AN EXAMINATION OF EQUITY IN CAPITAL OUTLAY FUND-ING IN KANSAS SCHOOL DISTRICTS: CURRENT
METHODS, ALTERNATIVES, AND SIMULATIONS
UNDER THREE SELECTED EQUITY
PRINCIPLES
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## PREFACE

The purpose of the present study was to examine issues of equity in capital outlay funding, to propose several alternatives, and to project and analyze their consequences.

Five alternative methods of funding capital outlay accounts were examined and resource simulations were generated using data for the state of Kansas. The data were statistically evaluated and the results were compared using accepted equity principles. Conclusions were drawn regarding the relative merit of each alternative and recommendations for the use of the study were provided.

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## CHAPTER I

INTRODUCTION

The issue of equity in school finance and school finance reform is not a new issue. Researchers have been wrestling with the problems surfacing in the process of providing the best and most equitable education for the citizens of the individual states within limited resources since early in this century. In recent years, an increased interest in the role of the state in the funding of school facilities has been observed, and a trend toward state involvement can be seen as beginning to develop. By 1980, about three-fourths of the states had adopted a state plan for financing capital outlay for public schools (Cross, 1983). As the role of the federal government, particularly in projects of a capital nature, has historically been relatively insignificant and narrowly defined (Thomas,(1978), it is incumbent upon the states to look to themselves for the appropriate role that each must seek in providing for school facilities while distributing the costs most equitably.

As an added incentive, a history of court cases which involve the funding of capital facilities has been developing as an indicator of the importance of the issue for the future. Such cases have tended to be turned upon the issues of equity and equal opportunity, as defined by constitutional guarantees of equal protection and the specific language of the individual states' education articles. Legal challenges
of state plans for financing education have very often focused upon the use of the property tax as the primary base for generating revenue and nowhere is the use of the property tax more evident than in the funding of capital outlay in school districts.

A review of the various methods of funding capital outlay in the 50 states was conducted by Webb (1972), which revealed a variety of methods of funding capital outlay. Webb grouped her findings into categories of full state funding, approved project cost grants, flat grants, state equalization grants, state loans, and school building authorities. Augenblick (1977) found similar results five years later. McGuffey (1978) identified eight separate plans for funding capital outlay among the states, which Cross (1983) regrouped into three basic clusters of total local support, total state support, and joint state/local support. Kansas was identified by all the studies as being one of a significant number of states which provides no state level support to capital outlay financing. The current investigation indicated that the system of zero-aid in the state of Kansas has continued to the present time. As a large proportion of the literature has indicated a positive relationship between a school district's taxable wealth and its ability to fund capital projects, it was desirable to undertake such a study in the state of Kansas, as no in-depth analysis of capital outlay funding practices currently exist.

It was theorized that a funding scheme which included the introduction of state aid for the purpose of capital outlay programs would have an equalizing effect upon the ability of school districts to finance school facilities, even when any proposed formulation
continued to be based upon traditional fiscal capacity measures of property wealth.

## Statement of the Problem

The problem of the study was to review accepted methods of funding capital outlay accounts; specifically, to review the methods by which it occurs in Kansas, to project simulations of revenues obtainable under proposed alternative models of financing, and to evaluate those options using specific criteria available under accepted conditions and principles of equity. The specific aspects of the problem were:

1. To build the case for inclusion of capital outlay as a valid criterion of equity in school finance.
2. To identify specific criteria for school finance equity standards.
3. To identify specific criteria for school finance capital outlay funding alternatives.
4. To operationalize the specific criteria for capital outlay alternatives.
5. To formulate revenue resource simulations under each alternative scheme evaluated.
6. To evaluate the relative performance of each simulation as it relates to reducing both the disparity among school districts of available revenues and reliance upon the local tax base as the limiting factor in financing school facilities.
7. To offer substantive analysis and conclusions regarding the research and to make recommendations for future studies.

## Importance of the Study

The past decade focused sharply in American society on issues in school finance. Many court cases were filed in the 50 states claiming violations of constitutional rights. The earliest cases tended to seek relief under the Fourteenth Amendment to the United States Constitution.

When the United States Supreme Court issued its landmark ruling in Rodriquez v San Antonio Independent School District (1973) denying relief for claims under the federal constitution, litigation turned to the individual state constitutions (Levin, 1977; Funk, 1980). State courts ruled separately on issues under the specific language of the various state constitutions. Rulings were sought which would establish education as a fundamental right in the various states. If so established, strict judicial scrutiny of finance schemes would consequently be required, with the result that the states would have to show cause for the existence of their formulas. The consequences of unconstitutional rulings of various finance schemes and the threat of numerous lawsuits brought on in the wake of Serrano v Priest (1971) and the subsequent remand in Serrano $v$ Priest (1976) brought about the modification of many funding formulas throughout the nation as states anticipated challenges to their respective finance schemes.

The case of Pauley et al. v Bailey et al. (1984) in West Virginia has been viewed as preliminarily indicative of the developing body for the scope of equity in the future. In particular, the case offered an extensive review of the scope of quality education and capital outlay funding emerged as a substantive issue. Excessive reliance upon local
wealth has been a primary determinant of the quality of educational facilities provided and will continue to raise serious equity questions.

