costs all reflect
>higher costs of living in central cities. But
>bulking largest in school budgets are costs of
>instructional personnel, and here a combination
>of factors has pushed a central city costs well
>above those in the suburbs.

It is no longer accepted that the crude formulation,

equal dollars equal services, holds true. Therefore, in

response to such criticisms, the school finance reform move-

ment has moved creatively in new directions. Having gone as

far as it could with the fiscal neutrality approach, the

courts have given renewed life to educational need after re-

jecting need as too complex and nebulous in the late 60's.

Indicative of the trend toward a special dispensation

for cities in school finance systems is the New York case,

Levittown v. Nyquist.[34] The Supreme Court of Nassau County

affirmed the concept of municipal overburden and ruled that,

under a formula with equal tax yield for equal effort, the

capacity of large city school districts to finance education

with local resources had been overstated. The city school

districts had charged that the state aid formula discrimi-

nates against them by overstating their fiscal capacity and

not accounting for their special needs and higher costs. The

Court upheld the claims that there is a drain on city tax

dollars caused by the need to provide excessive amounts of

non-educational services, that the purchasing power of the

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34. No. 8208/74 (Nassau County Supreme Court, New York).

dollar in metropolitan areas is diminished, and that large
cities have the greatest proportion of low-income and edu-
cationally disadvantaged students. The court said:[35]

> The asserted basis for the contention is that
> the extraordinary problems stemming from urban
> poverty and its associated ills in turn create
> an array of educational overburdens that the
> large cities have been unable to copy with by
> resort to their own fiscal resources and which
> are essentially disregarded by the state aid
> formula...although they have the largest con-
> centration of disadvantaged children requiring
> compensatory education, they are unable to supply
> that help, thus resulting in a denial to those
> children of an equal educational opportunity.

The court then concluded that:[36]

> Where it is demonstrated that there is a greater
> need, it follows that a greater amount of aid must
> be furnished in equal educational opportunity is
> to be available. Something more than average aid
> to school districts must be furnished to accomplish
> this goal.

Reading the New York Constitution as demanding that all
children of the state be given "the opportunity to acquire
at least those basic skills necessary to function as a citi-
zens in a democratic society,"[37] the court found that the
state finance scheme did not meet the rational basis test.
The court argued instead that the system failed to remedy
inequalities in educational opportunity and, in fact, per-
petuated them.[38] By use of the rational basis test the court
was able to strike down the finance scheme on the basis of
both the New York and the federal constitutions in compliance

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35. Ibid., at 65.
36. Ibid., at 99.
37. Ibid., at 100.
38. Joan Scheuer, "Levittown v. Nyquist: A Dual Challenge"
Phi Delta Kappan, Vol. 20, Feb., 1979, at 435.

with the Supreme Court's ruling in Rodriquez.

The same outcome, that of adjusting for higher costs
and municipal overburden in cities, was reached in an Ohio
case involving the city of Cincinnati. Again, on the surface
at least, Cincinnati seemed to be an anomalous choice as plain-
tiff when one considers its high assessed property values.
Here an Ohio trial court agreed that "the large urban inner
city districts have unique and special problems and substantial
extra costs which the non-urban districts do not have."[39] The
court, therefore, determined that in order to comply with the
state constitution, any state finance system must include as
one of its criteria adequate compensation for the special
costs of urban school districts.

Plaintiffs' arguments in both the New York and Ohio
cases stress the impact which greater educational need has
on the capacity of urban school districts to provide serv-
ices. Recalling the earlier difficulty courts had with the
concept of educational need, Betsy Levin cautions that cur-
rent concepts of educational need should be careful to avoid
the pitfalls of ambiguity and judicial manageability evi-
denced in McInnis and Burruss.[40] She goes on to say:[41]

> The Levittown intervenors have attempted to
> avoid this problem by showing that the high con-
> centration of urban poverty in the inner cities
> results in high proportion of children suffer-
> ing from such education overburdens as impaired
> learning readiness, impaired mental, emotional and

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39. Cincinnati, slip opinion at 117.
40. Betsy Levin, "Current Trends in School Finance Reform
Litigation: A Commentary," Duke Law Journal, Vol. 1977 at
1119.
41. Ibid.

physical health, mental retardation and other
learning disabilities, and English language dif-
ficulties. The intervenors then showed that
specific programs or services have been success-
ful in overcoming these problems, but that
because of inadequate resources these programs
and services have to be curtailed.

Levin questions whether courts will find constitutional
imperatives to take into account the relative educational
needs of students. Perhaps courts will recognize relative
need only in relation to constitutional violations of a dif-
ferent sort, such as segregation or finance inequity, while
not giving it a constitutional niche of its own.

Whatever the difficulty in assessing educational need
or of determining constitutional status, the fact remains
that urban school districts are faced with increasingly high
costs, educational and non-educational, which affect their
ability to buy educational services. This is only now being
recognized by the courts. The trend away from the simple
fiscal neutrality approach is very much a part of this new
awareness. The negative standard which said that educational
opportunities could not be a function of district property
wealth has been broadened to read 'educational opportunities
may not be a function of district fiscal capacity which, in
the case of cities, means that fiscal capacity must reflect
the additional costs and municipal overburdens characteristic
of cities as well as property wealth.

Distribution of Resources and Fiscal Need

The preceding analysis of the judicial response to
school finance has attempted to highlight the limitations

of state school finance plans attempting to implement the Serrano principle. The equal protection clause encompasses but one aspect of the injustice inherent in the way elementary and secondary schools are financed in most states of the nation. The judicial concept of wealth discrimination, so central to the holdings of Serrano and Rodriquez, outlines the problem of wealth discrimination but fails to deal with the whole concept. With the exception of Levittown v. Nyquist the judicial focus fails, on the one hand, to provide an appropriate comparative measure of fiscal cost and, on the other hand, fails to examine the total tax responsibilities (municipal and educational) of various jurisdictions. While the courts have been successful in creating the conditions for change in school finance patterns, they have not assured that the form will inevitably channel more resources to school systems faced with greater fiscal need.

The chief cause of the pattern of inequitable distribution of funds is state policies which create school districts responsible for supporting education but endowed with vastly different abilities to raise those revenues. As a result we find different levels of education existing in neighboring school districts independent of the degree of effort the communities expend in raising revenues for their schools. H. Thomas James made the following observation on the implications of this phenomenon:[42]

42. H. Thomas James, "Diagnosis & Treatment for Ailing School finance, " A paper presented for the annual meeting of the Council of Chief State School Officers at Louisville, Kentucky, Nov. 15, 1971, at 1.

> When I completed the series of school finance
> studies that occupied my attention at Stanford
> through much of the last decade I announced what
> I thought was the most significant generalization
> to come out of those studies. That generalization
> was that local property tax paying ability was the
> major determinant of social policy for public edu-
> cation, and that unless we could reverse that
> equation and let social policy determine what
> should be spent for education we would have deep
> trouble in our schools.

An equitable system has been described by Joel Berke

and John Callahan as one in which "greater educational

resources are allocated to those students who come to school

with the greatest learning problems and the greatest social

disadvantage." Further, they described equal educational

opportunity as "as allocation of educational services which

enables pupils from low socio-economic backgrounds to compete

equally for higher educational and job opportunities with

those who come from more advantaged walks of life."[43]

In addition to equitable distribution of educational

services, Berke and Callahan contend also that an equitable

system must recognize that such services take a greater toll

from those jurisdictions and individuals less able to pay

than from those who can better afford such costs. State

financial assistance, consequently, needs to be adjusted to

recognize cost differentials and ability to pay.[44]

A study conducted by the Urban Institute for the Presi-

dent's Commission on School Finance documented a strong

regression pattern in six of the eight states it studied

43. Joel S. Berke and John J. Callahan, "Serrano v. Priest: Milestone or Millstone for School Finance, "Journal of Public Law, Vol. 21, 1972, at 34.
44. Ibid., at 39.

relative to tax burden and income levels. For example,
Michigan families earning less than $2,999 per annum paid
8.7 percent of income in state and local taxes. For those
earning over $15,000, the figure was 3.5 percent.

Just as there is a mismatch in educational need and
ability to pay, so too there seems to be a mismatch in educa-
tional costs. Betsy Levin, in her study "Public School Finance:
Present Disparities and Fiscal Alternatives," notes that cities
have higher costs for providing education in terms of the
prices paid for educational items. Insurance rates, vandalism
costs and, most important, personnel costs all reflect the
higher cost of living in central cities.[46] The higher non-
educational expenditures of central cities also have had the
effect of creating total tax disparities between central city
and the suburb.

Urban education costs have had to respond to suburban
cost pressures. According to Dr. Seymour Sacks, "the common
metropolitan environment, which in past years had a salutary
effect on central city education, now has a debilitating
effect on central city education as the metropolitan areas
determine the level of costs without providing the resource
for meeting these costs."[47] This is especially true regard-
ing salaries, which account for a full 80 percent of a

45. Betsy Levin, Public School Finance: Present Dispari-
ties and Fiscal Alternatives, The Urban Institute, Washington,
D.C., 1971 at 41.
46. op cit., at 59
47. Seymour Sacks, David Ramsey and Ralph Andrew, City
Schools - Suburban Schools: A History of Fiscal Conflict,
Syracuse University Press, Syracuse, New York, 1972 at 61.

school system's operating budget. Bothwell notes that suburban districts also exert cost pressures as a result of their lowering of class size, which translates into hiring more teachers and other instructional personnel to teach the same number of students, which further increases total salary costs.[48]

Compounding the problem has been the relative decrease in income which cities have suffered vis-a-vis their metropolitan suburban neighbors. By 1959 the proportion of families with incomes under $3,000 was almost 50 percent greater in central cities than in their outlying areas, and the disparity even greater for Standard Metropolitan Statistical Areas over one million.[49] By 1967, median family income was only $7,813 in central cities and $9,367 in outlying metropolitan areas.[50] Thus, when considering income alone, cities would have to levy an additional 20 percent tax burden on their incomes in order to offer educational standards on a par with their suburban neighbors. State educational formulas, however, generally have not recognized or compensated for income differences among communities.

J. Allan Thomas made the following comments in his study "School Finance and Educational Opportunity in Michigan:"[51]

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48. Robert Bothwell et al., "State Funding of Urban Education under the Modern School Finance," Manual, Department of Health, Education and Welfare, Washington, D.C., Jan. 1976, at 5.

49. Ibid., at 65.

50. Ibid., at 61.

51. J. Allan Thomas, School Finance and Educational Opportunity in Michigan, Michigan Department of Education, Lansing, Michigan, 1968 at 20.

It is necessary to include in a state aid formula
a procedure for defining the share of the costs
which will be paid by the locality. This involves
the development of some type of "index of local
tax-paying ability." This is a much-debated issue
which cannot be resolved on any "scientific" basis.
Rather, the values of the citizens of the state will
determine the manner in which the local contribution
to the foundation program will be determined. The
following possibilities exist:

a. The local contribution should be based on a given
   yield on the system of taxation from which the
   local contribution is obtained. If the property
   tax remains the basis of this contribution, a
   given millage on the property would continue to
   provide the local share.
b. On the argument that all taxes eventually are
   paid from income, the local contribution would
   be determined on the basis of the average income
   (rather than the average property value) per pub-
   lic student in the taxing area. If the local
   contribution is to be obtained from a property
   tax levy, the millage required for the local
   share of the foundation program would need to
   be weighted, on the basis of the per capita in-
   come in the community.
c. The composite index of income and property might
   form the basis of calculating the local share
   of the foundation program.

However, some means must be found to permit low valua-
tion districts to improve their programs so that the
present variations in opportunity may be narrowed.

In the central cities of the 38 largest SMSA's in 1966-67,

per capita taxes for non-educational services amounted to $144,

whereas in the surrounding suburban areas the per capita taxes

for these services were only $76.[52] Seymour Sacks notes in

his report, "Central City and Suburban Public Education,"

that during 1964-65 the central cities in thirty-four metro-

politan areas spent on the average $50 more per citizen in

total tax dollars (municipal and educational services) than

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52. Sacks, op cit., at 66.

did the surrounding suburbs. However, these central cities spent an average of $50 less per person on education.[53] As schools are in keen competition with other municipal services for tax dollars, the level of school support is affected.

Alvin Townsel observed while studying the school distributional patterns in sixteen states that reforms in school finance legislation most frequently have been effected through indirect means. Economic and sociological concomitants which impinge on the fiscal problems of urban schools most infrequently have been of major consideration.[54]

> Adjustment in state basic aid formulae, while responding to variations in property wealth throughout the states, often have failed to realize that the central city fiscal difficulties are not attributable to this factor. They are, by and large, attributable to higher costs for both educational and non-educational public services.

Speaking to the additional burdens of central cities and disparities in property wealth, J. Allan Thomas said:[55]

> State aid in Michigan is sizable in total quantity. It does not, however, serve its basic purpose, which is to equalize educational opportunity. Even after state aid, there are wide variations in the expenditures of local districts. The low valuation districts tend, on the average, to have higher tax rates for education and lower expenditures than the high valuation districts.

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53. Seymour Sacks, "Central City and Suburban Public Education: Fiscal Resources and Fiscal Realities," Metropolitanism: Its Challenge, The Sixth-Seventh Yearbook of National Society for the Study of Education, University of Chicago Press, Chicago, Illinois, 1960.
54. Alvin H. Townsel, "Adjustment for Urban Fiscal Problems in State School Finance Systems," Journal of Educational Finance, Vol. 2, Summer 1974, at 70.
55. Thomas, op cit., at 207.

He continues:

> Michigan's major urban centers have additional
> revenue problems. Faced with a declining tax
> base, the need to finance a wide array of govern-
> mental services, mounting costs, and the presence
> or large numbers of students who have special
> educational difficulties, Michigan's cities are
> in dire need of special consideration. Federal
> funds are helping to some extent, but the state
> of Michigan has a responsibility to help meet
> these urgent needs.

One of the objectives of this study was to develop a
measureable standard that recognizes expenditure variations
in the cost of educational inputs. If school finance systems
are ultimately to move toward the goal of equality inputs,
then what is needed are adjustment indices that reflect price
differences. Hopefully, this study can shed some light on
the policy question of whether states can and should adjust
their formula aid to achieve both dollar and input equity.

Cost Differences and Educational Opportunity

Several studies were reviewed which look at the features
of school districts which account for differences in the
prices paid for the goods and services purchased. The under-
lying assumption in all these studies is that one dollar in
state aid does not necessarily purchase the same amount of
educational services. The studies emphasize features which
determine differences in the salaries paid for these services.
Essentially, the problem is to select variables that account
for differences in salaries paid for teachers of like
quality in various districts. These studies demonstrate

both the possibilities and limitations of statistical analysis as a means of estimating appropriate adjustments designed to neutralize local cost differences for state aid purposes.

In the study "Financing Education in Michigan,"[56] Dr. C. Robert Muth cites several variables not controllable by board policy that are important determinants of salary levels, including training and experience. Another such variable cited which influences salary levels is cost of living which varies from area to area and may be reflected in professional salaries. Schedule history, market location and stability of the system influence salary costs, as do community differences as they relate to job desirability for teachers, and all are beyond the control of the district. Thus, teacher salary costs, which represent nearly 90 percent of instructional costs, are subject to minimal control by local boards and should, therefore, be recognized in state funding. However, differing salary costs across school districts create different input prices for personnel services for children.

Muth concludes that:[57]

> If equity in financing education is to be achieved, districts facing excessive costs over which they have little or no control must receive help from the state in meeting those costs so that an equitable proportion of funds will be available in each district to meet the program needs of its students.

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56. C. Robert Muth and Paul R. Stuhmer, "Financing Education in Michigan: A Report," a study funded by the Ford Foundation through the Middle Cities Education Association, Michigan State University, East Lansing, Michigan, 1977.

57. Muth, op cit., at 67.

J. Alan Thomas, in his study of school finance and educational opportunity in Michigan, sought to measure educational opportunity. The Thomas staff looked at "quality" programs by district size, geographical region, district valuation, and expenditure per pupil. He isolated five determinants of educational equality:[58]

1. Quality in education is related to the development of programs appropriate to the economic, social and political context of the society.

2. The number of children with whom a teacher works is an important element in the total education environment, particularly at the primary and pre-school levels.

3. The most important single element in the educational process is the teacher - the quality and efficiency of teacher services are important determinants of educational excellence.

4. Variations in the quality of school buildings may be realted to a community's view of education as a form of consumption.

5. The usefulness of television, teaching machines, and language laboratories has not yet been adequately evaluated.

The Thomas study indicates that availability of programs and services was more related to the number of students than either valuation or cost per student.

Thomas made a very comprehensive study of the Michigan teaching force. He looked at age, experience and training differences as well as supply and demand factors, average salaries and pupil-teacher ratios. The study reported that regional characteristics are more significant than wealth in determining these teacher characteristics. Thomas found that there is also a high degree of correlation between

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58. Thomas, op cit. at 18-19

school district size and the average teacher's salary. The larger the system, the higher the mean salary paid to its teachers.[59]

Indicating that 84 percent of school district expenditures were for salaries, Thomas emphasized the relationship of salaries to wealth, size, location and urbanization. His study concludes that "the quality and quantity of the teaching staff is by far the most important single consideration in determining how youngsters will be taught."[60] According to Thomas, then, the criteria for quality is number of teachers per student, not dollars per student. The dollar represents both differing services and costs for the same services.