The issue of capital outlay sources has remained current because school districts continue to have needs for capital outlay funds. Although fewer districts are presently confronted with rapidly expanding enrollments common in the days of the so-called baby boom, there has continued to be a real need, based on shifting populations which cause some schools to close while others need to be built. The modernization of facilities and replacement of obsolete structures is a growing problem, as buildings constructed at about the same time have also aged together, causing renovation and replacement costs to soar. Other influences beyond the control of the local district, such as the demands of Title IX and provisions for handicapped accessibility have strained some school district budgets, even where enrollment has declined. Expanding curricular offerings as districts strive to keep pace with technology in preparing children for the future have required new types of facilities and equipment, just as energy cost escalations have forced reconsideration of inefficient facilities. Most generally, ordinary operating funds have not been comfortably sufficient for even the more moderate of special projects, and the schools have been forced to look outside their general operating budgets for aid, including gifts and endowments from the business sector.

As research in the area of capital outlay funding in Kansas is quite limited, this study has added to a needed body of knowledge. It was appropriate to review the relationship of district wealth to the funding of capital outlay in the state of Kansas and to provide
formulations on the effects of alternative methods of providing for capital outlay revenue.

## Limitations of the Study

The specific school finance equity standards and simulation models used in this study were appropriate for wide use in the study of school finance. Generalizations of this study were applicable only to Kansas school districts for the year of the study, except as noted in the text by direct and specific reference. This study was confined to the following limitations:

1. The public unified school districts in Kansas.
2. The official proposed budget submitted to the state of Kansas, and data obtained from the Kansas State Department of Education, Division of Financial Services.
3. An investigation of the capital outlay fund.
4. The revenue and budget information applicable to the specific year of the study, 1983-84.
5. Three school finance equity standards.
6. Selected alternative models for capital outlay.
7. No attempt was made to evaluate the need for facilities in Kansas. However, it was recognized that such information, when developed, will be extremely important in the development of a capital outlay plan for Kansas school districts.

Assumptions

The present study was predicated upon the following assumptions:

1. The general fund budget is the only fund in which the School District Equalization Act (SDEA) is operable in the state of Kansas.
2. Revenue can be substituted for expenditures in the assessment of equity.
3. The educational need unit is measured by the pupil enrollment on September 15 in each unified school district.
4. Only funds under budgetary line items designated capital outlay are considered in this study.

## Definition of Terms

Adjusted (or Equalized) Valuation. The sum of assessed valuation of locally assessed real estate adjusted to a $30 \%$ assessment level as required by Kansas law and the actual assessed valuation of tangible personal property and state-assessed public service companies (railroad and utility). The adjustment of the locally assessed real property is provided by the State Department of Revenue and is based on a sales-assessment ratio study which the Property Valuation Division conducts.

Assessed Valuation. The measure against which a capital outlay mill rate is applied to generate tax revenue. It consists of all tangible taxable property within a district, including assessed valuation of real property, motor vehicles, and business aircraft. At present, farm machinery is excluded.

Bonded Indebtedness. Governed by state statute and refers to the extent to which a district has the ability to commit itself, or to which it has already committed itself.

Bonds. Legal debt instruments of either a general revenue or general obligation type. They are instruments bearing value, interest rate, maturity, and constituting a legal contract.

Budget Per Pupil. The amount of revenue a district can raise during a given year. It is determined by statute, enrollment category, and median budget per pupil of the enrollment category.

Budgetary Controls or Limitations. The manner in which the state legislature controls the maximum budget per pupil for the general fund budget. The individual districts vary in authority within limits set by the legislature. Districts are allowed to raise their budgets each year in relation to their position relative to the median as established within an enrollment category.

Capital Outlay. A special fund established in each school district for the purpose of maintaining, repairing, expanding, or constructing school facilities. Capital outlay monies may also be used to purchase equipment and buses under Kansas law.

Capital Outlay Reserve Fund. The capital outlay account, permitted to accumulate taxing authority which may be drawn upon for distribution to taxing subunits. The concept is employed in simulation.

Cash Basis. A statutory provision (also referred to as "pay-as-you-go") which requires districts to fund purchases within its means and without the use of obligation of future revenues.

Children's Equity. A broad, educational principle of equity which focuses on the child as the object of concern for services rendered.

Debt Limitations. Legislatively controlled structures by which districts are limited by debt ceilings. Based on assessed valuation,
current law limits school districts to $14 \%$ of assessed valuation, beyond which appeal to the State Board of Tax Appeals must be observed before it may be exceeded in issuing bonds.

Educational Need Unit. The pupil count as of September 15 of each fiscal year. It is the measure by which the Kansas finance formula allocates funds in aid to local school districts.

Enrollment Category. An arbitrary classification by the legislative body of the state to school districts based on grouping or ranges of enrollment populations.

Equal Opportunity. A principle of equity stating that a goal of equity is that all participants have equal access to the resources of the district and state.

Equalization. A principle based on the concept of ability to pay for services by providing a scheme by which the end product of a formula places all districts equivalently in terms of financial outcome.

Equity. A general term in school finance which refers to the most equal and nondiscriminatory distribution of broadly-defined resources to the prospective recipients, based on specified need in relation to the range of services offered.

Ex Ante Fiscal Neutrality. A finance equity standard which states that equal local tax effort should result in equal tax revenue (Melcher, 1979).

Ex Post Fiscal Neutrality. An equity standard which holds that variations in actual revenue per educational need unit should not be related to variation in local fiscal capacity (Melcher, 1979).

Federal Range Ratio. A statistical measure in a distribution. It is a restricted range measure for establishing wealth neutrality. The per-pupil object of equity is divided into the range.

Fiscal Capacity. A measure of available economic resources in an area. For capital outlay, the property wealth of unadjusted assessed valuation is the measure of fiscal capacity.

Fiscal Neutrality. A principle that holds that a student's education should not be a function of local property wealth. It should be a function of the wealth of the state as a whole.

Flat Grant. A revenue simulation device whereby the state assumes a less-than-full funding role and allocates an equal amount to districts for a specific purpose, based on some uniform measure, such as ADA, ADM, classroom unit, per teacher, weighted pupil, or other selected standards.

Full State Funding. The assumption by the state of the total responsibility for distribution and administration of a program or system of funding.

General Fund Budget. The only fund which utilizes the equalization formula in the state of Kansas. All operating expenses of a school district are paid from the general fund budget, except for special funds, of which capital outlay is a special fund.

Gini Coefficient. A statistical tool which is a measure of equity used to assess distributions. It is a tool which measures wealth concentration within a given distribution of values as a cumulative percentage to the cumulative population.

Legally Adopted Budget. The school district budget which is adopted by the governing board for the succeeding year and is subject to all controls imposed by the legislature. The legally-adopted budget is submitted annually to the State Department of Education.

Line Item. The specific line of the budget which refers to a subcategory of the total budget. Capital outlay accounts are found in line item 1200.

Loan Program. An alternative funding method sharing the same characteristics of the state grant program, except that the district incurs a debt which must be repaid from locally-generated revenue.

Local Effort Rate. The amount of funds the individual district contributes to the total general fund budget and special funds. The local effort and the amount of state aid are equal to the total accessible revenue for the district for the given budget year.

Maximum. The largest score or value in a distribution.
Mill Levy. An expression of value relating to a fractional proportion of the dollar. One mill of assessed valuation where AV $=\$ 1$ is expressed as . 001 and one mill assessed is equal to one dollar of revenue per $\$ 1,000$ of assessed valuation.

Minimum. The smallest score or value of a distribution.
Pearson Product-Moment Correlation. A statistical tool which measures the relationship of two variables. Positive or negative variance may be observed between two variables and allows for consideration of causation.

Percentage Equalized Grant. A funding alternative based on equity principles of aid in inverse relationship to ability to pay for services.

Property Wealth Index. A measure of local fiscal capacity. As defined by this study, the property wealth index means the assessed valuation multiplied by a constant mill levy as specified.

Range. The difference between the highest value and the lowest value in a distribution of scores.

Relative Means Deviation. A statistical measure of equality which examines the differences between a per-pupil expenditure and the mean per-pupil expenditure and expresses the absolute value of the differences as a percentage of the total expenditures in the distribution.

Resource Equity. The same as resource accessibility and refers to an equity standard which states that all children within a state should have equal access to the economic resources necessary for education suited to their needs.

Restricted Range Ratio. The same as the 95 th to 5 th percentile range ratio. It is the difference between the object at the 95th and 5 th percentiles of pupils when arranged in ascending order.

Revenue. Income to a taxing subunit derived from assessment of a mill rate to an accessible tax base. Revenue is substituted for expenditures under all simulations in this study except in calculation of a realistic mean budget per pupil, as fiscal capacity is the issue rather than actual expenditures.

Simulation. A projection of revenues or expenditures under specified conditions. Variables may be dependent or independent and manipulation of dependent variables while holding constant certain independent variables results in quantifiable data.

Sinking Fund. Similar to a capital reserve fund, except that it is specifically generic and nonspecific to a particular or intended purpose.

Special Fund. Individual funds within the Kansas school budget accounts to which monies may be allocated.

Standards of Equity. Concepts which are used to assess the relative fairness of a funding scheme in reference to two broad classifications of students or taxpayers. Standards referred to in this study are the resource accessibility, ex post fiscal neutrality, and ex ante fiscal neutrality standards.

State Aid. Monies paid to local school districts by the state for local use in funding programs.

Strict Judicial Scrutiny. A legal concept based upon a rigorous examination of an issue where it may be possible that constitutional issues are violated and that a scheme works to the distinct disadvantage of a particular group for which the state will be required to show compelling interest if the scheme is to stand.

Sum. The total of all cases in a distribution.
Taxbase Accessibility. The sources of wealth which are accessible to a school district over which it may exercise taxing powers or stands to be in receipt of funds.

Taxpayer Equity. A concept which requires that all persons in similar circumstances will be treated alike and that any variance is not attributable to variations in local wealth.

Transfer. The statutory permission to reallocate funds within the various accounts of school district budgets in the state of Kansas.

Zero Aid Program. Total local support of a program where there is no state money contributed, resulting in total local responsibility for support and maintenance of a specified program or project.

## Organization of the Study

In the study, the following organization may be observed:
Chapter I, the introduction to the study, includes a statement of the problem, justification for the study, assumptions, definitions of relevant terms, and procedures for the study.

Chapter II contains the review of selected literature and research that apply directly to the study.