The Task Force on Public School Finance of the Michigan Association of Professors of Educational Administration published a suggested plan for financing K-12 education in Michigan in 1969.[61] The proposal, known as the "equal quality plan" advocates assuring and equalizing education opportunities appropriate to each child within the state and emphasized not equal money but equal opportunity. Vocational and special education would be assured for all those students requiring or desiring such programs wherever they lived and educationally deprived urban or rural children would have access to special programs needed to overcome their deprivation.

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59.   Ibid., at 108.
60.   Ibid., at 106.
61.   Wilson, op cit., at 46.

To accomplish equal opportunity the group suggested a classroom unit approach to financing education. The basic assumption involved here is that teacher-pupil ratio is the major factor determining quality of education. Given this assumption the task force proposed varying teacher-pupil ratios for different groups of students with different needs. For example, they suggested a ratio of 1:40 for kindergarten, 1:25 for regular pupils, 1:15 for vocational education, and 1:15 for educationally disadvantaged pupils.

Under the equal quality plan funding was to be based on classroom units which were to be arrived at by classifying and counting pupils and then determining the number of teacher positions needed to arrive at the specified pupil-teacher ratios. Funding was to be based on the number of teacher positions with each district receiving an amount derived by multiplying the number of teacher positions needed by a state established professional salary allowance. Funds for other services such as administration, inservice, maintenance and non-professional salaries were to be based on a percentage of the professional salary level and the number of classroom units.

The plan also recognizes a second quality variable - teacher experience and training - which is directly related to cost. A teacher experience and training index was developed in recognition of the variations in cost of teacher salaries in various districts. The index was based on an average teacher having a bachelors degree and eight years of

teaching experience. Such a teacher was assigned a value of 1.0 and teachers with more experience and training were assigned higher valuations and vice versa. From these values a district average index value was to be derived and applied as an adjustment to the total number of teaching positions for state aid calculation. This kind of index assumed that teaching quality is related to teacher training and experience and the index was designed "to make it possible for all school districts to compete on a more nearly equal basis for well qualified teachers."[62]

Under the "equal quality plan," no attempt was made to identify or adjust for cost differences existing in different regions or types of districts for similar programs. The authors suggest, however, that a factor dealing with salary variations by educational region might be added to the professional staff index if creditable data could be derived.

In a 1974 study in Michigan,[63] Harvey Brazer pointed out that while 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 they clearly differ "as a consequence of differences in prices paid for major inputs such as teachers (salaries) and/or differences

62. Wilson, op cit. at 48
63. Brazer, "A Study of Expenditures Levels and Student Output Measures Among School Districts," Selected Papers in School Finance: 1974, U.S. Office of Education, Washington, D.C., 1974 at 108.

in the quantities of inputs used (pupil-teacher ratio)."
He notes that to the extent these prices vary, neither an
equal dollar distribution of funds among school districts
nor an equal yield per unit of tax effort will result in
equality in terms of inputs. "If such approaches are to
attain . . . (equality) . . . some means must be found for
allowing appropriately for price differences among districts."

Brazer also suggests that traditional sparsity or den-
sity corrections and adjustments which weight certain grade
levels more heavily than others are "aimed rather vaguely
at educational costs as a whole rather than at prices of
inputs as variables of cost element." Brazer concludes that
cost of living adjustments are only one element entering
the supply function for teachers.

Brazer's study was based on the assumption that since
teacher's salaries account for a high proportion of district
current operating expenditures, if measures of relevant in-
fluences on teachers' salaries can be derived an adjustment
index for this crucially important input element can be
developed.

Brazer was able to account for 72 per cent of the
variance in average teachers' salaries in the districts
studied through the use of 15 a priori identified supply and
demand factors. The methodology is dependent on satisfactory
a priori judgments of variables which appear to be related
to differences in price. The achievement of greater pre-
cision in estimating elements related to price is a chal-
lenge offered by Brazer's study.

In a follow-up study conducted a year later, Drs. Brazer and Anderson used multiple regression analysis to measure the influence of selected factors in local price differences for educational services or local costs for school districts. The study is divided into two parts. In the first, factors which affect instructional costs are analyzed, and in the second part non-instructional cost differences are studied.[64]

Since teachers' salaries are the major component of local instructional costs, much of the analysis focuses on those features of school districts which affect the level of teachers' salaries. Brazer emphasizes, however, that state aid to a school district should not reflect adjustments based on a district's willingness to pay higher salaries for teachers. Any state aid adjustments to school districts relating to cost must be based on those district features which affect the willingness of teachers to work there (i.e. supply condition). Since it is unclear as to what "quality" teachers are or what measures are relevant to teacher quality, Brazer excludes considerations of quality in his analysis.

As a result of an analysis of a number of variables, Brazer is able to account for about 70 per cent of the variation in average teacher salaries among districts. Having completed his analysis of the factors which influence

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64. Harvey E. Brazer and Ann P. Anderson, "A Cost Adjustment Index for Michigan School Districts", University of Michigan, Ann Arbor, 1975.

the willingness of teachers to work in a school district, an adjustment index for teacher salaries was constructed. The index indicates to what extent the combined effect of the actual values of those district features taken into account which do bear on teacher salaries in any district differ from the combined effect of the average values for all the sample districts.

If state aid were to be adjusted according to a salary index based upon district features over which it had no control, i.e., features affecting the supply conditions or the willingness of teachers to work in a district, the following pattern emerges. All central cities would gain state aid; all but one rural district would lose state aid; and among independent cities and suburbs no distinct pattern emerges.

Brazer next develops an index for non-instructional expenditures using the same methodology. He adds, however, that the two indices are independent of each other and that using a teacher salary adjustment index does not require the use of an index for non-instructional expenditures.

W. Norton Grubb, when given the same problem of studying the applicability of adjustment in state education aid for local price differences, wrote his paper entitled, "Constructing Teacher Cost Indices: Methodological Explorations with California Unified School Districts."[65] Grubb states

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65. Norton W. Grubb, "Constructing Teacher Indices: Methodological Explorations with California Unified School Districts," mimeo, Education Finance Reform Project, Los Angeles and the Childhood and Government Project, University of California, Berkeley, 1975.

there are three factors which comprise instructional cost for any school district: (1) salaries paid teachers of a given quality; (2) teacher quality (as expressed by training and experience), and (3) teacher-pupil ratio.

Grubb first develops a theoretical model identifying the essential nature of the teacher supply and district demand curves for teachers but concludes that such a model is not useful because it does not enable him to isolate the teacher supply curve for any district.

He concludes that his only recourse is to use statistical analysis of reduced form equations to analyze the impact of teacher supply and demand on district wages, teacher quality, teacher-pupil ratios and expenditures. This multiple regression analysis was the necessary first step in order to eliminate cost adjustments reflecting district demand variables.

Grubb proceeds to a consideration of the variables in district features which have an impact on the demand and supply for teachers. The variables are essentially those used by Brazer. The impact of these independent variables are studies separately for each of the three major areas of instructional costs, namely, on teacher salaries, on teacher quality and on teacher-pupil ratios.

What particularly concerns Grubb is the small effect that the various independent variables have on the available measures of teacher quality, i.e., on teacher degree status or graduate credit hours and years of teaching experience. He states, "the abysmally low explanatory power of these

regressions indicates that variations in these measures of
'quality' are largely unexplained by any of the independent
variables available... It appears, therefore, that these
...measures do not reflect teacher quality at least in the
sense of measuring teacher attributes which school districts
attempt to increase."[66] What should also be emphasized is
that these attributes are precisely the ones over which a
school district has no control once a teacher is hired.
Teacher staffs inevitably acquire years of experience so
long as they retain their positions, and individual teachers
will also accumulate graduate credits if the incentives to
do so exist as in the form of salary differentials attached
to graduate credit hours or to degree status.

In his concluding section, Grubb notes that statistical
analysis does offer the means of calculating local cost ad-
justments. However, he is concerned with some of the prob-
lems associated with his methodology. As does Brazer, he
notes that the independent variables account for 70 percent
of the variations in teachers' salaries. And he also ob-
serves that not all of the relevant variables such as union
strength may be desirable for inclusion in an index. Poli-
tical decisions would be required with respect to the in-
clusion of variables such as district's unemployment rate
and the proportion of school-aged children to a district's
population. In the end, Grubb emphasizes that the redis-
tributive effects of such aid adjustments should be carefully

66. Ibid., at 36.

weighted especially if the net effect is to take away from the poorer districts to benefit the wealthier ones.

In the paper entitled "Measuring Differences Among Florida School Districts in the Cost of Education: An Alternative Approach,"[67] Lawrence Kenny, Irving Goffman and David Denslow reported the results of their statistical analysis based on Florida data. The "alternative approach" in their title refers to the use of statistical analysis to adjust state aid for local cost differences. The current practice in Florida is to price a list of commodities and services in various parts of the state and to adjust state aid for local price differences based on the difference between the local prices and state average prices. Florida is the only state which adjusts state aid to school districts on the basis of estimates of local consumer price levels. The assumption this study is predicated upon is that teachers offered the same wage in different districts do not respond solely to living costs in choosing jobs but do in fact take into account other features of school systems.

The authors of the Florida study diverge markedly from Grubb and Brazer in the variables which they believe affect the supply and demand of teachers. In their view district demand for teachers or willingness to pay differing teacher rates is influences solely by the degree status and years of experience of teachers. All other variables are viewed as

67. Lawrence W. Kenny, David Denslow and Irving Goffman, "Measuring Differences Among Florida School Districts in the Cost of Education: An Alternative Approach," University of Florida, Gainesville, 1975.

affecting the supply price of teachers, i.e., the wage at which teachers are willing to work in any district.

In the analysis, the authors conclude that such factors as a district's cost of living, population density, pupil test scores and a measure of the crime rate all influence the willingness of teachers to work in school districts. As a surrogate measure for the cost of living, the authors use the price of land in any district plus the degree of urbanization of that district.

The final section of their paper contains a critique of the present Florida price of living index. The Florida index concentrates on the cost of living and ignores differences in local property wealth.

Measuring Equity

The measure of equity most commonly used is normally represented by revenues or expenditures, usually on a per pupil basis. Thus, to measure the equity of a number of components related to school budgets comparison are made on the inequity of per pupil revenues or expenditures across districts or students.

As Robert Berne points out in his study, "Alternative Equity and Equality Measures: Does the Measure Make A Difference?"[68] one difficulty with state school budget measures is its failure to recognize that schools purchase different /

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68. Robert Berne, "Alternative Equity and Equality Measures: Does the Measure Make A Difference?" Selected Papers In School Finance, U.S. Department of Education, Washington, D.C., 1978 at 6.

amounts of educational inputs (teachers, textbooks, etc.) in different areas due to price variations. As a result, expenditures or revenues from different districts may not be comparable.[69]

One way to overcome this difficulty is to adjust the school budgets according to different input prices. The problem with such a method is that actual price differences reflect supply and demand factors. In theory only supply factors should enter a price adjustment index, but the supply and demand factors are difficult to untangle. Furthermore, prices should be compared for inputs of similar quality and valid quality measure of inputs, such as teachers, is not currently available.[70]

The recent research on price indices indicates that there are two categories of adjustments that can be used in an attempt to translate dollars into equal buying power. One technique is to estimate a price index for each location -- a local "basket of goods" approach. Kenny discusses this practice for Florida where it is used to adjust the state aid formula.[71] Berne notes, however, "that there are technical problems encountered in the computation of such an index and its questionable whether it is the appropriate index for educational inputs."[72]

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69. Ibid., p. 6.
70. Ibid., p. 6
71. Kenny, op cit. at 197.
72. Berne, op cit. at 21.

The second approach is to adjust the salaries or costs according to factors which influence the supply of inputs as determined through econometric analysis. The primary problem here is the identification of the relevant factors and the adequate measure of controls.

Kenny compares the Florida "basket of goods" index and Brazer's econometric analysis approach applied to Florida and found "noticeable differences among (SIC) between them."[73] Grubb and Hyman display the correlation among differenct indices based on a range of supply/demand assumptions and find that "alternative assumptions can yield substantially different indices."[74]

A third approach considered--and the one used in this study--is the direct measurement of educational resource inputs such as teachers, textbooks, supplies, etc. Berne notes that there are two problems that must be overcome in order to measure the inequity of a number of distributions using resource inputs as the measurement of the equity function:[75]

> First, it is very difficult to assess the differences in quality for a type of resource input such as teachers. This measurement problem makes the task of converting the resource inputs of a given type to a common measure rather complex. In order to measure resource inputs we should find a way to take quality differences into account. For example, all teachers are not alike and a simple teacher count could possibly be misleading. The second problem is the conversion of different types of resource inputs such as teachers, administrators, supplies, etc., to a common measure

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73. Kenny, op cit., at 200.
74. Grubb, op cit., at 116-118.
75. Berne, op cit., at 8.

in order to obtain a per pupil measure of re-
sources for a school district. Since human
inputs form such a large percentage of educa-
tional resource inputs, we may be content to
only measure these but even here we must find
a common denominator for teachers, teacher aides,
administrators, etc."

In order to overcome the problems noted by Berne in

measuring equity vis-a-vis a direct assessment of resource

inputs, two procedural methods have been incorporated into

this study. Relative to the problem of assessing differences

in the quality of resource inputs, a system of weighting per-

sonnel input units has been developed to account for variances

in a teacher's education and years of experience.

The second problem Berne notes relative to converting

different types of resource inputs to a common measure has

been avoided by this researcher by isolating the equity func-

tion in terms of building level instructional personnel inputs

only (teachers, auxiliary staff and building administrators).

Other, less significant cost variations have been avoided.

In order to obtain a common per pupil measure the total

building level personnel inputs (as weighted) will be divided

by a common denominator--the number of students in regular

membership in that particular building. The resulting common

measure of input equity is called "students per personnel

input unit."

Finally, it should be pointed out that the equity

function is sometimes measured in terms of educational out-

puts. Such as, for example, achievement test scores, func-

tional literacy tests, or educational attainment measured

in years of education or degrees. In the context of school

finance reform, it seems questionable whether such an approach should be used. The question which is always at the center of such research is whether there are any inputs which make a difference in determining outputs and, if there are, how "important" are they. Recent summaries of the literature on this question do not point to any conclusions any different from those of a few years ago. In short, there are no consistent relationships between inputs and learning outcomes.[76]

Leonard Stavisky in his article, "Dilemma for Decision Makers: Contradictory Education Research,"[77] compiled a listing of seventeen variables that frequently have been cited as possible determinants of education outcomes. From other literature in the field Stavisky selected from representative survey reports. Some of the disparate findings are summarized below:

Level of Teachers' Education

Study 1. In 83 percent of the studies, the more highly educated the teachers, the more impressive the students performance.

Study 2. Only 12 percent of the studies showed a significant relationship between teachers' education and pupil performance.

Study 3. The percentage of teachers having some graduate training had the most consistent relationship with pupil achievement.

76. Byron Brown and Daniel Saks, "Production Technologies and Resource Allocations Within Classrooms and Schools: Theory and Measurement." Paper developed under contract from the National Institute of Education, Michigan State University East Lansing, 1978, at 15.

77. Leonard P. Stavisky "Dilemma for Decision Makers: Contradictory Education Research," Compact, Summer 1979 at 24.

Study 4. Extra education credits among teachers do not appear to boost student learning.

Years of Teaching Experience

Study 1. Teacher experience was found to be related to student performance only 57 percent of the time.

Study 2. More than a dozen studies examined the relationship of teachers' experience to pupil performance--about half indicated a direct association.

Study 3. The Regression Studies revealed no relationship; the Outliers Study, on the other hand, showed a positive relationship between teacher experience and student performance.

Study 4. Differences in teaching experience have an impact on achievement growth.

Class Size

Study 1. Overall, class size was found to be significantly related to student performance on only 37 percent of 19 studies.

Study 2. The finding in five studies showed that smaller classes matter for young children but produced little evidence that they matter at higher levels.

Study 3. The effect of class size may be dependent on the type of student and the subject taught.

Study 4. Elementary pupils below grade level gain in classes with fewer than 28 students, but other students can be in classes of over 28 pupils.

The contradictory findings are understandable for several reasons. First, the objective systems for measuring performance of students are not sufficiently comprehensive to cover all these complex variables. Second, such systems for measuring educational quality are often interpreted incorrectly and, consequently, face resistance. Third, the methodology for linking educational outputs of students to

financial resource allocation is not sufficiently well
developed to apply to school finance reform.[78]

Development of Comparable School Cost Data: Rationale for Isolating Instructional Expenditures

As members of the Chicago public school staff worked
on the development of comparable per pupil expenditures, two
problems immediately became apparent:[79]

    (1) It technically was not possible to isolate and
charge to an individual school all of the direct
costs involved in educating the children in that
school.

    (2) Numerous variables existed in individual schools
which distort the per pupil expenditures and re-
sulted in figures which were not comparable from
school to school.