Chapter III consists of a description of the research procedures used in treatment of the data with the intent to analyze capital outlay funding under the present conditions operating in the state of Kansas and states the procedures used to simulate revenue under five alternative methods of funding captial outlay. Evaluation of the simulation data was by statistical analysis with reference to conditions of equity-satisfying of the three selected equity standards of ex post fiscal neutrality, ex ante fiscal neutrality, and resource accessibility.

Chapter IV presents the findings of the study and Chapter V summarizes the research, draws conclusions, states some implications for state policy, and offers recommendations for further research.

## CHAPTER II

## REVIEW OF RELATED LITERATURE AND RESEARCH STUDIES

## History of Equity Issues

As noted earlier, the issue of equity in school budgets is not a new phenomenon among analysts in the field of educational finance. Beginning with Cubberley's work in 1905, the development of the states' role in financial support of education began to take first form (Burrup, 1977). Prior to the present century, the financing of schools and school facilities was nearly always the exclusive domain of the local community in which the individual school was located. Certainly, no direct aid for capital outlay expenditures from any governmental unit was regularly provided. Any governmental interest in financial procedures concerning the financing of capital outlay tended to be a general concern for the protection of bond purchasers, applicable debt limitations, and the reduction of public debt (Thomas, 1978).

With the onset of the twentieth century and the inception of the foundation program approach proposed by Cubberley, issues of finance equity began to take on a new respectability. Researchers began to look at current issues in educational finance with a new perspective. Creative formulations such as Strayer and Haig's (cited in Thomas,
1978) monumental work in 1923 sparked interest and controversy among observers of educational finance. Strayer and Haig noted that taxable income distributions in counties in New York were substantially different from property valuations, indicating that assumptions regarding property wealth as a measure of ability to pay may not always accurately reflect the reality of a situation. As an alternative, Strayer and Haig proposed summing taxable income, together with $10 \%$ of the property values, as an improved measure of fiscal capacity (Thomas, 1978). The issue of the best measure of fiscal capacity was born of that controversy and remains an issue argued at great length up to the present time.

In the early 1900's, Updegraff (cited in Cross, 1983) promoted some of Cubberley's concepts with modifications of his own, in which he suggested that local effort should be rewarded by a resultant increased level of support. A few years later, Mort (cited in Melcher, 1979) criticized the Strayer-Haig proposal, stating the inappropriateness in his view of the use of a measure of wealth which was essentially inaccessible to taxation, referring to the use of income as a measure of fiscal capacity. Mort concluded that regardless of the inherent values in any criticism of a tax structure, the property valuation was the only accessible and therefore the most appropriate measure of fiscal capacity under the usual circumstance.

As a consequence of the writings of various scholars, state legislatures were brought to an awareness of the problems in the general finance of schooling. Legislatures struggled with issues of the relationship between cost and quality and subsequently developed new and novel ways of financing education in the respective states.

Specific funding formulas were developed and implemented in an attempt to provide a least a minimum foundational approach to increasing the quality of education across the nation, while still allowing for the preservation of the American ideal of local control of education. Models of state support were developed by analysts such as the one offered by Morrison (cited in Cross, 1983), who proposed, in a radical sweeping reform, the abolition of local school districts and the full assumption of the role of financing by the states. Although his words were widely noted, only Hawaii today has adopted such a system and it can clearly be observed that Morrison's ideas were not widely accepted despite the current recognition that educational quality varies widely across the nation and even across the geography of a given state.

During the ensuing decades of the 1930's and 1940's, the fiscal equalization approach gained in popularity and was adopted in many states. In 1949, 43 of the 48 states employed some type of equalization formula for the distribution of aid to local school districts (Melcher, 1979). These trends continued essentially unchanged into the decade which followed, and not until the period of social upheaval observed in the sixties did systems of finance thought to be secure begin to crumble under tremendous pressures from the heightened social consciousness which was dramatically altering the American scene. Since that time, opposition has mounted against traditional systems of educational finance, arguing that better methods must be developed than those which rely so heavily on property as the measure of wealth, and that there must be a more equitable object for equalization than the pupil measure (Melcher, 1979; Funk, 1980). Despite the arguments
against property as the wealth measure, response to alternative measures has not been widely evidenced by elected state legislatures.

Legal Development of Equity Issues

It stands axiomatically that no systematic change is ever accomplished without a concomitant force compelling it to do so. Such reforms and interests as have occurred were not easily accomplished or engendered vacuously, either in terms of general availability of methods or by uniform consent. In the course of this century, the courts have frequently been called upon as a means to force state compliance with a developing body of general concepts governing the principles of equity and equality of educational opportunity. These principles of equity and equal opportunity had their genesis in the landmark case of Brown $\underline{v}$ Board of Education of Topeka in 1954. That case, although not specifically related to school finance in the strictest sense, was to mark the beginning of a series of litigations regarding the issue of equal educational opportunity, and it was only a matter of time until astute observers of the educational process were to observe that the financing of educational systems could be observed to have a direct effect upon the resulting quality of education available to citizens.

A review of litigation in the 50 states strikingly showed the recent and rapid increase in challenges to the states' various methods of financing education. The turbulent decade of the seventies, together with the period extending back to McInness $v$ Shapiro (1969) and forward to the present with Dupree v Alma School District No. 30 (1983), became known as the "decade of school finance reform."

Financing systems were challenged in most states, with many reaching the supreme courts of the individual states, including the landmark case of Rodriguez $v$ San Antonio Independent School District in Texas in 1971, which reached the Supreme Court of the United States.

The Rodriguez case marked one of two specific turning points in finance challenges through the courts. Until Rodriguez, constitutional challenges had almost invariably claimed a violation of equal protection laws under the Fourteenth Amendment to the United States Constitution and sought to establish education as a fundamental right and thereby invoke strict judicial scrutiny. The reversal by the U.S. Supreme Court of the appellants' lower court victory in Rodriguez established the futility of federal protection claims where no specific discrimination against a particular class of persons is found and where no fundamental right is thought to be jeopardized. Thus, the state is consequently not required to show compelling interest for the scheme to stand.

Thirteen days after the decision in Rodriguez, the Supreme Court of New Jersey ruled on the case of Robinson $v$ Cahill (1973). The court unanimously held that the New Jersey system of public school finance was unconstitutional. As a consequence, litigants in other states who had previously sought reform under the federal constitution and the Fourteenth Amendment's equal protection clause turned to the individual state constitutions in search of substantive issues to litigate (Levin, 1977; Funk, 1980). State courts ruled separately on constitutional issues under the specific language of the various state constitutions. Hack (1978) identified two types of questions which suits stated as the basis of action. Hack indicated that claims
tended to fall under the Fourteenth Amendment to the United States Constitution prior to 1971, and afterwards on "thorough and/or efficient" state clauses. Suits brought claiming the equal protection violation were patterned after Serrano v Priest (1971, 1976), Rodriguez $v$ San Antonio Independent School District (1973), Horton v Meskill (1977), and Board of Education of the City of Levittown v Nyquist (1981). Cases pursuing the "thorough and/or efficient" method included Robinson v Cahill (1973, 1975), Lujan v Colorado State Board of Education (1982), and Board of Education of the City of Cincinnati et al v Walter (1977). Hack further stated that two additional areas common for claims were: expenditure variations and issues of fiscal neutrality.

Similar analysis was offered by Richman (1981), who divided the history of litigation of school finance into two phases. Phase I was identified as extending from 1965 to 1973 with the passage of the Elementary and Secondary Education Act by the U.S. Congress which focused Title I funds on the wealth disadvantaged. Phase II extended from 1973 to 1979, beginning with Rodriguez. The evidence indicates that significant ground was gained through the pursuit of equity in the courts, and by the present time, more than 32 major cases have been filed in the state courts in at least 26 separate states.

Decisions from these cases over the period from 1969 to 1983 have been mixed, although in recent years a discernible direction has begun to be established which may well set the tone for a new round of activity. The earliest equity cases tended to be viewed as not violative of the individual state constitutions, but beginning with Serrano $\underline{v}$ Priest (1971) and the subsequent decision in Serrano v Priest
(1976), a flurry of activity produced a large number of interpretations of equal opportunity by state courts and ruled many finance systems unconstitutional on the specific language of education clauses. The rulings were based on several specific factors recognizable under the states' constitutions. First, it was determined that state constitutions may be more strictly construed than the federal constitution. Secondly, it was found that states may deem education to be a fundamental right which must be interpreted from the specific language of the constitution, and finally, that education was a primary responsibility of the individual states by virtue of powers left to the states by the Tenth Amendment to the federal constitution, thereby requiring an effort by the states to perform their duties. For a number of years following, the courts proved to be a fertile ground for testing concepts of equity.

## Establishment of Equity Legal Principles

The consequent state challenges of constitutionality estabished in those states the issue of the fundamental nature of education as a right or a privilege and went on to establish a number of other important principles in school finance. Among those significant principles were two issues of paramount importance. First, it was established that equity is not necessarily synonymous with equality; that is, equity is not automatically satisfied by equal inputs of dollars (Funk, 1980; Berne and Stiefel, 1984). In fact, such perception of equity may actually lead to significant inequality by the failure to recognize that equal opportunity in education cannot be achieved when inputs are equalized and special needs are thereby ignored. The
second principle developed followed the same line of logic and required that wealth could be a function of educational quality only insofar as it is the wealth of the state as a whole. This was an issue upon which many of the cases brought were keyed--that primary reliance by finance systems upon the local property tax base as the primary source of funding had created inequalities in the educational opportunities available to citizens. That is to say, it has been observed unequivocably that there is a direct relationship between the ability to generate revenues locally and the relative quality of the local educational program. Although straight dollar inputs are often seen as less than totally satisfactory as a measure of quality and although the search for rigorous definition continues, several important court cases have indicated that dollar inputs are the only substantive criterion for determining quality at the present time.