In addition to the problem of being unable to isolate
certain expenditures so that they could be charged to indivi-
dual schools, it also became apparent that numerous variables
exist in individual schools which distort the per pupil ex-
penditures and result in figures which are not comparable
from school to school.[80] For example:

    (1) The more special education classes there are in a
school, the greater the per pupil expenditure be-
cause there are more teachers for a given number
of children.

    (2) When a school services as a resource center or of-
fice for teachers who serve a large number of schools,
the per pupil expenditure level for the school will
be abnormally high if the salaries of the itinerant
teachers are charged to the school.

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    78. Stanley A. Rumbaugh, "Cost of Education Differentials:
The Search for the Missing Link." Presented at the American
Education Finance Conference, San Antonio, Texas, 1977; Lansing,
Michigan, mimeographed, at 15.

    79. Joan M. Raymond, "Financing Equity Among Schools in
Large Cities, Chicago Public Schools: A Case Study." Paper
presented at the American Educational Finance Conference,
Nashville, Tennessee, March 1979, at 5.

    80. Ibid., at 7.

(3) High school branches which share building with elementary schools are likely to show low per pupil expenditures because the elementary school rather than the high school branch is charged for all of the custodial and maintenance salaries and supplies.

(4) Schools with government funded programs which operate within the school day are likely to have inflated per pupil expenditures in relation to the expenditure level for other schools.

(5) The inclusion of monies spent for such major permanent improvement items as toilet or electrical rehabilitation also distort per pupil expenditures since these are one-time expenditures and are not related to the program of education in the same way that teacher salaries or textbooks are related.

Thus, variables, such as described above which exist from school to school make it difficult to secure per pupil expenditure figures which may be compared with one another to determine whether or not some schools are receiving less or some schools more of the funds available for education. As Raymond points out:[81]

> It became apparent that an improved instrument for decision making in relation to per pupil expenditures has to be developed. Since over 80 percent of the total operating fund is expended for salaries, and in working with the data it became obvious that, in spite of many variables, it is the differences in the salary levels in a school which determine whether the per pupil expenditure is high, low, or average, it was determined that salaries could be used as the basis for calculating per pupil costs which would be comparable from school to school.

Further, a study of the Urban Institute in Washington, D.C.[82] shows that there is little difference between the instructional expenditures of one district or another,

81. _Ibid._, at 8.
82. Betsy Levin, Thomas Muller and Corazon Sanavol, "The High Cost of Education in Cities," The Urban Institute, Washington, D.C., 1973.

whether urban, suburban or rural (except for the very high transportation costs of rural districts, which in turn is offset by the very high building and maintenance costs of central cities).

The main point regarding cost differentials--as pointed out by Robert Bothwell in his study of the Texas school finance system--"has to center around instructional salaries, which amount to 80 percent of operating budgets of school systems."[83]

Summary

The review of the court cases dealing with educational equity and the literature review of educational cost equity research, together with the writer's educational finance experience and legislative involvement, lead this writer to the following observations:

1. The courts have not addressed the equity question in terms of input costs and programmatic opportunity and only recently have addressed the cost-need question of educational equity. The legal question of equity has dealt with equity of dollar expenditures, and disparities in the cost of educational inputs have not been factored into the equity questions. The assumption that dollars equate to programs has, for the most part, prevailed.

2. The data generally available and used for educational finance research begin with gross per student costs.

83. Robert O. Bothwell, "The Inequities of the Texas School Finance System." Paper presented at the HIU-Minority Tax Reform Project Training Institute, Houston, Texas, September, 1973 at 17.

The problem with this cost measure is that it includes categorical expenditures such as special education and compensatory education. Thus a district with a high percentage of categorical funding will have its per capita costs skewed so that gross costs do not reflect costs across comparable populations. There is an urgent need for truly comparative data for educational finance research.

This need is illustrated by the U.S. Office of Education's funded research to develop a method for determining the added cost of vocational education. It was found that contamination of gross cost data by categorically funded programs made it impossible to compute the cost of regular secondary education and, therefore, impossible to compute the added costs of vocational education. Computing the specific costs of vocational education was not difficult but computing the cost of the regular program across districts was impossible because of the inclusion of the costs for widely differing categorical programs. The same problem pervades educational finance research. An adjustment formula is needed to compute the cost of education free of categorical costs that serve specifically qualified individual students and do not have an impact on the general program of the school.

3. School districts vary in the school and community climate they present to teachers and these factors affect the personnel selection of the district. But today this is a qualitative factor and not a quantitative factor affecting

price. Salary schedule differences do not reflect today's
conditions but rather historical conditions. Teacher sala-
ries are determined by market conditions in unionized states
(such as Michigan), and these markets were generally estab-
lished during the decade of the sixties when there was com-
petition for teachers and when working conditions, ability
to pay, and school board policies affected salary schedules
and average teacher salaries. Dr. C. Robert Muth showed in
his Ford Foundation study that variations in teacher salary
schedule differences across districts in Michigan were rela-
tively unaffected by professional negotiations because school
districts, teacher unions, mediators and arbitrators used
comparable markets on which to base their decisions. Union-
ization has increased salary levels generally but not
eliminated salary schedule differences between groups of
districts. There is a lack of knowledge about or an unwil-
lingness to accept the concept of educational labor markets
outside of the control of board policy, and so the reality
of educational unionization has not been adequately built
into educational finance research.

4. Because educational salaries are lower in rural
and non-urban areas, the political strategy of outside areas
is to oppose any cost difference consideration; after all,
the state politics of educational finance is as much how the
pie is cut as it is the overall size. Any new factor must
give to some districts in disproportion to others. Resear-
chers themselves are prone to negate cost differences because

of their fear that more funds for high cost districts will increase the disparities. No acceptable formula for cost recognition has been developed and no general climate of receptivity exists for cost differential recognition in educational finance.

5. The research on the significance of quality factors in education is very mixed. Teacher variables as they relate to experience, training and class size show no consistent or substantial correlation with student achievement. The human qualities for success in teaching have not been sufficiently isolated to provide for adequate measurement either. for selection or evaluation. The research on class size as a quality factor is mixed although lower class size for the disadvantaged students seems to be supported. School climate and building leadership seem to bear a positive relationship to student attitude and achievement, but as yet the unique individual, organizational and community variables that contribute to the environment have not been adequately isolated and certainly not priced. The limitations of present research emphasize the need for better research in first isolating and then integrating the personal and organizational quality factors that are essential to success in the educational enterprise.

6. There are standards of quality in terms of programmatic input which are generally recognized and can be quantified. Qualified teachers, professional training beyond the B.A. and lower teacher-pupil ratios are generally accepted

quantitative measures of quality. These factors have been
built into categorically funded programs in vocational edu-
cation and special education. If such standards of quality
are recognized for individual programs such as those men-
tioned above, they can be accepted as research assumptions
applicable to all educational programs.

An overall summary of the literature indicates that if
school districts pay different salaries to teachers and other
personnel with similar credentials, as well as different
prices for non-personnel inputs, then it only holds that the
ratio of expenditures to quality of inputs will vary. It
follows, therefore, that expenditures per pupil do not serve
as an accurate measure of educational equity. There is need
for research which addresses the question of how dollars
equate to services. It will be the purpose of this study
to establish such a base for understanding the differences
in cost and educational inputs.

CHAPTER III

DESIGN OF THE STUDY

Introduction

The design of the study and the order of research are described in this chapter under the following headings: Population, Sample Selection, Instrument Development and Use, Isolating Basic Educational Expenditures, Modifying State Per Capita Cost Data, Identification of Need Variables and Collection of Data.

Population

The population under study is comprised of the twelve school districts in Ingham County. They are: East Lansing Public Schools, Lansing Public Schools, Dansville Public Schools, Haslett Public Schools, Holt Public Schools, Leslie Public Schools, Mason Public Schools, Okemos Public Schools, Stockbridge Public Schools, Waverly School District, Webberville Public Schools and Williamston Community Schools. The sample school districts provide a meaningful grouping in terms of size, geographic structure, community and expenditure levels.

The population used to respond to the instrument is broadly distributed among the fourteen student membership divisions used by the state in grouping Michigan's 530 K-12 school districts (see Appendix B-1).

The Ingham County School Districts also provide a meaningful grouping in terms of other classifications

relevant to this study. Relative to the geographic structure, the population consists of one central city, five suburban cities and six rural districts.

Millage rates for operating the schools vary from 27.0 mills in Leslie and Mason to 38.8 in East Lansing. Operating expenditures range from $1,187 to $1,710 per pupil, thus providing a range well above and below the state average of $1,410. The twelve communities represented are also diverse in terms of social and economic characteristics and in the range of public services provided to its constituents. The 1978-79 basic school district data (see Appendix B-2) further exemplify the variations in the twelve communities relative to SEV, membership and tax rates.

Sample Selection

The author deals specifically with elementary buildings in the stated school districts. A sample of the elementary school buildings within the districts has been selected to provide for full representation of the uniqueness of each district. It should be noted from the following schedule that in those districts where less than the total number of elementary buildings are included in the sample, the largest units are selected as representative of the district. It is assumed that the sample selection will provide for optimum comparability across schools and school districts.

The sample was selected as follows:

School District	Number of Elementary Schools	Sample Selection	Cumulative No. of Schools In Sample
Dansville	1	Select only choice	1
Webberville	1	Select only choice	2
Leslie	2	Select largest	3
Williamston	2	Select largest	4
Haslett	3	Select largest	5
Stockbridge	3	Select largest	6
Okemos	4	Select two largest	8
Holt	5	Select two largest	10
Mason	5	Select two largest	12
Waverly	5	Select two largest	14
East Lansing	9	Select three largest	17
Lansing	46	Select seven largest	24
Total:	86		24

This research is exploratory and developmental in nature. The author attempted to study cost in relationship to a comparable measure of programmatic equity. If the findings can contribute to a better understanding of cost variations for comparable services, it will enhance and provide new direction for further research in program equity as a goal of educational finance.

Instrument Development and Use

As noted in the review of the literature, a principal source of confusion in previous analyses of school expenditures has been the failure to make a clear distinction between spending differences among school districts which are due to variations in cost and those which result from differences in the level of service. In order to avoid this problem, the survey instrument was designed to determine the level of programmatic services provided to elementary grade students and the cost of providing such services.

The single greatest factor for predicting educational cost is personnel inputs which account for 80 percent of building level expenditures. In light of this, the instrument is designed to measure programmatic services in terms of personnel input units per student at the building level. Personnel inputs include classroom teachers, principals and supervisors, and other instructional and instructional-support personnel such as guidance counselors, librarians, teacher aides, etc. Differences in other instructional expenditures, such as those for supplies and textbooks, can be assumed to be due exclusively to the quantity of those items, as books, pencils, lab equipment and projectors and vary little in price nationally.[84]

The problem encountered in using personnel factors for determining comparability of programmatic services, is one of how to quantify differences in personnel resources in terms of programmatic comparability. The research clearly points to three major factors affecting the purchasing power of the educational dollar: pupil-teacher ratios, teacher experience and teacher education.[85] While differences in pupil-teacher ratios, where they exist, are easy to quantify, differences in education and experience levels of teachers are not so clear cut.

As stated earlier, the literature is mixed relative to whether students in schools with more experienced and better

84. Betsy Levin, et al., The High Cost of Education in Cities, The Urban Institute, Washington, D.C., 1973, at 22.
85. Ibid., at 14.

educated teachers receive a qualitatively better education. On the other hand, these are fixed costs in the sense that the tenure system leaves districts little choice as to whether such teachers are returned or replaced. Even though there are disparate findings regarding the relationship between education and experience of teachers and pupil performance, these two factors need to be recognized due to the realities of the present tenure system, district salary schedules and general perceptions. Districts with higher proportions of teachers at the upper level of the salary schedules can do little to reduce their costs regardless of whether it can be demonstrated that such teachers, overall, make a difference in educational quality.

The research on the quality (student achievement) value of lower pupil-teacher ratios is also mixed. There is evidence that lower pupil-teacher ratios make a difference if ratios are lowered substantially (15:1) but little or no difference around a mean of 27:1. However, teacher contracts continue to stress lower ratios as an improvement in teaching environment and an implied value to students. Further, these factors are recognized and built into categorically funded programs, such as special education and vocational education.

To what extent, then, should differences in teacher characteristics be recognized in the development of models for determining a comparable measure of programmatic services? On the other hand, there is not consistent and clear evidence

to date that teachers with additional education or experience provide a better quality education than teachers with less experience and training. Yet, both labor and management generally accept as a rational factor in salary schedule construction that the more experienced teacher with an advanced degree, overall, does make a difference in educational quality. This is recognized through the automatic award of salary increments for additional years of service and education beyond a Bachelor's Degree.

A generally accepted quantitative measure was desired for reconciling the discrepancy between performance value for and professional recognition of advanced training and experience. Several leaders in school finance and instruction were asked what maximum weight they would recognize for training and experience as a measure of teacher performance and program quality. Based on the interviews, a measure of 30 percent was arrived at for recognizing the maximum combined value of teacher experience and training. A teacher with a B.A. and less than one year experience was defined as one input unit and all other instructional inputs were weighted in relationship to the base input unit up to a maximum of 1.3 for a classroom teacher with 13 or more years experience and a M.A. degree or better. This approach considers the common sense belief that professional people grow, the lack of supportive research and the discussion with practitioners in the field. Fewer years of experience and hours of education were prorated as follows:

Teacher Experience		Teacher Training Over a B.A.	
Years	Weight	Quarter Hours	Weight
1-3	.03	1-11	.03
4-6	.06	12-22	.06
7-9	.09	23-33	.09
10-12	.12	34-44	.12
13-15	.15	45+	.15

Auxiliary instructional staff members (i.e., art, music, physical education, librarian, etc.) will be defined as one input unit if he or she serves the particular building in question on a full-time basis. Anything less will be pro-rated accordingly. Instructional aides financed through the general fund budget and who work full-time will receive a maximum weight of .5, and likewise, will be prorated accordingly for less time served in the building sampled.

In order to recognize the value of the building princi-pal, who... "far more than any other person, shapes and articu-lates the prevailing ambiance and creates a sense of mission,"[86] a quantitative measure of 2.0 has been established for a full-time building administrator. Research over the last decade has increasingly pointed to the leadership of the principal as a quality factor in the school building. The most recent statement of this point is found in an article by John Goodlad in the January, 1979, Phi Delta Kappan. In his article, "Can Our Schools Get Better?," Goodlad notes.[87]

> In recent studies of schools affecting integration
> with some success, almost invariably the principal
> was identified as strategic. In the successful

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86. John I. Goodlad, "Can Our Schools Get Better?," Phi Delta Kappan, Vol. 60, No. 5, January, 1979, at 346.
87. Ibid., at 346.

black schools referred to earlier, again the significance of the principal--his or her values, dedication and strength--came to the surface. Almost invariably, too, the principal is a person with a strong sense of personal worth and potency, one who takes a position on issues and is not regarded as a pawn of the superintendent or of strong individuals or groups within the community.

In order to recognize pupil-teacher ratios as a quantitative measure of programmatic services provided, the sum total of personnel input units arrived at for each of the sample schools was divided by the number of students in each representative building to obtain the number of students per personnel input unit. The lower number of students per input unit indicating a high quality program. This measure then considers both the quality and the quantity of building level instructional personnel input as a composite quality or equity measure of educational programs.

The cost per input unit for each sample school was computed by dividing the total salary of identified personnel (determined by means of direct review of payroll records) by the number of personnel input units. In similar fashion, cost figures can be computed to determine the cost of personnel input units per student.

The reliability of the instrument was discussed in terms of content, clarity, conciseness and purpose with select school business officials from two educational groups, the Middle Cities Education Association and the Michigan School Business Officials. Based on their recommendation, minor changes were made in the format and structure of the questionnaire.

The reliability of the author's approach is further
enhanced in that the concept of adjusting for experience
and training is currently receiving considerable discussion
as part of a new state aid formula concept sponsored by
Michigan State Senator Jack Faxon.[88]

Contingency tables were used to rank, order and corre-
late the data (i.e., students per personnel input units and
cost per input unit) by school and school district. If cost
differences exist for providing comparable services, the
data will indicate a variance in the cost per personnel input
unit among the schools sampled. If differences exist rela-
tive to the programmatic measures of educational equity used
in the study, the data will indicate a variance in students
per personnel input units across the sample schools.

Isolating Basic Educational Expenditures

There are four major sources of revenue for K-12 educa-
tion in Michigan. The first is formula state aid which is
paid to districts on the basis of property value in the dis-
trict and taxing effort. The second major source of funds
is local taxes which are based on local wealth and tax rate.
These two revenue sources comprise the bulk of general fund
resources and are used, at the discretion of the school
board, to provide the regular education program of the dis-

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88. Jack Faxon, "The Faxon School Aid Plan for 1979-80:
A New Concept in Michigan School Finance," mimeo, Lansing,
Michigan, 1979.

trict. The two other fund sources are state and federal categoricals: funds provided to finance added services for special students and support specific programs.