Despite that awareness, the courts, in ruling upon the constitutionality of the various finance systems, have strongly resisted becoming involved in stating the specific parameters of a quality education beyond those basic and general principles identified previously regarding wealth neutrality. Instead, the courts have deferred to the wisdom of the individual legislatures in such matters of expertise as educational design and finance formulations. A directional shift has been recently observed, however, in Pauley et al. $\underline{v}$ Bailey et al. (1984), in which the court exhaustively explored the meaning of a quality education, and made explicit a warning for future possibilities of lawsuits which will undoubtedly key upon the comparative quality of all aspects of those elements central and peripheral to the concept of educational opportunity. Those concepts seem to
possess significance for states in fulfilling their responsibilities
for providing thorough and efficient educations for their citizens.
Specific reference has been made in several cases to the funding of
capital facilities as a function of equity considerations.
A summary of recent court principles was offered by Burrup (1977):

1. The public education of a child shall not depend upon the wealth, other than the wealth of the state as a whole; this means that the quality of a child's education cannot be a function of the wealth of his parents, his neighbors, or the school district.
2. Taxes levied for school purposes must generate the same total number of dollars per mill of tax in poor districts as in rich districts.
3. Since educational needs vary from district to district, the state does not have to require all districts to spend the same amount of money or offer identical programs.
4. Education is considered to be a fundamental interest of the state.
5. Although local property taxes discriminate against the poor, state legislatures are not required to eliminate them in favor of taxes on other sources of revenue.
6. Additional expenditures may be made by schools for programs for exceptional children and compensatory programs for culturally disadvantaged children, and also for other educational needs of children that are significant and worthy of special treatment.
7. There is an implication, although not a direct ruling, that equitability must be established in capital outlay expenditures in the same way as that required for current expenditures.
8. No specific plan or plans have been mandated to achieve equity in school finance formulas; states will be allowed a reasonable time to revise their laws and bring them within court guidelines (p. 191).

In summary, a number of principles are identifiable through court decisions to aid in the development of equity in educational opportunity. It is possible to relate those issues directly to general principles derived from the academic discipline of educational finance.

## Principles of Equity

As noted previously, the general direction of court decisions has not gone unnoticed by observers of the field of educational finance. A concomitant body of school finance literature has developed, attempting to identify generalizable concepts and principles within school finance issues. Many definitions and descriptions of equity have been developed (Benson, 1961; Carlton, 1980; Funk, 1980).

Issues in equity have traditionally been either student-centered or taxpayer-centered (Berne and Stiefel, 1984). Berne and Stiefel reviewed the literature centering on empirical studies and grouped them into several categories. The first layer of division was children's equity and taxpayer equity. Berne and Stiefel proposed that four major questions exist in equity which need to be considered when conducting and evaluating quantitative research. The questions included serious issues regarding for whom equity should be achieved, what should be equalized, how it should be equalized, and how equity would ultimately be measured. Berne and Stiefel then summarized the research by subgrouping it into categories based on the questions posed. They found that the majority of research conducted has focused most frequently on children's equity, and within that category, the object of equity has focused upon expenditures, revenue, and inputs, respectively. Throughout the literature, Berne and Stiefel found a
lack of concern for the taxpayer, which is in their scheme a value judgment which needs to be recognized by individuals involved in any facet of research.

Berne and Stiefel (1984) suggested that an explicit framework for analysis of equity studies should be utilized by researchers in order to clearly develop and define the intended direction of proposed research. They maintained that very little in the field of quantitative research is truly objective and that unless certain values are classified and recognized, much of the research being done is biased and needlessly clouded. Berne and Stiefel argued that if the researcher specifies answers to each of the four value-laden questions, consumers of research will be better able to evaluate the perceptual base of the study and proceed to make judgments regarding both its value to the field as a whole and to the individual consumer.

In general, then, several principles of equity are evident throughout the literature which tend to be identified and defined variously, and to some extent perceptually, as they relate to the direction of the individual research.

Three broad definitions of equity frequently found in the research and restated by Carlton (1980) regarding school finance equity applicable to most issues are the principles of resource equity or resource accessibility, ex post fiscal neutrality, and ex ante fiscal neutrality. A number of alterations, modifications, and alternative formulations of these principles have been developed, along with cautions and guidelines regarding their use. Melcher (1979) indicated that during the 1970 s, no consensus was reached concerning definition or measurement of equity or of fiscal capacity, but rather that two
broad but measurable standards of resource equality and fiscal neutrality proposed in Serrano v Priest $(1971,1976)$ have been enunciated. Barro (cited in Carlton, 1980) noted:

The ex post interpretation is that actual development of level of educational support must not correlate with wealth . . . the ex ante formulation is that the ability of a district to support schools should not depend upon wealth (p. 25).

It was therefore necessary for the purposes of this research that several value judgments within resource equity, ex post fiscal neutrality and ex ante fiscal neutrality, be made in order to satisfy the reasonableness of the conceptual framework proposed by Berne and Stiefel (1984). For the purposes of this research, the following assumptions and judgments guided the study:

1. A concern was demonstrated primarily for children, and secondly, for the taxpayer. Thus, a heavy emphasis was placed upon children as the center of equity activity, essentially for the reasons proposed by Berne and Stiefel (1984). As education was accepted as an investment in a child's future and thus the goal was to best equalize opportunity for success, attention was paid to the way services are provided. Thus, a concern was demonstrated for both the present time and the future of the child.

Concern was also shown for the taxpayer, but not so much as a class as for the effect of the relationship of fiscal capacity in its bearing upon educational opportunity. If the relative position of the taxpayer is so unequal and dissimilar as to produce insurmountable shortfalls of adequate revenue from taxation, then the effects are known among issues of children's equity to an unconscionable extent.
2. A choice of objects to be equalized may be made among inputs, outputs, and outcomes (Berne and Stiefel, 1984). Issues of fiscal resources, fiscal inputs, physical inputs, outputs in terms of behavior and achievement, or outcomes such as earnings, potential, income, and satisfaction may be evaluated. No satisfactory method of analysis for this question has been developed other than for fiscal inputs, and consequently, the dollar input as a measure of equity has been selected as the object to be equalized in this study.
3. Without a means to evaluate progress, little can be learned regarding achievement of equity. Formulations of resource equity, ex post fiscal neutrality, and ex ante fiscal neutrality have been selected for this study as representative of a broad range of concerns, and these principles correlate satisfactorily across the literature.
4. To evaluate progress made under equity standards, objective measurement was required. Consideration of this issue is value-laden and statistical measures to observe equity progress were established in Chapter II under the research design.

## Identification of Resource Accessibility, ex post <br> Fiscal Neutrality, and ex ante Fiscal <br> Neutrality Standards

The issue of resource accessibility refers to the equal access of students to adequate educational funds (Melcher, 1979; Carlton, 1980). Resource equity focuses on measurement of inputs and revenues, such as the number of teachers, courses, facilities, or dollars, rather than evaluating outputs such as test scores, job placement rates, and so forth (Funk, 1980).

Where there is significant absence of adequate tax bases under systems which rely heavily upon local effort for financing public education, a strong indication is believed to exist that wealth, or its absence, is a major determinant of the quality of educational opportunity. While court-forced and voluntary-equalization plans have had a mitigating effect upon the relative range of extremes prior to any observations of equity concerns, there has been generally less than perfect results in all three measures of resource accessibility, ex post fiscal neutrality, and ex ante fiscal neutrality in the research literature. This observation has been demonstrated specifically to be true in the state of Kansas, where the local tax base is a primary source for educational funds. Where the local effort is depended upon as a major force in available revenue, equal access has not been achieved in instances where local effort results in funding below the median budget per pupil.

The issue of ex post fiscal neutrality refers to issues alluded to previously. The principle of ex post fiscal neutrality states that the local resource capacity should not be tied to the local tax base. This equity standard is a restatement of the principles set out in Serrano $v$ Priest (1971, 1976), in which the court stated that education is not to be a function of wealth except the wealth of the state as a whole. Reliance upon local assessed valuation as the method of financing education, even where state aid exists, has tended to violate the principle of ex post fiscal neutrality if that reliance resulted in districts unable to fund their budgets at the average level of expenditure.

The issue of ex ante fiscal neutrality states that principle referred to as a "taxpayer equity standard" (Melcher, 1979; Carlton, 1980). Under the ex ante fiscal neutrality standard, equity is defined as a taxpayer standard when equal dollars per pupil are obtained from equal tax rates (Funk, 1980). Tax assessment practices play an important role in achieving taxpayer equity, as ex ante fiscal neutrality states that there should be equal yield for equal effort. Geography should not result in variations in revenue when a given mill levy is applied against properties of equal and comparable values within a state.

Studies in Kansas (Carlton, 1980; Funk, 1980) have demonstrated that the present general equalized state aid formula tends to violate all three principles to some extent. Funk (1980) argued that the ex post fiscal neutrality standard is violated when $67.24 \%$ of funds available at the district level are tied to district wealth and that local control reduces the effect of equity reform.

Carlton (1980) conducted his study of general equalized state aid in Kansas using all three measures of resource equity, ex post fiscal neutrality, and ex ante fiscal neutrality. He determined that in Kansas, for the year of the study, resource equity tended to be present to a greater degree than the other two standards by virtue of enrollment categories, which minimized variations in enrollment expenditures by partially adjusting for cost differentials, but that disparities still remained. Carlton further found that the ex post fiscal neutrality standard tended to be violated by the positive correlation between revenue and wealth. He additionally observed that the statutory budget limitations imposed upon school districts have
had a dual impact in that budget limitations tend to lock in inequities by serving to retard movement by below-median school districts toward the median, while simultaneously preventing high spending school districts from completely outstripping lower spending districts. As a consequence of these two disparate phenomena, the distance from the median budget per pupil has tended to be preserved at both ends of the spectrum.

That equity is a valid and researchable question is a welldemonstrated observation in the body of current literature, where numerous studies have attempted to examine the effects of equalized finance formulas. Equity issues have tended to focus either upon students or taxpayers as the object of concern. Both issues have been forced by the courts in a series of lawsuits based on the concepts of equality of opportunity. Issues in equity may further be seen as issues of equal opportunity for students, also defined as "resource accessibility," horizontal equity for students, also defined as "ex post fiscal neutrality," or horizontal equity for taxpayers, also defined as "ex ante fiscal neutrality." Value judgments in the selection of objects of concern and objects for distributional equity must be made in order to lend both direction and objectiveness to questions in educational finance research.

## Capital Outlay History in the Literature and Courts

The issue of capital outlay equity concerns has its roots in the same general equity questions pursued in the courts over the past recent decades. No substantive issues develop either easily or in a
vacuum, and a review of the legal background of equity arguments proves to be important in establishing capital outlay as a valid equity question.