There are, then, two distinct types of revenue tied to two clearly identifiable expenditure categories. Funds provided by the general state aid formula and the locally levied school taxes are used at the discretion of the local school board to provide general education for all the district's children. Categorical funds support special and sometimes mandated programs for specific individually identified children. Such funds may not be used to subsidize general programs for all children. For the purpose of this study, "basic education" expenditures are those expenditures for K-12 education that serve all students excluding expenditures reimbursed through categorical program revenues.

Because of the method of accounting used by Michigan school districts, figures for educational expenditures include categorical expenditures. But students receiving categorical funds are not evenly distributed across all districts. Conclusions drawn therefrom become suspect. In order to avoid this problem, the sample elementary schools' budgets were purged of categorical expenditures and the units of educational input they represent. Thus, personnel inputs and building costs represent only those supported by general state aid and local tax sources, for these are the sources of revenue which provide general education for a district's student population.

Modifying State Per Capita Cost Data

Michigan Department of Education Bulletin 1012 presents per capita cost data for all school districts. It is from this bulletin that the news media often compare per capita costs within a particular area. These per capita cost comparisons are usually detrimental to central city districts because their costs are generally the highest or nearly the highest among school districts in their respective counties. There are several reasons for such cost differences which are not explained fully in the Michigan Department of Education reports or understood by the users of the data.

First of all, categorical expenditures are included in computing per capita costs as reported in Bulletin 1012. Therefore, a district with a high percentage of categorical funding will have its per capita costs skewed for all students. In other words then, the categorical funds that serve specific children are added to the total cost, and when those costs are divided by the total Fourth Friday membership, per capita costs for all students are overstated.

Secondly, many districts operate areawide programs in special education and vocational education. The total costs of these operations are included when arriving at the district's per student costs, but no recognition is given for the additional non-resident students associated with these costly services.

Thirdly, many districts operate quasi-municipal serv-
ices such as libraries or museums. Expenditures for these
types of operation are also included in a district's total
expenditures and escalate costs.

In response to this problem of overstated costs, an
adjustment formula has been developed. In the first step
of the formula, a basic current operating expenditure is
computed by taking per pupil current operating expenditures
(shown in the MDE Bulletin 1012) and subtracting from this
figure the following categorical funding sources: (1) federal
direct funding; (2) redistribution of federal funds; (3)
intermediate district funding, and (4) state indirect appro-
priations. These first three figures are all found in
Bulletin 1012, and the fourth amount is obtained by taking
State Direct Appropriations (also contained in the 1012) and
subtracting out-formula state aid. Finally, the County
Special Education Tax along with other incoming transfers
(items 0860 and 0870 of the 1976-77 Form B report) was sub-
tracted from current operating expenditures. The basic
operating expenditure, then, is simply current operating
costs less those categorical expenditures described above.
The basic operating expenditure when computed for all dis-
tricts provides comparable cost data for the general educa-
tion services of each district.

The Lansing School District serves as a case in point and
should clarify the meaning of the adjustment formula. The
Bulletin 1012 lists its 1976-77 current operating expenditures

at just over $1,661 per student, second highest among the
twelve districts in Ingham County. Using the data from the
1012 and the 1976-77 Form B report, the basic current operat-
ing expenditures are computed as shown below:

			Source
Current Operating Expenditures	=	$1,661.37	1012
Categorical Funding Sources:			
(a) Federal Direct Funds	=	80.04	1012
(b) State Redistribution of Federal Funds	=	72.48	1012
(c) Intermediate District Funds	=	2.81	1012
(d) State Indirect Appropriations	=	137.03	1012 (State Aid Formula)
(e) Incoming Transfers minus County Special Education Tax	=	67.86	State Form B, 1976-77 Item 0870
(f) Incoming Transfers minus Others (Voc.Educ.,Adult Educ.,etc.)	=	.59	Same as above

Basic Current Operating Costs:

(Current Operating Expenditures) <u>minus</u> (Federal Direct
Funds) <u>minus</u> (State Redistribution of Funds) <u>minus</u>
(Intermediate District Funds) <u>minus</u> (State Indirect
Appropriations) <u>minus</u> (County Special Education Tax)
<u>minus</u> (Other Incoming Transfers)

$$= \$1,661.37 - (80.04 + 72.47 + 2.81 + 137.04 + 67.86 + .59)$$

Basic Current Operating Costs

$$= \$1,300.57$$

In summary, educational expenditures reported by the
state represent the total expenditures of the school district
and per pupil expenditures represent total expenditures
divided by resident pupils. They include categorically
funded programs within the general divisions. But students
receiving categorical funds are not evenly distributed across
all districts. Districts with large numbers of handicapped

and disadvantaged students receive federal and state cate-
gorical resources to support special and individual services
to such children, and when these expenditures are averaged
over all students in the district, comparative data are
unreliable. Research efforts in the past have used gross
cost data without trying to isolate "basic education" costs.
The conclusions drawn using gross cost data, therefore, be-
come suspect.

The basic assumption is that categorical revenues equal
categorical expenditures--that revenues designated for special
education are spent totally on special education programs.
This seems a safe assumption in light of continual auditing
of categorical programs and the requirement of general expendi-
ture comparabilities across all students within a district.

The stipulated basic operating formula allows the writer
to remove categoricals from total operating expenditures in
order to have a better common denominator for comparing costs.
The basic education costs as computed were then converted
to per student costs. The results are basic education costs
per student purged of categorical expenditures. This figure
along with state published cost statistics per student were
analyzed to determine which, if any, of these figures most
accurately reflect elementary program expenditures per stu-
dent as reported by each district on their annual school
district financial report (Form B). Admittedly, the cost
figures computed by the state and modified by the aforemen-
tioned formula will not reflect elementary school expenditures.

But it can indicate whether statistics such as these can be a more realistic indicator of basic program costs.

This modified cost statistic was examined in terms of how accurately it reflects the cost statistics computed for the sample schools. Hopefully, this study will highlight the need for a more comprehensive look into the development and application of a detailed program cost analysis model at all levels (elementary, middle school, secondary, special education, adult education, etc.) which could then be examined in relationship to personnel inputs as a comparable measure of programmatic equity.

Identification of Need Variables

If the research data indicates significant differences in the cost per input unit between schools and districts, the author will then attempt to study the large question of what characteristics high cost districts have in common. The set of need variables to be analyzed are factors over which a district has little or no control.

In an effort to explore and more fully detect a pattern for cost variations, the dependent variables (cost and per input unit) were correlated with the eight identified independent variables (factors suspected of causing the behavior of the dependent variable).

The following variables have been identified to allow this writer to examine whether some underlying pattern exists in accounting for observed interrelations in the data.

(1) Size of district (as measured by number of pupils).
(2) Type of community (central city, suburb, rural).
(3) State equalized valuation per student.
(4) Average per capita family income.
(5) Total K-12 operational millage rate.
(6) District average teacher salary.
(7) Percent of students from families receiving AFDC payments.
(8) Percent of student attaining less than 75 percent of objectives on the Michigan Educational Assessment Program tests.

Collection of Data

The data for the study were collected by means of personal interviews with superintendents and directors of personnel from each of the twelve school districts which, collectively, comprise the Ingham Intermediate School District.

The personal interviews, however, were preceded by a number of preparatory interviews and correspondence. The author, on the basis of a consultation with Dr. C. Robert Muth, committee chairman, arranged a meeting with Dr. Donald Shebuski, Superintendent of the Ingham Intermediate School District to discuss the nature and purpose of the contemplated study in each of the twelve Ingham County districts. To this Dr. Shebuski offered his commitment to cooperate and support the study as much as possible.

At this point it was necessary to contact each of the twelve superintendents of the Ingham County school districts. The author composed a letter in which the nature and purpose of the study were explained and in which the superintendent's cooperation was asked. A facsimile of the letter sent to Dr. Matthew Prophet is included as Appendix C.

Realizing that correspondence by mail was the least effective means of garnering the superintendents' support, the author arranged to appear before the Ingham County Superintendents at their monthly meeting in September. The author presented his study to the superintendents, answered any questions they had, and asked them to decide whether they would allow the author to conduct his study in their schools. The superintendents voted unanimously to permit the author to visit their school district offices and collect the necessary data.

From the time of the superintendents' meeting to the middle of June, the author arranged with each superintendent a personal interview session at which the data could be collected and analyzed. Prior to each interview the questionnaire instrument and a document further explaining the study were sent to the superintendents. In this manner, each superintendent knew in advance precisely what data, from what source, was being requested of him. In one case this prior correspondence, coupled with all that had preceded it, served to eliminate the need for an interview entirely; the superintendent in that case knowing exactly what to provide the author. In all other cases, however, an interview was necessary to go over with the superintendent the questionnaire instrument and the data. Either the superintendent provided the data at the interview or completed the questionnaire at his leisure and forwarded it to the author. In the case of the Lansing School District, Dr. Gary Wegenke

provided the author with computer printouts of the pertinent
data, explained the Lansing coding system, and left it to
the author to pull out the necessary data.

A few problems were encountered by the author during
the interview sessions and subsequent reviews of the data
provided thereby. The most frequent problem was the inclu-
sion of special education personnel and salaries, therefore,
with the data. To ensure that such data were not included,
it proved necessary to review directly the personnel sheets
of the schools, or to consult with the superintendent directly,
and eliminate those for whom funding was provided through
special education or some other categorical program like
Title I of ESEA.

Another problem arose due to the forms in which the
districts maintain salary, experience, and education infor-
mation on their teachers. It was found that some schools,
most notably the Lansing School District, do not include
in their records the number of years worked by teachers
outside of the school district. Thus no measure was possible
for overall work experience for those schools. In the case
of the Lansing School District, the computer printout listed
the number of years worked within the Lansing School District,
but to find the number of years worked outside the district
(if any) one would have to consult the individual teacher's
personnel fine, something which the author did not have the
legal right to view and the Lansing personnel director did
not care to do.

Once the data were collected, either by means of the interview or by personal analysis of the data (as in the case of the Lansing and Williamston school districts), the author again analyzed the data to ensure that all special education personnel had been excluded. In many cases, this necessitated a follow-up phone call to the superintendent so as to double check the results.

Another area in which problems were encountered was the category of librarian. In some instances the school did not have a certified librarian but still assigned some-one full- or part-time to the library. It had to be ascertained whether the librarian was certified or non-certified. In those cases in which the librarian was non-certified, that person was then classified as an aide and was awarded a weighting of 0.5 rather than 1.0.

The determination of fringe benefits for the average elementary teacher also proved to be next to impossible to accomplish. In all instances the fringe benefit package was not available on an individual basis. On a district-wide basis, the average cost per teacher across the twelve districts was not significantly different and was, there-fore, not computed into input unit costs for the sample buildings.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The analyses of data relevant to this study are presented in this chapter under the following headings: Relationship Between Programmatic and Cost Inputs, Cost Per Input Unit and Program Equity, Cost and a District's Wealth, District's Ability to Pay, District's Need Variables, Comparison of Per Capita Cost Data and Summary of Findings.

Relationship Between Programmatic and Cost Inputs

Chapter III described the procedural steps and methods utilized in obtaining the input variables (personnel and cost inputs) for each sample school by school district. As was indicated in Chapter I, much of the school finance research does not take into consideration the district-by-district variation in the input costs of education. Up to now, per student cost input differences have been the basis for interpreting program or education quality disparities; even though average per student costs include special categorical and community program costs that are not uniform across districts, and even though it is generally knowledged that input costs, primarily salaries, vary geographically and by district size. The driving mechanisms for educational cost and local tax effort are personnel input costs and the teacher/pupil ratios. All other cost variables are relatively insignificant com-

pared to the salary costs of education and the student units over which they are spread.

The following analysis focuses upon the question of whether equal dollars can provide equal program diversity and opportunity when the same services have different costs across school districts.

In order to isolate costs related to direct programmatic benefits to students, the author constructed a uniform method of weighting and pricing input units (personnel factors) at the building level. Categorical expenditures and those services acquired through categorical funds are eliminated from the computation to insure comparability among sample districts.

Having programmatic inputs and cost per student as the indicators of educational programmatic equity, the author surveyed (via on-site visitations) a representative sample of 24 elementary schools from the twelve Ingham County school districts.

The sample of elementary school buildings has been selected to provide for full representation and optimum comparability across schools and school districts. As can be seen from Tables 1 and 2 following, the Ingham County school districts provide a meaningful grouping in terms of size, geographic structure, community and expenditure levels.

TABLE 1

BASIC SCHOOL DISTRICT DATA
INGHAM COUNTY SCHOOL DISTRICTS
1979-80

District Name	Classifi- cation	S.E.V.	Members	SEV Per Member	OPERATING Alloc.	OPERATING Ex.Voted	OPERATING Total	Debt Retire.	Total Millage
East Lansing	Suburban	216,736,480	4,835	44,826	9.00	30.60	39.60	2.53	42.13
Lansing	Urban	841,821,161	29,260	28,770	9.00	24.78	33.78	6.36	40.14
Dansville	Rural	31,748,648	1,108	28,654	9.00	19.00	28.00	2.05	30.05
Haslett	Suburban	50,713,746	2,097	24,183	9.00	25.90	34.90	7.30	42.20
Holt	Suburban	92,404,875	4,465	20,695	9.00	21.40	30.40	7.50	37.90
Leslie	Rural	38,381,178	1,756	21,857	9.00	18.00	27.00	3.63	30.63
Mason	Rural	96,878,236	3,495	27,719	9.00	18.00	27.00	4.30	31.30
Okemos	Suburban	129,982,965	3,356	38,731	9.00	27.20	36.20	7.00	43.20
Stockbridge	Rural	56,896,476	2,126	26,762	9.00	19.00	28.00	5.25	33.25
Waverly	Suburban	245,770,280	4,072	60,356	9.30	21.50	30.80	2.78	33.58
Webberville	Rural	19,929,806	900	22,144	9.00	20.50	29.50	2.40	31.90
Williamston	Rural	56,857,378	1,823	31,188	9.00	22.00	31.00	----	31.00

SUMMARY BY DISTRICT CLASSIFICATION

		Members	SEV Per Member	Alloc.	Ex.Voted	Total	Total Millage
Urban - Lansing		29,260	28,770	9.00	24.78	32.68	39.04
Suburban	5	3,765	37,758	9.00	25.32	33.72	39.14
Rural	6	1,868	30,848	9.00	19.42	28.21	31.32

TABLE 2

SELECT DATA FOR MICHIGAN'S 530 K-12 SCHOOL DISTRICTS
GROUPED BY MEMBERSHIP
1979-80

Sample Districts	Active Membership Group	Number of Districts	State Equalized Valuation Per State Aid Member	Active Membership	Per Pupil Operating Expenditures	Average Teacher Salary
Lansing	50,000 & over	1	20,842	241,998	1,502.08	17,230
	20,000 to 49,999	9	24,492	268,553	1,535.94	16,510
	10,000 to 19,999	23	34,015	307,751	1,592.31	16,779
	5,000 to 9,999	61	26,446	413,554	1,410.67	15,847
East Lansing, Holt	4,500 to 4,999	9	27,768	42,724	1,475.77	15,776
Waverly	4,000 to 4,999	27	27,664	114,362	1,382.98	15,469
Mason	3,500 to 3,999	24	21,291	88,746	1,291.70	14,822
Okemos	3,000 to 3,499	28	28,838	90,570	1,323.37	14,559
	2,500 to 2,999	32	25,752	88,045	1,212.12	13,750
Haslett, Stockbridge	2,000 to 2,499	63	24,791	140,009	1,251.01	13,794
Leslie, Williamston	1,500 to 1,999	72	25,039	125,592	1,218.81	13,411
Dansville	1,000 to 1,499	66	24,982	83,205	1,198.31	12,631
Webberville	500 to 999	80	31,534	61,940	1,222.04	12,374
	Below 500	35	40,213	11,378	1,336.05	11,847
	Total for State..	530	26,583	2,078,427	1,410.04	15,435

As indicated above, Ingham County is very diverse economically. The twelve districts sampled include the core city of Lansing, five suburban and six rural districts. The districts range in size from 29,260 in Lansing to 900 in Webberville, and in wealth from $60,350 per pupil in Waverly to $20,655 per pupil in Holt.

When grouped by district classification, the urban district, Lansing, has a lower SEV per pupil, high millage and large enrollment. Suburban districts have larger enrollments, higher property valuations and higher millage than rural districts. Rural districts are smaller in size, have lower millage than urban or suburban districts--as a group they levy about eight fewer mills.

From the state data in Table 2, it is noted that per pupil operating expenditures and average teacher salaries decrease by the size of school district.

In order to recognize pupil-teacher ratios as a quantitative measure of programmatic services provided, the sum total of personnel input units for each of the sample schools was divided by the number of students per building to obtain the number of students per personnel input unit.

The cost per input unit for each sample school was computed by dividing the total salary of identified personnel (determined by means of direct review of payroll records) by the number of personnel input units. The cost per input unit divided by the number of students produces

the cost of personnel input units per student. A schedule of input units and salary costs by school building and school district is reported in Table 3.

The number of students per input unit then provides a measure of equity across schools--the fewer students per input unit, the greater share each student receives of the unit or the greater level of educational input per student.

TABLE 3

SCHEDULE OF INPUT UNITS AND SALARY COSTS BY
SCHOOL BUILDINGS AND SCHOOL DISTRICTS
1978-79

LANSING

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Attwood	22.18	22.49	1.19	$ 320,778	$ 14,462.52
Forest View	26.61	19.57	1.21	392,029	14,732.42
Maple Grove	25.69	19.46	1.19	355,180	13,825.63
Pleasant View	26.51	18.55	1.18	372,806	14,062.87
Post Oak	25.10	18.62	1.25	423,362	16,867.02
Wainwright	26.14	18.26	1.21	388.935	14,878.94
Woodcreek	25.25	20.22	1.18	365,847	14,488.99
TOTAL:	177.48			$2,618,937	
MEAN:	25.35	19.60	1.20	374,133.86	14,756.23

WAVERLY

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Colt	20.50	15.31	1.24	$ 289,380.91	$14,116.14
Winans	25.18	14.94	1.15	322,725.00	12,816.72
TOTAL:	45.23			612,105.91	
MEAN:	22.62	15.03	1.20	306,053.00	13,533.18

STOCKBRIDGE

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Smith	23.46	20.50	1.17	319,656.50	13,625.60

HASLETT

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Murphy	23.81	17.64	1.12	317,033.84	13,315.15

MASON

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Cedar	22.53	17.798	1.20	312,255.50	13,859.54
No. Aurelius	19.48	19.91	1.10	252,053.00	12,939.06
TOTAL:	42.01			564,308.50	
MEAN:	21.005	18.78	1.15	282,154.25	13,432.71

LESLIE

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Leslie (Lower El.)	34.75	16.25	1.14	427,443.00	12,300.51

WILLIAMSTON

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Riverview	22.22	16.51	1.13	314,546.00	14,155.98

OKEMOS

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Central	31.92	16.51	1.23	447,814.00	14,029.26
Cornell	21.90	14.79	1.20	301,474.00	13,765.93
TOTAL:	53.82			749,288.00	
MEAN:	26.91	15.81	1.22	374,644.00	13,922.11

WEBBERVILLE

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Elementary	31.45	15.89	1.18	394,891.00	12,556.15

DANSVILLE

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Dansville Elementary	27.39	19.35	1.17	365,126.00	13,330.63

HOLT

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Dimondale	22.19	18.52	1.06	286,445.00	12,908.74
Sycamore	24.64	18.70	1.11	328,337.00	13,325.36
TOTAL:	46.83			614,882.00	
MEAN:	23.415	18.62	1.09	307,441.00	13,130.08

EAST LANSING

School	Input Units	Students Per Input Unit	Average Weight Per FTE Staff	Salaries	Cost Per Input Unit
Donley	19.56	14.26	1.20	290,090.00	14,830.77
Pinecrest	24.68	15.47	1.18	356,823.00	14,457.98
Spartan Vlg.	20.57	13.61	1.19	248,825.00	12,096.49
TOTAL:	64.81			895,738.00	
MEAN:	21.60	14.51	1.19	298,580.00	13,820.98

The data reported in Table 4 show the number of input units per student by district. Districts with the lowest number of students per input unit indicate a preferred program.

TABLE 4

STUDENTS PER INPUT UNIT BY DISTRICT

District	Students Per Input Unit
1. East Lansing	14.51
2. Waverly	15.03
3. Okemos	15.81
4. Webberville	15.89
5. Leslie	16.25
6. Williamston	16.51
7. Haslett	17.64
8. Holt	18.62
9. Mason	18.78
10. Dansville	19.35
11. Lansing	19.60
12. Stockbridge	20.50

The economically advantaged suburban districts of East Lansing, Waverly and Okemos have the most favorable measure of programmatic inputs per student among the twelve districts in Ingham County. The city school district of Lansing ranks eleventh among the twelve districts surveyed.

The cost per input unit is shown for the sample school units in Table 5. Actual salary costs were computed for each

elementary building and divided by the number of input units.

TABLE 5

COST PER INPUT UNIT BY DISTRICT

District	Cost Per Input Units	Students Per Input Unit (Per Table 4)
Lansing	$14,756	19.60
Williamston	$14,156	16.51
Okemos	$13,922	15.81
East Lansing	$13,821	14.51
Stockbridge	$13,626	20.50
Waverly	$13,533	15.03
Mason	$13,433	18.78
Dansville	$13,331	19.35
Haslett	$13,315	17.64
Holt	$13,130	18.62
Webberville	$12,556	15.89
Leslie	$12,301	16.25

A review of Table 5 indicates the cost per input unit
is highest in the Lansing School District. These data when
coupled with the average salary data from Table 7 leads one
to the conclusion that the urban school district, Lansing,
has higher program input costs with less general program
diversity and opportunity. It is also evident that the Holt
School District, with a more favorable student per input unit,
can provide comparable services but at a considerably lower
figure than Lansing where the cost per input unit is $14,756

compared to $13,180 in Holt. The data further reveal that all school districts in Ingham County can provide more programmatic opportunities for their money than Lansing.

Sight comparison of Table 4 and Table 5 would lead one to conclude that educational cost differences do not measure programmatic differences as the highest cost district, Lansing, has almost the lowest measure of program quality. A statistical analysis of these and other variables follows.

In order to ascertain the relationship between cost and programmatic inputs and to give some perspective relative to their significance, data were collected on 13 independent variables for the sample school districts, and correlation coefficients were calculated relating to students per input unit and cost per input unit.

The following variables were used in an effort to examine whether some underlying patterns exist in accounting for observed inter-relations between cost and programmatic inputs.

1. Size of the District - as measured by the official "Fourth Friday" membership count used for computing state aid entitlements.

2. State Equalized Valuation Per Student - represents a calculation made by dividing the taxable value of real estate and personal property (assessed value as finally equalized by the State Tax Commission) in the district by the number of pupils legally enrolled at the close of school on the Fourth Friday following Labor Day of the school year.

3. Total School Operational Millage Rate - includes allocated and extra-voted millage, excludes debt retirement and building and site levies.

4. Type of Community - i.e., central city, suburban, rural.

5. District Average Teacher Salary - a computation compiled by the State (MDE Bulletin 1012) forms each district's Annual School District Financial Report. It represents full time and prorated portions of regular teachers' salaries for teaching services provided to pupils.

6. Basic Operational Expenditures - a cost figure developed by the author by adjusting state expenditure data to reflect the cost of educating regular resident students only.

7. Operational Expenditures - a figure issued by the Michigan Department of Education under which the basic operating expenses of a school are grouped. The figure includes instructional expenses and the various support services. The figure is found in MDE Bulletin 1012.

8. Elementary Program Expenditures - cost figures by district for educating regular elementary school students. The expenditure figure can be found on a district's annual financial report (Form B).

9. Average Per Capita Family Income - total personal income in school district (as per 1980 Census data) divided by number of people residing in district.

10. Socioeconomic Status - an index based upon pupil's responses to a questionnaire designed and administered by the

Michigan Department of Education. The questions concerned
the occupation, income, education of parents, family structure
and stability, possessions, quality of housing, biographical
information, use of spare time and other related factors.

11. Percent of Students Attaining Less Than 75 Percent
of Objectives in the Michigan Educational Assessment Program
(MEAP) Tests – administered annually to every fourth and
seventh grade student in Michigan. The percentages are
State Department of Education figures.

12. Percent of Title I Students – a poverty indicator
identified by U.S. Department of HEW.

While the identification of statistical associations as
"strong" and significant is a matter of judgment, Pearson
correlation coefficient of .5 or higher in absolute value
which were statistically significant at the .1 level or bet-
ter were interpreted as a strong association between the
variables. The significance tests applied in the SPSS sub-
program for Pearson correlation is based upon student's "t"
with N-2 degrees of freedom for the quantity $r\left[\frac{N-2}{1-r^2}\right]^{1/2}$

A finding of substantial correlation ($|r| \geq .5$) and sta-
tistical significance ($\alpha \leq .1$) between cost per input unit and
students per input unit would indicate that cost is a predictor
of programmatic opportunities. A negative number of -.5 or less
would indicate an inverse correlation between two variables.
For example, the higher the cost, the fewer a school's educa-
tional resources. A factor $< .5$ but $> -.5$ indicates relatively
low correlation. Computations for the variables indicated

were computed and placed in the matrix table which follows.

Each combination of variables will be discussed separately.

TABLE 6

CORRELATION MATRIX

Criteria for Significance

$r > .5$
$\alpha < .1$

Variable Labels	Student Mbshp.	SEV PP	Oper. Mill.	Type of Dist.	Avg. Teacher Salary	Basic Oper. Exp. PP	Oper. Exp. PP	Elem. Prog. Exp. PP	Avg. Per Cap. Inc.	Student SES	MEAP Scores	% Title I	Students Per Input Unit	Cost Per Input Unit
Student Membership	1.0													
SEV PP	.0175 (.957)	1.0												
Operating Millage	.2436 (.445)	.4699 (.123)	1.0											
Type of District		-.2907 (.359)	-.4998 (.098)	1.0										
Average Teacher Salary	.7667 (.004)	.3932 (.206)	.6274 (.029)	-.8463 (.001)	1.0									
Basic Oper. Exp. PP	.0335 (.918)	.6076 (.036)	.5788 (.049)		.5061 (.093)	1.0								
Oper. Exp. PP	.5223 (.081)	.6550 (.201)	.8570 (.001)	.4998 (.098)	.8353 (.001)	-.6784 (.015)	1.0							
Elem. Prog. Exp. PP	.1372 (.671)	.4044 (.192)	.7764 (.003)		.5532 (.062)	.8354 (.001)	.7500 (.005)	1.0						
Avg. Per Capita Income	-.0533 (.869)	.6031 (.036)	.1909 (.552)		.2687 (.398)				1.0					
Student SES	.7667 (.004)	.5736 (.051)	.5433 (.068)		-.0646 (.842)					1.0				
MEAP Scores	.5842 (.046)	-.2704 (.395)	.2890 (.362)								1.0			
% Title I	.6371 (.026)	-.1044 (.747)	-.3108 (.325)									1.0		
Students Per Input Unit	.2006 (.532)	-.1905 (.553)	.6133 (.034)	.0546 (.866)	-.2089 (.515)	-.4510 (.141)	-.4448 (.147)	-.7113 (.009)	-.1041 (.747)	-.4977 (.100)	.4713 (.122)	.4316 (.161)	1.0	
Cost Per Input Unit	.6439 (.024)	.3619 (.248)	.5044 (.094)	-.5779 (.049)	.6041 (.037)	.3040 (.337)	.5818 (.047)	.3420 (.276)	.1533 (.634)	.1979 (.538)	.1483 (.646)	.1600 (.619)	.1513 (.630)	1.0

Cost Per Input Unit and Program Equity

The data from Table 6 varify the observable influence of Table 5. A coefficient of .1513 with α = .639 was computed between cost per input unit and student's per input unit indicating that cost is not a predictor of programmatic equity among the 12 school districts in Ingham County. That is, greater spending is not associated with more favorable staffing ratios among the districts surveyed.

The most obvious explanation of this apparent paradox is differences among the districts in staff compensation. Table 7 summarizes average teacher salaries by type of district and size of district.

TABLE 7

AVERAGE TEACHER SALARY BY DISTRICT AND SIZE *
1978-79

District	Type	Average Teacher Salary	Membership	Education And Experience Factor Per Staff Member **
Lansing	Urban	$18,633	29,260	1.215
Waverly	Suburban	$17,488	4,072	1.195
East Lansing	Suburban	$18,312	4,835	1.190
Okemos	Suburban	$17,952	3,356	1.204
Williamston	Rural	$19,298	1,823	1.183
Holt	Suburban	$15,916	4,465	1.085
Haslett	Suburban	$19,705	2,097	1.120
Mason	Rural	$16,622	3,495	1.156
Webberville	Rural	$15,555	900	1.138
Stockbridge	Rural	$15,637	2,126	1.177
Dansville	Rural	$14,530	1,108	1.170
Leslie	Rural	$14,773	1,756	1.145

Summary By Classification

Urban (Lansing)	$18,633	1.215
Suburban	$17,875	1.158
Rural	$16,069	1.162

*State Department of Education Data (MDE Bulletin 1012)

** Dissertation Data, Sample Elementary Schools

As shown, salaries are highest among the larger districts and lowest among the small districts. The medium sized districts (Mason, Haslett, Holt, Waverly, Okemos and East Lansing) fall between the small districts and the large districts (Lansing). Data from Table 6 also reveal a positive correlation of .8463 (α = .001) between the average teachers salary and the type of district (e.g. urban, suburban, rural) and a correlation of .7667 between district size and average teacher salary. These data hold true for average teachers salaries by enrollment size for the entire state (See Table 2 and Appendix E). Moreover, a correlation of .6439 (α = .024) between cost per input unit and size of district and a negative correlation of -.5779 (α = .049) between cost per input unit and type of district makes the difference significant and substantial. Clearly, the size of a district and type of district is a predictor of cost. The larger the membership and the more urban a district, the higher the average salary and the higher the cost per student.

Personnel input units are used in this study as a measure of program equity. The published average teacher salaries should be a general indication of input unit cost differences. As Table 6 indicates, there is a very strong, positive relationship (.6041) between cost per input unit and published average teacher salaries.

There is little correlation, however, between student per input unit and average teacher salary (-.2089) or the other

variables that predict costs, student membership (.2006) and type of district (.0546). There is little correlation between students per input unit and cost per input unit and likewise little correlation between the classification of districts that predict cost and students per input unit. Neither input cost, size nor urbanization statistically predict program equity. Individual analysis of the study sample shows Lansing, the large urban district, the next to lowest measure of program equity among the 12 districts.

Data from Table 7 also reveal that Lansing has the highest average experience and education factor per staff member. While teacher experience and level of teaching are highest in Lansing (two out of every three teachers in Lansing have a MA or more, and more than one-half have taught more than 12 years), it is also a primary cause in the variance in average teachers salaries.

These differences in cost variables enable smaller districts to have more staff for the same amount of money. Thus, they are able to enjoy more favorable staffing ratios then their larger counterparts.

Given the assumptions of this research, the conclusion drawn from the analysis of the preceding data is that equal dollars really cannot provide equal services for the reason that comparable services have different costs across school districts. Lansing, for example, which has the highest cost per pupil in Ingham County also has one of the least favorable

staffing ratios.

Cost and a District's Wealth

On the basis of these findings, can one also assert that high cost districts are also higher wealth districts? The answer is provided in the following table showing cost per input unit and state equalized valuation (SEV) per student by district.

TABLE 8

SEV PER PUPIL AND COST PER INPUT UNIT
BY SCHOOL DISTRICT

District	(1978-79) SEV Per Pupil	Cost Per Input Unit
Waverly	60,356	$13,533.18
East Lansing	44,826	$13,820.98
Okemos	38,732	$13,922.11
Williamston	31,188	$14,155.98
Lansing	28,777	$14,756.23
Dansville	28,654	$13,330.63
Mason	27,719	$13,432.71
Stockbridge	26,762	$13,625.60
Haslett	24,183	$13,313.15
Webberville	22,144	$12,556.15
Leslie	21,857	$12,300.51
Holt	20,699	$13,130.08

Correlation Between Cost Per Input Unit and the School Dis-
trict's SEV pp: .3619

A correlation of .3619 (α = .248) between cost per input unit and SEV per pupil (the district's wealth measure), is not sufficiently close to the criterion for significance to indicate strong and statistically significant relationship. The analysis of the data would thus indicate that a district's wealth as measured by State Equalized Valuation per pupil fails to indicate a district's instructional costs or programmatic opportunities as measured by students per input unit (r = -.1905, α = .553).

The question then becomes: are the higher cost districts taxing themselves at a higher rate in order to provide comparable programs and services than their less costly counterparts? The answer is yes.

Table 9 following compares operational millage to cost per input unit by district.

TABLE 9

OPERATIONAL MILLAGE BY SCHOOL DISTRICT, TYPE,
COST, SALARY AND INPUT UNITS

District	Average Teacher Salary	Operational Millage	Cost Per Input Unit	Type of District	Students Per Input Unit
Leslie	$14,773	27	$12,300.51	Rural	16.25
Mason	$16,622	27	$13,432.71	Rural	18.78
Stockbridge	$15,637	28	$13,625.60	Rural	20.50
Dansville	$14,530	28	$13,330.63	Rural	19.35
Webberville	$15,555	29.5	$12,556.15	Rural	15.89
Holt	$15,916	30.21	$13,130.08	Suburban	18.62
Waverly	$17,488	30.5	$13,533.18	Suburban	15.03
Williamston	$19,298	30.78	$14,155.98	Rural	16.51
Haslett	$19,705	32.04	$13,313.15	Suburban	17.64
Lansing	$18,633	32.68	$14,756.23	Urban	19.60
Okemos	$17,952	36.04	$13,922.11	Suburban	15.81
East Lansing	$18,312	38.80	$13,820.98	Suburban	14.51

Correlation Between Cost Per Input Unit and Operation Millage of a District:

.5044 (α = .094)

The correlation between cost per input unit and millage effort (.5044 per Table 6) clearly reveals that high cost districts are highly dependent upon a high tax effort.

There is also a high correlation between millage and average teacher salaries (.6274 α = .029 per Table 6). In other words, high millage districts are typically your high cost districts, and they are higher cost because of higher salaries.

With the exception of Lansing, there is an inverse relationship between millage levy and student per input unit (-.6133, α = .034, per Table 6). That is to say, the higher the millage, the more favorable the staffing ratios. Clearly, greater spending in Lansing does not result in more programmatic opportunities. The primary cause for this discrepancy is that Lansing ranks highest among the districts in salary as well as teacher experiences and level of education.

This observed dependence of school district revenue upon millage rate, as opposed to a tax base, is easily understood in light of the fact that Michigan's general membership formula guarantees equal revenue for equal millage ratios for "in-formula" districts. Thus, the lower SEV districts receive as much revenue per pupil as the higher SEV districts, if they both levy the same millage rate. It would, in fact, seem reasonable to argue that these lower SEV districts may have an incentive to raise their millages since their revenue would include a greater proportion of state dollars.

These lower SEV districts would thus pay lower "local prices"
for education. However, districts have not taken advantage
of this opportunity. Research by the Rand Corporation regard-
ing the fiscal behavior of school districts in Michigan has
revealed a negligible response to this incentive.[88]

Two reasons might explain this paradoxical situation.
As indicated earlier, the smaller sized districts have lower
staff costs which enable them to provide comparable staffing
ratios while spending less on a per pupil basis. Secondly,
the state aid formula continues to give lower millage dis-
tricts formula increases greater in percentage than the
increase for higher millage districts. A front-loading
mechanism was added to the state aid formula in 1977-78
whereby each successive mill levied by a school district is
worth less than the preceding mill. For example, the 1979-80
formula would provide a district levying 20 mills with an
average of $59.25 for each mill, a district levying 25 mills
would receive an average of $56.00 for each mill, a district
levying 30 mills would receive only $53.83 for each mill, and
a district levying over 30 mills only half of the mills above
thirty are equalized.

The net effect of this type of funding formula is to
put more pressure on high-cost, high-effort districts to
increase taxes in order to meet increasing costs while

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88. S. J. Carroll and R. E. Park, The Search for Equity
in School Finance: Michigan School District Response to a
Guaranteed Tax Base, The Rand Corporation, Santa Monica,
California, 1979.

low-effort, low-cost districts have been able to meet increasing costs through increased state aid.

District's Ability to Pay

Local property tax is the major source of funds for public education. In 1979-80, $2,518,202,000 in local property taxes was paid in support of K-12 public education. School tax dollars are the result of the school tax rate times assessed property valuation (SEV) and are paid out of personal income. Ability to pay is determined by an individual's tax load in relationship to personal or family income. The following will look at the school's tax burden and the homeowner's ability to pay taxes (as measured by average per capita income).

Table 10 represents SEV per student and school operating millage rates together with average per capita income and computed school operating millage rate per $1,000 of average per capita income.

TABLE 10

SEV/PP, SCHOOL/COMMUNITY MILLAGE RATE, AVERAGE PER CAPITA INCOME AND
SCHOOL/COMMUNITY MILLAGE RATE PER $1,000 OF INCOME BY DISTRICT

District	Type of District	SEV/PP	Average Per Capita Income	Total School Millage Rate	School Mill. Rate Per $1,000 of Income	Tot.Comm. Millage Rate	Com.Mill. Rate Per $1,000 of Income
kemos	Suburban	38,732	$4,284	36.04	8.41	65.70	15.33
averly	Suburban	60,371	$3,804	30.50	8.02	60.25	15.83
ast Lansing	Suburban	44,810	$3,491	38.80	11.11	74.90	21.45
olt	Suburban	20,699	$3,389	30.21	8.91	58.32	17.20
aslett	Suburban	25,497	$3,134	32.04	10.22	64.83	20.69
illiamston	Rural	31,211	$2,988	30.78	10.30	69.83	23.37
ason	Rural	27,733	$2,973	27.00	9.08	60.70	20.41
ansing	City	28,777	$2,958	32.68	11.05	69.56*	23.51
ebberville	Rural	22,144	$2,877	29.50	10.25	52.25	18.16
ansville	Rural	28,654	$2,669	28.00	10.49	47.53	17.80
eslie	Rural	21,857	$2,668	27.00	10.12	47.17	17.68
tockbridge	Rural	26,762	$2,364	28.00	11.84	50.55	21.32

* The 1 percent city income tax in Lansing equates to 7 mills.

Several observations are possible from this table. First, there is a substantial correlation between SEV per pupil and family income (.6031, α = .036, per Table 6). The wealthier suburban districts (as determined by SEV) also have substantially higher average per capita incomes (as determined by ability to pay). This association between property wealth and income is easily observable and understandable--families with high incomes can afford higher cost housing. Residential property values are a good surrogate for family income.

Secondly, rural districts (Williamston, Mason, Webberville, Stockbridge, Dansville, Leslie) and Lansing have a substantially lower family per capita income than the suburban districts (Haslett, Holt, East Lansing, Waverly, Okemos). With regard to this variable, the core city district of Lansing is more like rural districts than suburban districts. But the school millage rate and the total community rate is higher in Lansing than in the rural districts indicating that the taxpayers of Lansing have a higher tax burden in relationship to ability to pay than either its rural or suburban counterparts.

This is further borne out in the data relative to school and total community operating millage per $1,000 of income. Table 10 indicates that Lansing and the rural districts are faced with higher tax burdens with regard to ability to pay (as measured by each $1,000 of per capita income) and millage levied. Lansing homeowners have the highest tax burden in relationship to ability to pay (23.51 mills per $1,000 of per capita income).

In each of these observations, the core city of Lansing finds itself in the least desirable of situations. Lansing has one of the highest millage rates and yet one of the lowest per capita incomes by district and one of the highest school millage rates per $1,000 of income. Although Lansing's SEV per pupil is slightly above average, the economic ability of its citizens to levy sufficient millage to meet costs is not supported by the data.

District's Need Variables

Variables which describe the community in terms of potential educational needs were identified and used in an analysis of educational expenditures and program levels.

The three variables listed below were chosen to identify communities likely to need extra services from their schools--services which add to the cost of education.

1. Percentage of Title I Students - as identified by U.S. Department of HEW.

2. MEAP Scores - percentage of students in a district obtaining less than 75 percent of reading objectives on the Michigan Educational Assessment Program (MEAP) tests.

3. Student Socioeconomic Status - as noted earlier, this SES index was constructed upon pupils' responses to a multiple choice questionnaire designed and administered by the Michigan Department of Education as part of its 1970-71 assessment battery. The questions concerned parents' education and employment, family income and consumption, family structure, use of spare time and other related factors.

TABLE 11

PERCENTAGE OF TITLE I STUDENTS BY DISTRICT

District	Percent of Title I Students
Okemos	1%
Williamston	7%
Holt	7%
Mason	8%
Haslett	8%
East Lansing	8%
Webberville	9%
Stockbridge	10%
Waverly	11%
Leslie	12%
Dansville	15%
Lansing	20%

TABLE 12

PERCENTAGE OF STUDENTS OBTAINING LESS THAN 75% OF READING
OBJECTIVES ON THE MICHIGAN EDUCATIONAL ASSESSMENT
PROGRAM (MEAP) TEST, 1978

District	Students Obtaining Less Than 75% of Reading Objectives in MEAP
Okemos	16%
Mason	18%
Haslett	18%
East Lansing	20%
Dansville	26%
Waverly	28%
Leslie	30%
Williamston	30%
Holt	33%
Webberville	35%
Stockbridge	36%
Lansing	46%

TABLE 13

STUDENT SOCIOECONOMIC STATUS BY DISTRICT

District	Student Socioeconomic Status
Lansing	49
Holt	50
Webberville	50
Dansville	50
Haslett	51
Leslie	52
Stockbridge	52
Mason	52
Waverly	53
Williamston	54
Okemos	54
East Lansing	55

Index scores, based upon the weighted pupil responses, ranged from a low of 40 to a high of 64 on a scale of 0 to 100. The distribution of district scores is as follows:

District Type:	City	Suburb	Town & Rural	All
Mean:	49.9	51.6	50.7	50.1
Standard Deviation:	3.5	2.0	4.4	2.7

The definitions of the three community types are as follows:

City - a community with a population of over 10,000 serving
         as an economic focal point for its surroundings;
Suburb - a community of any population size that has a city
         as its economic focal point;
Town and Rural - a community of fewer than 10,000 population
         which serves as its own economic focal point.

High values with regard to these variables would indicate a community likely to have high need for and high expectations from education.

To summarize, Tables 11, 12 and 13 reveal that the community of Lansing has the highest values on all three community need variables (a low score is considered high need with regard to the variable relating to student socioeconomic status). Lansing has the highest percentage of Title I students, the highest percentage of low achievers (compensatory education students) and the lowest socioeconomic rate. The data indicate no substantial differences between suburban and rural districts with respect to the three need variables.

Thus, Lansing is clearly differentiated from the other districts in the sample in terms of its measures of educational need. Importantly, Lansing also ranks last among the sample districts in fiscal capacity to provide educational services, as measured by average teacher salary and average per capita income.

This inverse relationship between district educational need and average teacher salary may be attributable to a number of factors. For example, high level of educational need may be associated with higher salaries because such salary levels are required to induce teachers to work in lower socioeconomic level schools. Higher salaries may also be required because teachers must either live in the city and endure the disamenities of urban life (congestion, pollution, crime, etc.) or else incur significant community expenses.

A high percentage of Title I or compensatory education students might mean higher teacher salaries to get and hold teachers willing to work with students with special learning problems and often discipline problems.

Comparison of Published Per Capita Cost Data

Pertinent to the central issue of cost differentials for equivalent educational services is how state computed current cost data reflect program and input cost differences and whether these data represent realistic programmatic differences across the districts.

To address cost differentials across school districts, the Michigan Department of Education Bulletin 1012 presents per capita cost data for all school districts. Each school district submits to the State Department of Education an annual school district financial report (Form B). In computing the per capita costs, however, categorical expenditures are included as well as the costs for operating area-wide programs such as in special education and vocational education. Also, expenditures from operating quasi-municipal services such as the library or museums are included in a district's total expenditures. Such expenditures serve specifically identified students and include non-resident students and community adults.

In those districts with a high percentage of categorical funding, per capita costs tend to be skewed. This is because special funds designated for specific purposes are

added to the total costs and when those costs are divided by the district's resident student membership, per capita costs for all students are overstated. If handicapped students were distributed equally across school districts the costs would not present a comparative problem, but such is not the case. Districts with a disproportionately high percentage of low income families have a greater incidence of handicapped students and city districts generally serve as the area center for most physically handicapped students in their intermediate area.

Because state published cost data are not comparable across districts, the author developed a procedure for computing reasonably accurate basic educational operational expenditures for the sample districts. This adjusted expenditure data which represent the cost of educating regular resident students could then be compared to the Department of Education Bulletin 1012 data. Both sets of per student cost data could then be compared to determine their correlation and determine how well they represented programmatic differences across districts.

Basic operating expenditures were calculated from Bulletin 1012 which is issued by the Michigan Department of Education and from the individual district "June Final Report." Formula state aid received was subtracted from total state appropriations to the district to arrive at a figure for direct state categoricals. Then intermediate district and federal categorical monies, gifts and bequests dollars, and county

special education allotments were added to arrive at total categorical revenues. Total categorical revenues were then subtracted from total operating expenditures to arrive at basic operating expenditures. This procedure assumes that categorical expenditures equal categorical revenues. A more detailed presentation of the computation of basic operational expenditures is found in Chapter 3 of this study.

Table 14 shows the average per capita costs for the sample school districts as published in Bulletin 1012, the basic operational expenditures as computed in this study and average teachers salaries also from MDE Bulletin 1012.

TABLE 14

A COMPARISON OF OPERATING EXPENDITURES BY DISTRICT

District	Operating Expenditures Per Pupil (Bulletin 1012)		Basic Operating Expenditures Per Pupil		Categorical Expenditures
East Lansing	(1)	$1949.36	(1)	$1508.27	$441.09
Lansing	(2)	$1838.77	(7)	$1305.37	$533.40
Waverly	(3)	$1762.64	(2)	$1485.68	$276.96
Okemos	(4)	$1666.88	(6)	$1311.01	$355.87
Haslett	(5)	$1564.36	(8)	$1256.19	$308.17
Williamston	(6)	$1532.80	(3)	$1473.18	$ 59.62
Webberville	(7)	$1502.38	(4)	$1389.33	$113.05
Holt	(8)	$1486.35	(5)	$1362.50	$123.85
Stockbridge	(9)	$1394.87	(11)	$1189.25	$205.62
Dansville	(10)	$1392.52	(10)	$1192.31	$200.21
Leslie	(11)	$1380.26	(12)	$1168.97	$211.29
Mason	(12)	$1359.58	(9)	$1245.75	$113.83
MEAN		$1569.23		$1323.98	$245.24
RANGE		$ 589.78		$ 345.77	

The basic operating costs computed for Lansing ($1305.37)
represent a decrease of $533.40 from its reported operating
expenditures (per MDE Bulletin 1012). When this comparison
is made to all districts in Ingham County, the magnitude
of the difference between state published data is not nearly
as great--the average for all districts being $245.24--
Williamston shows the smallest difference of $59.62. While
the Lansing School District ranks second in the county in
terms of the Department of Education's presentation of per
capita costs, its rank drops to seventh when costs are ad-
justed to more accurately represent basic education pro-
gram expenditures.

Average salaries, by observation, correlate with per
capita cost of education and are the significant factor in
determining per capita cost. Although this is well known
and an obvious fact, school statistical reports do not index
per capita cost with average salary data.

It should be emphasized that even the basic operating
costs do not give a true comparison of programmatic equity
in terms of dollars. In Ingham County, for example, there
is a county vocational education millage for all constituent
districts with the exception of the Lansing Public Schools.
The Ingham County Intermediate District operates a skill
center for all students outside of Lansing. The cost of
vocational education for those students attending the skill
center never appears as an expenditure in their respective
school districts even though the full memberships of such
students remain with the constituent districts. Lansing
operates its own vocational education program with its own

resources, and the full cost appears in their cost data. The net effect is a lower average cost per student among the Ingham County school districts using the skill center as compared to Lansing.

Also, it should be noted that such complexities are not dissimilar to problems encountered by urban cities in other counties in computing and comparing operating costs for districts.

In order to ascertain which of the two cost statistics is a better predictor of elementary program expenditures, the figures were correlated with the district's elementary program expenditure per student as indicated on the school's annual financial report (Form B). The classification "elementary program expenditure" is the cleanest statistic of instructional educational cost currently available as it is devoid of categorical expenditures and district overhead. Correlation coefficients were computed and are presented below in Table 15.

TABLE 15

CORRELATION COEFFICIENTS FOR SELECT PER STUDENT COST DATA

	Elementary Program Expenditure Per Student
Operating Expenditure Per Student (MDE Bulletin 1012)	$.7509, \alpha = .005$
Basic Expenditure Per Student (As Modified)	$.8354, \alpha = .001$

As one would expect, there exists a strong and signifi-

cant positive relationship between Elementary Basic Program Expenditures and both alternative per pupil expenditure measures. That is, both the Department of Education Bulletin 1012 computation of operating expenditures and the author's modified figure are accurate indicators of a district's instructional costs. The author's formula, however, is more strongly related to instructional costs.

A comparison of the relative strengths of those relationships can be made with the use of the respective r^2 values. The r^2 statistic is a measure of the proportion of variance in one variable "explained" by the other. Thus, the author's measure explains about 69 percent ($r = .8354$, $r^2 = .6895$) of the variation in per student program expenditures while the MDE measure explains about 56 percent ($r = .75$, $r^2 = .5625$) of this variation.

In summary, educational expenditures reported by the state represent the total expenditures of the school district and per pupil expenditure represent total expenditures divided by resident pupils. They include categorically funded programs within the general divisions. But students receiving categorical funds are not evenly distributed across all districts. Districts with concentrations of handicapped and disadvantaged students receive federal and state categorical resources to support special and individual services to such children, and when these expenditures are averaged over all students in the district, comparative data are unreliable.

Research efforts in the past have used gross cost data without trying to isolate "basic education" costs. The conclusions drawn using gross cost data, therefore, become suspect. The author's adjusted formula tends to more accurately represent basic programmatic costs as identified by every school district on their annual financial report and is not difficult to compute.

Summary of Findings

In this study, the author sets out to analyze programmatic equity in terms of instructional support personnel among the select buildings and districts of Ingham County and the difference among school districts in the prices of educational services (isolating on instructional staff) among these same school districts.

Equity was measured in terms of inputs--providing personnel and cost inputs--to determine whether services or resources are distributed "equitably."

In summary, equal dollars cannot buy equal services when the same services have different costs across school districts. The data reveal, for instance, that while the Lansing School District has the highest input cost per pupil, it also has one of the least favorable programmatic input measures per student (e.g. staff programs) of the 12 districts surveyed. The most obvious explanation for the relationship between dollars and programmatic inputs is staff compensation. Lansing ranks the highest in average teacher salaries among

the 12 sample districts.

The author also concludes from further analysis of the data that disparities exist in the cost of education and the resultant tax effort. The high cost districts also levy the highest millage rates. Those districts with lower staff costs are able to provide comparable staffing ratios while levying less millage.

Virtually all studies which seek to answer whether a system of school finance is an equitable one select local district wealth, and generally property wealth, as the discriminatory criterion of interest. That is, the studies ask "are educational resources (e.g. revenues, staff, programs) distributed among the local districts according to local property wealth?" The equity principle in such studies is one of "equal opportunity" equity which is perhaps best stated in the following negative form: differences in the treatment of pupils should not stem from differences among pupils which are discriminatory such as property wealth.

This principle provides the basis upon which the state's general membership aid formula is constructed. The formula uses a district's SEV per student to determine state aid reimbursement. The "equal treatment of equals," that is, equal dollars for equal efforts, fails, however, to acknowledge equity in terms of ability to pay, cost differentials and educational needs.

With regard to ability to pay, this study reveals that equity criterion is not met. While per capita income figures

(as a measure of ability to pay) for the rural districts
is slightly lower than Lansing. The rural districts also
levy significantly lower millages, indicating that the tax-
payers of Lansing are making a relatively greater tax effort
in relationship to their income.

The data also reveal that the community variables charac-
terizing the level of education need were highest in Lansing.
Higher basic educational needs also suggest higher costs.

Cost is the key determinant relative to how much a dis-
trict must pay in order to provide comparable programs, staff
and services. If equity is to be achieved, districts facing
excessive costs over which they have little or no control
must receive help from the state in meeting those costs so
that an equitable proportion of funds will be available in
each district to meet the proper needs of its students.

The recommendations of this study which follow recog-
nize and address that need. The author will set forth in
the final chapter recommendations as to how a state system
of financing can be implemented that achieves both "equal
opportunity" equity and next the equity principle addressed
to in this study (i.e. the appropriate unequal treatment of
unequals).

CHAPTER V
SUMMARY OBSERVATIONS AND RECOMMENDATIONS

Summary Observations

Defining and measuring equity in state school finance structures is long overdue. Local, state and federal officials are searching for clear definitions of the many different equity goals in school finance.

Equity in school finance, particularly the term "equalization," is used loosely in policy discussions. "Equity" and "equalization," however, cover many diverse, and at times conflicting, goals of a school finance policy. There is need for a coherent explanation of what is implied by equity in school finance in order that the discussion of various alternative policies can be properly analyzed.

Such a framework should be organized around possible answers to three questions that constitute the framework for this dissertation. The first answers the question: Equity for whom? The two groups of primary interest are children who attend the schools and taxpayers who pay for the schools. The second question is equity of what? For children that could mean equity in terms of cost differentials or equity in terms of programmatic opportunities whereby differences in needs among children are recognized. For taxpayers, it could mean fair property taxes according to ability to pay. For either taxpayers or children, the answer to the third question "what is to be fair?" is pivotal to conclusions that can be drawn about the equity of the system.

The problem addressed in this research was to demonstrate
the relationship of cost input differences with programmatic
differences and correlate these differences with other recog-
nized variables of educational equity. The author developed
and applied a formula for measuring programmatic equity and
correlated these measures with educational cost data and
other measures indicative of program need and other variables
generally applied in school finance.

The first stated purpose of this study was to answer the
question of whether dollar expenditure equity equates to pro-
grammatic educational opportunity for children. The analysis
of the data reveals cost differences do not equate to student
program differences. As it turns out, city and suburban dis-
tricts tend to have the highest millage rates, the highest
cost per input unit, but do not necessarily have the most
favorable staffing ratios. Rather, as in the case of the
Lansing School District, their staffing ratios are less
favorable than those of the smaller districts. This is
true despite the fact that small districts spend considera-
bly less per pupil.

But what is the reason for such an apparent paradox?
This study has shown that the major variable is salaries and
that staff compensation to a great extent is outside the con-
trol of local school boards.

While Michigan's state aid membership formula is clear-
ly "wealth-neutral" in terms of equal yield for equal effort,
equity has not been achieved with regard to the substantial

variation which exists across school districts relative to distribution of general revenues, basic instructional expenditures and regularly funded instructional staff.

Failure to make adjustments in the general membership aid formula will force high-cost, high-levy districts to reduce programs to children as needed high taxes continue to be rejected by taxpayers. Today this situation is primarily found in urban and metropolitan suburban districts where the difficulty of meeting higher costs with higher taxes is deepening and spreading. Salary costs will be determined by the regional market place or district size while per student costs must be controlled by the local board, even at the expense of educational equity.

The second purpose of this research was to determine how current state cost data reflect differences in the cost of personnel input units across school districts. Educational expenditures reported by the state represent the total expenditures of the school district, and per pupil expenditures represent total expenditures divided by resident pupils. They include categorically funded programs within the general divisions. But students receiving categorical funds are not evenly distributed across all districts. Districts with concentrations of handicapped and disadvantaged students receive federal and state categorical resources to support special and individual services to such children, and when these expenditures are averaged over all students in the district, comparative data are unreliable.

The author's adjusted formula tends to more accurately repre-
sent basic programmatic costs as identified by every school
district on their annual financial report, and further, is
not difficult to compute.

The third purpose of this study was to determine the
correlation of recognized school district and community
variables with the computed cost of programmatic variables
for the sample districts.

The data presented in Chapter IV indicates that poverty
indicators such as a district's socioeconomic status, aver-
age per capita income and the percentage of Title I stu-
dents are much higher in an urban city such as Lansing
than in the suburban areas of East Lansing and Okemos.

As a result of the almost exclusive reliance of schools
on the property tax for local revenue, property value is an
important indicator of fiscal capacity. However, the cen-
tral cities, such as Lansing, are now experiencing trends
that are depriving them of that base. These trends are
the movement of industry and commerce to the suburbs and
the decline of property value in cities while other areas
Property values are increasing at the rate of or in excess
of the rate of inflation.

This is supported by the effect the Headlee Tax Limita-
tion Amendment has played on school districts during the
1979-80 school year. In those districts where equalized
property values grew faster than the rate of inflation, mil-
lages had to be rolled back to bring revenues into compliance

with the Headlee Amendment. In 1979-80, about two-thirds of the state's 530 districts faced millage rollbacks. For the most post, however, these millage rollbacks did not occur in urban areas of the state where tax bases are already shrinking because of declining property value and the lack of new construction.

While the causes of the movement of industry and commerce to the suburbs are complex, it is sufficient to note their effect on per capita wealth. Of special significance is the situation where the income base has fallen faster than property valuations. What this means is that the apparent wealth of cities as reflected in property valuation and state aid criteria is relative greater than the ability to pay from current income. Consequently, SEV is not an accurate indicator of the ability to levy or pay high millage rates necessitated by high costs.

The state aid formula needs to be designed to take tax burden and ability to pay into account. While current income is not the sole determinant of ability to pay, it needs to be heavily considered along with valuation.

RECOMMENDATIONS

Clearly high tax effort and high cost per input units do not necessarily insure favorable staffing ratios in Michigan school districts. On the contrary, high-tax and high-cost

districts may find themselves with below-average programmatic opportunities. The question then is what would be an appropriate policy approach?

The problem as this author sees it is not one of unequal school district expenditures per se as one of unequal cost of educational services. The existing disparities in the cost of school staff across school districts show that the current policy of equalizing dollars by tax effort may not be advisable in and of itself. Such a policy, without equalizing staff compensation as well, only exacerbates existing inequities. What should be considered is a policy which would recognize cost differentials.

Based on the data for the twelve districts in Ingham County, this author would recommend that an educational cost index be built into the state aid formula which recognizes salary differences. Cost differences have been considered for many years in state reimbursement of transportation and for the last four years in state added cost funding of special education. But there has never been in any state school aid provision, recognition and compensation for the fact that some school districts must pay considerably more than others to provide a basic education program.

It is often contended that local instructional cost differences start from the "local control" tradition and are, therefore, not the state's responsibility. After all, salaries are determined by local collective bargaining and local districts make their own determination of the experience

and training qualifications they want when vacancies are filled.

However, to an ever-increasing extent, these contentions are no longer valid. Declining enrollment experienced by the vast majority of Michigan schools has given many districts no choice but to retain a teaching staff composed almost totally of persons at the top of the salary schedule and the result of the collective bargaining process practically forces conformity to regional levels of expectations.

The problems of how to finance education and of how to reward for cost differences without increasing cost disparities must be addressed. The author has presented analyses of cost differences and has shown that cost differences do not bear a direct relationship to student program differences. It has been shown that the major cost variables are salaries and that those are to a great extent outside of the control of local boards.

The present state aid power equalizing formula is predicted on equal resources for equal effort. Yet from its inception it has rewarded minimal effort and lack of effort. Adjustments must be made and the author offers the following recommendations.

RECOMMENDATION 1

Consideration should be given for equalizing all the mills over 30.

As the data presented in Chapter V reveal, high expendi-

ture districts are not necessarily those districts with the more favorable staffing ratios. Rather, it turns out that, in general, large districts have relatively high millage rates and per pupil expenditures but relatively unfavorable staffing ratios. Smaller districts, on the other hand, enjoy relatively favorable staffing ratios while levying relatively low millage and spending considerably fewer dollars per pupil than their larger counterparts. The principal reason was found to be differences among the districts in staff compensation.

In response to this paradox, two modifications in state school aid are recommended by the author. The first is the equalization of all mills above 30 levied by a school district for school operations, as opposed to the equalization of only one-half the mills over 30 as currently provided for by the general membership formula.

By equalizing only one-half of district's operating millage in excess of 30, for those 88 districts in Michigan which were in-formula and levied over 30 mills in 1978-79, their school revenues varied according to property wealth. This aspect of the aid formula is not compatable with the equal-yield concept that equal district millage rates should yield equal dollars for school operations.

An example of this inequity is provided in the following table, which applies the current general membership formula to 1979-80 financial data for two Michigan school districts:

TABLE 16

CURRENT SCHOOL AID INEQUITY

District	SEV PP	Operating Millage	Local Revenue PP	General State Aid PP	Total General Revenue PP
Flint	$32,948	39.82	$1,312	$676	$1,988
East Lansing	$50,336	39.60	$1,993	$ 70	$2,063

Thus, while Flint levied a slightly higher millage than East Lansing for school operations in 1979-80, they generated about $75 less per pupil than their wealthier counterpart under the present formula.

The proposed change would break the relationship between district SEV and district revenue by assuring equal per pupil revenues for equal tax effort. In so doing, the proposal would provide increased state aid to virtually all district levying over 30 mills for school operations. These are generally urban school districts, which typically need to offer higher salaries in order to attract staff. (Salaries in these districts are, in fact, about $3,500 higher, on the average, than salaries in districts levying 30 mills or less. (See Appendix G).

In summary, these high-millage districts must pay relatively high salaries in order to compete for staff in urban markets, while their millage rates are about 25 percent higher than the statewide average. The equalization of all mills over 30 could assist these districts in limiting future millage increases and improving their staffing

so as to be more in line with their substantial tax effort.
Past reluctance to equalize all mills over 30 was due pri-
marily to a belief that this policy would encourage dis-
tricts to raise millages substantially. Research by the
Rand Corporation, however, has revealed little response by
Michigan school districts to this incentive.

Thus, the proposal to equalize all operating mills
would:

1. increase the wealth neutrality of revenue distri-
    bution among school districts in Michigan.
2. provide additional state aid to districts which
    face staff compensation costs and levy high mil-
    lages for school operations.

RECOMMENDATION 2

It is recommended that an educational cost index based
on present teacher salary differences be incorporated into
the formula.

As noted earlier, the cost of inputs to education are
not substantially controllable at the local level--shortage
of resources means less programs rather than lower input
unit costs of education. Education is a labor (professional)
intensive industry in which 80 to 85 percent of costs are
salaries. When resources are scarce, average per input
unit costs of education actually go up as lower-salaried
staff are released first. Output unit costs go down by

spreading the input cost (teachers) over a greater number
of output units (children) or by reducing the quantity of
output units (reduced school day). In either case, it means
fewer services for children.

In spite of an accelerated equalization of state fund-
ing since 1965, relative salary differences between markets
have remained the same. The result has been that high-cost
districts in high-cost markets have remained high cost.
Thus, high-cost, high-effort districts have had to steadily
increase their effort or reduce their programs while low-cost,
low-effort districts have been able to maintain programs at
relatively low effort.

Input salary costs are not fully controllable because
of a state mandatory negotiations act (Public Employee Rela-
tion Act--PERA) and because of a fully institutionalized
teacher salary structure that rewards training level and
experience. Further, negotiating teams establish markets
to support their positions and arbitrators establish markets
to justify their recommendations; these markets reflect both
geographic and size relationships.

The present research also showed that teacher experience
and level of training is a cause of the variance in average
teacher salaries. Lansing, for example, ranked highest in
Ingham County in staff experience and education and also had
the highest average teachers salary of the sample schools.

It is recommended that salary differences be based on
the average market of local district salary schedules at the

BA and MA levels and the actual distribution of teachers within the schedule. Market determinants include either geographical location or district size.

The one serious and inescapable problem with a weighted index approach is that it is extremely expensive. For the past three years, Senator Jack Faxon of Detroit has sponsored a proposal similar in concept to the one described above.

Senator Faxon's approach would consider experience and training qualifications of teachers as a factor in determining the state-local per pupil guarantee of "gross allowance" of the basic membership formula. A teacher with less than a BA degree and less than one year of experience would be assigned a factor of .60, a teacher with a PhD and 11 or more years of experience would be assigned a factor of 1.95, and all others would have factors somewhere in between. The average for each school district would be determined and would then be multiplied by the district's gross allowance for purposes of computing state formula aid.

Under the Faxon proposal, the average district would have a "grid factor" of 1.12 which means that added funding would go to nearly all school districts. Had it been implemented for 1978-79, this proposal would have cost approximately $700 million.

Speaker of the House Bobby D. Crim in his 1980-81 State-of-the-State address recommended a somewhat similar but considerably less costly proposal. Speaker Crim recom-

mended a "cost-of-doing-business" categorical be considered based upon the average teachers salary and that only districts with above-average costs be funded.

The Speaker's proposal as described by Gene Caesar of the House Democratic Education Office[89] would appropriate $30 million to be allocated to school districts where instructional costs exceed the state average. The computation is based upon basic program costs only, using prior year data, and cannot exceed 25 percent of the amount that a district would receive under the basic formula, if its gross allowance was increased by the same percentage that its instructional costs exceed the statewide average.

If in 1978-79, all districts where average teachers salaries exceeded the statewide average, had been given gross allowance increases in direct proportion to their percentage of excess, the total cost would have been approximately $111 million. Thus a $30 million cap would provide about a 25 percent proration. Accordingly, if a factor derived from a high average teacher salary in a district is applied to the entire gross allowance, no more than 25 percent of the resulting entitlement would be funded.

A combination of the four recommendations cited above would achieve increases in state aid for all districts facing above-average staff compensation costs and would increase wealth neutrality in the distribution of revenue among districts. The four proposals, therefore, are complementary,

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89. Gene Caesar, "A Proposal for a Cost-of-Doing-Business State Aid Categorical," mimeo, Lansing, Michigan, 1979 at 1.

rather than mutually exclusive.

RECOMMENDATION 3

It is recommended that an effort ability factor be added to the state school aid formula.

A measure of ability built into the distribution formula would generate greater equity. It should relate the per capita tax levy to per capita income in dollars. The problem inherent in ability-to-pay measures is the unavailability of current data on income by school district. This problem is not insurmountable if real desire to use such a measure exists because income by school district can be obtained from the Michigan individual state income tax returns.

Adjustment factors in developing such a formula could include the following:

1. State Equalized Valuation.

2. District and state total property tax rates.

3. Local income tax rates adjusted to property tax rates.

4. Average family income by school district.

5. State municipal revenue sharing adjustment.

An effort-ability formula could be devised and used as a possible substitute for the present municipal overburden section of the state aid act. (The municipal overburden section of the state aid act provides for an increase in the formula gross allowance for school districts which have

unusually high non-school property taxes.) Such a formula should consider all the aforementioned factors and provisions which offset tax equity in Michigan. As essentially all education taxes would be equalized under present law and the four proceding recommendations, the effort-ability formula could apply only to non-educational local variables.

Since all school taxes eventually are paid from income, the local contribution could be determined on the basis of average income in addition to property value. The millage required for the local share of the formula guarantee could be weighted on the basis of the per capita income in the community. A composite index of income and property valuation could permit high-cost, high-need, low-income districts to improve their programs, thus narrowing present variations in education opportunity.

Implications for Further Research

1. Equalization and equity in school finance have different meanings for different people. These two objectives are quite different, and it is not clear how policies and research implemented to produce our objective effect the other.

2. There is a need for a framework which can provide order to and understanding of the various policy objectives and equity goals in school finance. Who are the different groups for which school finance systems should be equitable? What should be distributed fairly for the

different groups? And, what are different principles for assessing whether the distribution is equitable?

3. Finally, there needs to be better understanding and consensus on what statistical tools can be used in obtaining an acceptable standard of programmatic equity. Further research such as undertaken in this study relative to how input variables affect equity and quality of education needs to be considered. This author has sought to analyze the effect of personnel and cost inputs or programmatic opportunity to children. Up to now, per student cost output differences have been the basis for interpreting program or education equity disparities. Greater research in terms of input variations in cost and educational opportunity among districts needs to be undertaken. A fact that is often lost sight of in student cost output research is personnel input costs as the standard for the instructional program in terms of pupil/teacher ratios. All other variables are relatively insignificant comparied to the salary costs of education and the student units over which they are spread. It it recommended that a major statewide study be conducted based upon the procedures used in this study.

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APPENDIX A

SURVEY INSTRUMENT

QUESTIONNAIRE

An Analysis of the Cost for Providing a Comparable
Measure of Equity in Select Elementary Buildings in Ingham County

Building: _____

School District: _____

Classroom Teachers	Experience (in yrs)	Level of Training (in quarter hrs)	Proportion of time assigned to bldg	% Salary charged to General Fund	Salary (prorated to proportion of time in building)	Weight
(1)						
(2)						
(3)						
(4)						
(5)						147
(6)						
(7)						
(8)						
(9)						
(10)						
(11)						
(12)						
(13)						
(14)						

Classroom Teachers	Experience (in yrs)	Level of Training (in quarter hrs)	Proportion of time assigned to bldg	%Salary charged to General Fund	Salary (prorated) to proportion of time in building)	Weight
(15)						
(16)						
(17)						
(18)						
(19)						
(20)						

SUBTOTAL: _____

AUXILIARY STAFF	Number	Proportion of time assigned to bldg	Salary	Weight
Counselor(s)				
Art				
Music				
Physical Ed				
Librarian (certified)				
Aides				
Other				

Subtotal: _____

BUILDING ADMINISTRATION	Number	Proportion of time assigned to bldg	Salary	Weight
Principal				
Assistant Principal				

SUBTOTAL: _____

Total Personnel Input Units: _____

Total Salary of
Identified Personnel   : _____

Number of students in
regular membership   : _____

Cost per input unit   : _____

Students per input unit   : _____

Cost of personnel input units
per student   : _____

APPENDIX B

SELECT SCHOOL DISTRICT DATA

Appendix B-1

SELECTED DATA FOR MICHIGAN'S 530 K-12 SCHOOL
DISTRICTS, GROUPED BY MEMBERSHIP, FOR 1976-77

Sample Districts	Active Membership Group	Number of Districts	State Equalized Valuation Per State Aid Member	Active Membership	Per Pupil Operating Expenditures	Average Teacher Salary
Lansing	50,000 and over.....	1	20,842	241,998	1,502.08	17,28
	20,000 to 49,999....	9	24,492	268,553	1,535.94	16,51
	10,000 to 19,999....	23	34,015	307,751	1,592.31	16,77
	5,000 to 9,999.....	61	26,446	413,554	1,410.67	15,84
East Lansing, Holt	4,500 to 4,999.....	9	27,768	42,724	1,475.77	15,77
Waverly	4,000 to 4,999.....	27	27,664	114,362	1,382.98	15,-6
Mason	3,500 to 3,999.....	24	21,291	88,746	1,291.70	14,82
Okemos	3,000 to 3,499.....	28	28,838	90,570	1,323.37	14,55
	2,500 to 2,999.....	32	25,752	88,045	1,212.12	13,75
Haslett* Stockbridge	2,000 to 2,499.....	63	24,791	140,009	1,251.01	13,79
Leslie, Williamston	1,500 to 1,999.....	72	25,039	125,592	1,218.81	13,41
Dansville	1,000 to 1,499.....	66	24,982	83,205	1,198.31	12,63
Webberville	500 to 999.........	80	31,534	61,940	1,222.04	12,37
	Below 500.........	35	40,213	11,378	1,336.05	11,84
	Total for State.....	530	26,583	2,078,427	1,410.04	15,43

* Haslett is considered suburban for purposes of this study.

city

rural/ suburbs/central

Appendix B-2

1978-79 BASIC SCHOOL DISTRICT DATA

| DISTRICT NAME | 1978-79 S.E.V. | 1978-79 MEMBERS | S.E.V. per MEMBER | OPERATING | | | BUILD+ SITE | DEBT RET. | TOTAL MILLAGE |
				ALLOC.	EX.VOTED	TOTAL			
East Lansing School District	216,736,480	4,835	44,826	9.00	30.60	39.60		2.53	42.13
Lansing Public School Dist	841,821,161	29,260	28,770	9.00	24.78	33.78		6.36	40.14
Dansville Public Schools	31,748,648	1,108	28,654	9.00	19.00	28.00		2.05	30.05
Haslett Public Schools	50,713,746	2,097	24,183	9.00	25.90	34.90		7.30	42.20
Holt Public Schools	92,404,875	4,465	20,695	9.00	21.40	30.40		7.50	37.90
Leslie Public Schools	38,381,178	1,756	21,857	9.00	18.00	27.00		3.63	30.63
Mason Public Schools	96,878,236	3,495	27,719	9.00	18.00	27.00		4.30	31.30
Okemos Public Schools	129,982,965	3,356	38,731	9.00	27.20	36.20		7.00	43.20
Stockbridge Comm Schools	56,896,476	2,126	26,762	9.00	19.00	28.00		5.25	33.25
Waverly Schools	245,770,280	4,072	60,356	9.30	21.50	30.80		2.78	33.58
Webberville Community Schools	19,929,806	900	22,144	9.00	20.50	29.50		2.40	31.90
Williamston Community Schools	56,857,378	1,823	31,188	9.00	22.00	31.00		----	31.00

Appendix B-3

DISTRICT	CURRENT OPERATING EXPENDITURES (Bulletin 1012, 1976-77)	BASIC CURRENT OPERATING EXPENDITURES	DIFFERENCES
East Lansing	$ 1,710	$ 1,472	$ 238
Lansing	1,661	1,301	360
Dansville	1,228	1,062	166
Haslett	1,343	1,235	108
Holt	1,324	1,193	131
Leslie	1,271	1,116	155
Mason	1,188	1,096	92
Okemos	1,541	1,416	125
Stockbridge	1,267	1,106	161
Waverly	1,562	1,255	307
Webberville	1,374	1,262	112
Williamston	1,345	1,218	127
MEAN	$ 1,401	$ 1,228	$ 173

APPENDIX C

INTRODUCTORY LETTER

MICHIGAN STATE UNIVERSITY EAST LANSING · MICHIGAN 48823

COLLEGE OF EDUCATION · ERICKSON HALL   25 March 1979

Dr. Matthew W. Prophet
Administration Building
Lansing School District
519 W. Kalamazoo Street
Lansing, Michigan 48933

Dear Dr. Prophet:

The question of cost and its impact on programmatic equity across
school districts has been a major issue in current discussions of school
finance plans. I am addressing this question in my doctoral dissertation,
entitled "Programmatic Equity and the Cost of Education." I am asking
your cooperation so that I might obtain the information needed to complete
my study.

Dr. Donald Shebuski, Superintendent of Ingham Intermediate Schools, and
Dr. Robert Muth, Assistant to the Dean, College of Education, agree that this
is a major policy issue. Moreover, both are supportive of the study and are
assisting me in the gathering of information.

The major objective of my study is to study cost in relationship to a
comparable measure of programmatic equity. A survey instrument was developed
to weight and unitize personnel factors at the elementary building unit in an
attempt to obtain a comparable measure of programmatic inputs across building
units and districts.

I wish to test my model on a representative sample of elementary schools
in each of the twelve districts in Ingham County. Because of the developmental
nature of the model, and because the type and nature of data to be collected
are not easily attainable, on-site visits will be required (see enclosed
survey instrument). In most instances I would need to meet with your business
manager and the elementary principals of the buildings included in the sample.

I will call on you within the next two to four weeks to explain in
greater detail the purpose and nature of my study. I hope that at that time
an appointment can be arranged for me to meet with your business official and
possibly others from your district if the situation warrants.

Your help will be most appreciated. A summary of the results will be
mailed to you following completion of the study.

Sincerely,

Michael A. Boulus

APPENDIX D

CORRELATION MATRIX

APPENDIX D

CORRELATION MATRIX

Criteria for Significance

$r > .5$
$\alpha < .1$

Each cell shows the correlation coefficient with the significance level in parentheses.

Variable Labels	Student Mbshp.	SEV PP	Oper. Mill.	Type of Dist.	Avg. Teacher Salary	Basic Oper. Exp. PP	Oper. Exp. PP	Elem. Prog. Exp. PP	Avg. Per Cap. Inc.	Student SES	MEAP Scores	% Title I	Students Per Input Unit	Cost Per Input Unit
Student Membership	1.0													
SEV PP	.0175 (.957)	1.0												
Operating Millage	.2436 (.445)	.4699 (.123)	1.0											
Type of District		-.2907 (.359)	-.4998 (.098)	1.0										
Average Teacher Salary	.7667 (.004)	.3932 (.206)	.6274 (.029)	-.8463 (.001)	1.0									
Basic Oper. Exp. PP	.5223 (.081)	.6076 (.036)	.5788 (.049)		.5061 (.093)	1.0	-.6784 (.015)	.8354 (.001)						
Oper. Exp. PP	.1372 (.671)	.6550 (.021)	.8570 (.001)	.4998 (.098)	.8353 (.001)	-.6784 (.015)	1.0	.7500 (.005)	.6784 (.015)					
Elem. Prog. Exp. PP	-.0533 (.869)	.4044 (.201)	.7764 (.003)		.5532 (.062)	.8354 (.001)	.7500 (.005)	1.0						
Avg. Per Capita Income	.3876 (.213)	.6031 (.192)	.1909 (.552)		.2687 (.398)		.6784 (.015)		1.0					
Student SES	.7667 (.004)	.5736 (.051)	.5433 (.068)		-.0646 (.842)					1.0				
MEAP Scores	.5842 (.046)	.2704 (.395)	.2890 (.362)								1.0			
% Title I	.6371 (.026)	-.1044 (.747)	.3108 (.325)									1.0		
Students Per Input Unit	.2006 (.532)	-.1905 (.553)	-.6133 (.034)	.0546 (.866)	-.2089 (.515)	-.4510 (.141)	-.4448 (.147)	-.7113 (.009)	-.1041 (.747)	-.4977 (.100)	.4713 (.122)	.4316 (.161)	1.0	.1513 (.639)
Cost Per Input Unit	.6439 (.024)	.3619 (.248)	.5044 (.094)	-.5779 (.049)	.6041 (.037)	.3040 (.337)	.5818 (.047)	.3420 (.276)	.1533 (.634)	.1979 (.538)	.1483 (.646)	.1600 (.619)	.1513 (.630)	1.0

APPENDIX E

AVERAGE SALARIES BY ENROLLMENT SIZES

Appendix E

AVERAGE SALARIES

(By Enrollment Size)

Number of Students	Number of Districts	BA Minimum	BA Maximum	MA Minimum	MA Maximum
01 – 250	3	11,267	17,696	11,968	19,872
251 – 500	13	10,674	16,622	11,435	17,883
501 – 750	6	10,524	16,461	11,233	18,037
751 – 1000	17	10,746	16,905	11,542	18,383
1001 – 1250	6	10,942	16,963	11,868	18,384
1251 – 1500	12	10,948	16,769	11,839	18,840
1501 – 1750	18	11,106	17,253	12,061	19,207
1751 – 2000	8	11,005	17,684	11,861	19,231
2001 – 2500	20	11,332	18,068	12,146	20,390
2501 – 3000	13	11,503	17,874	11,596	20,319
3001 – 3750	19	11,308	18,059	12,181	20,802
3751 – 5000	11	11,251	19,196	12,184	21,559
5001 – 7500	7	11,441	18,932	12,550	21,887
7501 – 15000	11	11,846	18,896	12,840	22,749
15001 – 100000	6	11,376	19,690	12,268	23,044
Over 100000	0	0	0	0	0

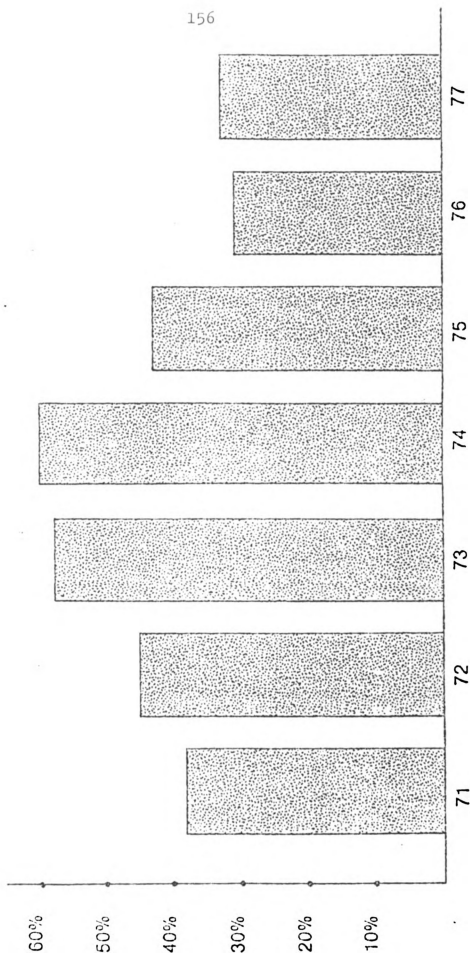Reference: M.A.S.A./M.A.S.B. Contract Settlement Report (August 20, 1979)

APPENDIX F

PERCENT OF SUCCESSFUL SCHOOL MILLAGE ELECTIONS

Appendix F

Percent of Successful
School Millage Elections

(Additional Millage)

| | 71 | 72 | 73 | 74 | 75 | 76 | 77 |

APPENDIX G

STAFF COMPENSATION AND DISTRICT SIZE

Appendix G

STAFF COMPENSATION AND DISTRICT SIZE

Membership	Average Professional Salary	Benefits Per Staff
Over 7,500 N=50	$16,073	$1,867
2,000-7,500 N=221	$14,211	$1,533
Under 2,000 N=259	$12,365	$1,266
State Average (K-12)	$13,491	$1,434

Source: James A. Phelps, Michael F. Addonizio and Thomas S. Nicol, State Aid For Michigan Public Schools: An Analysis of Two Proposals, 1979 (mimeo)

APPENDIX H

COMPARATIVE INCREASES IN TAX EFFORT

Appendix H

COMPARATIVE INCREASES IN TAX EFFORT

Percentile	1974-75	1975-76	1976-77	1977-78	1978-79
90th	31.82	32.76(3.0%)	34.24(4.5%)	35.69(4.2%)	34.62(-3.5%)
85th	30.67	30.74(0.2%)	33.74(9.8%)	34.45(2.1%)	33.94(-1.5%)
80th	30.03	30.43(1.3%)	32.56(6.9%)	33.85(3.9%)	33.37(-1.4%)
70th	28.44	28.99(1.9%)	30.00(3.5%)	31.29(4.3%)	31.74(1.4%)
60th	27.10	27.84(2.7%)	28.57(2.6%)	30.00(5.0%)	30.00(0.0%)
50th	25.22	26.65(5.7%)	27.54(3.3%)	28.48(3.4%)	29.00(1.8%)
40th	24.34	25.00(2.7%)	26.20(4.8%)	27.00(3.1%)	28.44(5.3%)
30th	22.90	24.00(4.8%)	25.00(4.2%)	25.51(2.0%)	27.60(8.2%)
20th	22.51	22.51(0.0%)	22.77(1.2%)	25.50(11.9%)	25.75(1.0%)
15th	22.50	22.51(0.0%)	22.51(0.0%)	25.00(11.1%)	25.00(0.0%)
10th	22.00	22.50(2.3%)	22.51(0.0%)	24.00(6.6%)	24.23(0.0%)

Source: General Statistics for the Public Schools of Michigan

CHAPTER V

SUMMARY OBSERVATIONS AND RECOMMENDATIONS

<u>Summary Observations</u>

Defining and measuring equity in state school finance structures is long overdue. Local, state and federal officials are searching for clear definitions of the many different equity goals in school finance.

Equity in school finance, particularly the term "equalization," is used loosely in policy discussions. "Equity" and "equalization," however, cover many diverse, and at times conflicting, goals of a school finance policy. There is need for a coherent explanation of what is implied by equity in school finance in order that the discussion of various alternative policies can be properly analyzed.

Such a framework should be organized around possible answers to three questions that constitute the framework for this dissertation. The first answers the question: Equity for whom? The two groups of primary interest are children who attend the schools and taxpayers who pay for the schools. The second question is equity of what? For children that could mean equity in terms of cost differentials or equity in terms of programmatic opportunities whereby differences in needs among children are recognized. For taxpayers, it could mean fair property taxes according to ability to pay. For either taxpayers or children, the answer to the third question "what is to be fair?" is pivotal to conclusions that can be drawn about the equity of the system.