Funding for capital outlay has historically been a low priority item when compared to other educational concerns (Cross, 1983). Prior to the twentieth century, school buildings were generally local concerns, often raised by hand with volunteer labor and materials, or through other inventive local methods of raising funds for school buildings and plant needs. It was not a very complicated time and a smaller percentage of school-age children were able to attend school on a regular basis. Building costs were neither so uniform nor extravagant and educational programs were not so sophisticated as to require special facilities. Very few buildings became obsolete and the questions of municipal overburden had not yet become a great concern (Burrup, 1977). Thus, the era prior to the twentieth century was characterized by the local community's responsibility for shouldering capital outlay, often through private donations of sites, materials, and labor for the common welfare of the community.

The advent of special local property taxes marked the turning point later in the century at which it was finally realized that previous methods of construction were no longer sufficient to meet the growing need for larger and more elaborate facilities. In the latter part of the nineteenth century, the borrowing of funds for school construction became necessary, and bonding became a reality. This change marked the obvious beginning of the phenomenon of capital outlay funding practices being more closely related to the value of property than to building needs in the local community. Locations of
power plants, oil and gas facilities, railroads, and industries became critically valuable in the determination of local districts' fiscal ability to fund needed and desirable projects (Thomas, 1978; Salmon, 1981).

Shortly after the turn of the century, it was apparent that the times were becoming considerably more complex and that the needs of communities were not always being fully met. To a limited extent, some states began to recognize the problems of school plant financing and began to take some small steps to alleviate the problems. In 1901, Alabama instituted funding for rural school buildings and two years later Delaware aided the building of facilities for blacks. In 1909, South Carolina instituted a similar program and North Carolina and Virginia began offering state loans (Thomas, 1978). Georgia became the third state to offer aid to local districts in 1911 for capital outlay purposes (McGuffy, 1978). By 1972, a large number of states had made some type of provisions for assisting local districts with the cost of school facilities (Webb, 1972) and Salmon (1981) indicated that much the same pattern continued to exist. Cross (1983) reaffirmed support levels common in the current decade.

Over the years, since the inception of facilities funding, finance methods had become quite diverse and sophisticated. Salmon (1981) observed methods ranging from full-state funding in Hawaii, Florida, and Maryland, to no state assistance at the opposite end of the continuum. Finance methods which fell between the extremes tended to be either equalization schemes, percentage-matching plans, flat grants, loan programs, or local or state building authorities. Fourteen states were identified in Salmon's review as having no state
participation in capital outlay funding at that time. Zero-aid states were identified as: Arizona, Colorado, Idaho, Iowa, Kansas, Louisiana, Montana, Nebraska, Oregon, Ohio, Oklahoma, South Dakota, Texas, and West Virginia.

Although the funding of capital outlay has not received the same attention in equity questions by the courts that equalization of general aid to school districts has experienced, facilities financing has been reviewed at least preliminarily by the courts. A developing body of legal statements as a part of larger decisions has indicated a growing awareness that capital outlay issues have the potential to be directly accountable in the courts under equity principles in a significant way. Since many states have relied heavily on local property taxes for financing capital outlay, many states' programs may be vulnerable if challenged (Cross, 1983).

Although no suits have initially been brought on the basis of capital outlay funding, direct reference to capital outlay over the past 15 years has been made in other equity suits. Court cases, including the Serrano $\underline{v}$ Priest $(1971,1976)$ case in California, Rodriguez $\underline{v}$ San Antonio Independent School District (1973) in Texas, Van Dusartz $\underline{\text { v Hatfield }}$ et al. (1971) in Minnesota, Robinson v Cahill (1973) in New Jersey, and Shofstall v Hollins (1973) in Arizona have provided principles against which the ripeness of capital outlay as an issue may be tested. The principles of wealth neutrality and equal access to resources stand to guide states in the development of finance schemes which will withstand the scrutiny of challenges (McGuffey, 1978).

As already seen, the issue of equity in school facilities has been frequently observed. Direct reference to capital outlay funding was addressed in the Arizona case of Shofstall v Hollins (1973), when the Supreme Court of Arizona stated that funds for capital improvements in school districts were more closely tied to district wealth than funds for operating expenses and that the capacity of a school district to raise money by bond issue is a function of assessed valuation. The New Jersey Supreme Court in Robinson v Cahill (1973) noted that the state's obligation also included capital expenditures, without which the required educational opportunity could not be provided. The court noted in Board of Education of the City of Cincinnati et al. $\underline{v}$ Walter (1977) that a thorough and efficient system of common schools throughout the state is not met if any number of school districts are starved for funds, or lack of teachers, buildings, or equipment. Also in 1977, the case of Diaz et $\underline{\text { al }}$. $\underline{\text { Colorado }}$ State Board of Education caused concern for the court when it was observed that the issue of "thorough and efficient" was present in that some districts were better able to provide facilities to their students. A further case in Colorado of Lujan v State Board of Education (1982) concluded that the fiscal capacity of school districts to raise revenue for bond redemption and capital reserve funds was directly related to the taxable property wealth.

Even more recently, the case of Pauley et al. ́ Bailey et al., (1984) in West Virginia was indicative of the developing criteria for the scope of equity. In the most extensive and exhaustive review of the scope of quality education to date, capital outlay funding was seen as a substantive issue. If courts were previously reluctant to
concern themselves with more than Fourteenth Amendment and equal protection claims in the separate states and had stated a desire to leave the control of how equality would be achieved to the legislatures, then there is at least a minimal indication shown by the interest of courts in cases beginning with Serrano v Priest (1971, 1976) remand and continuing to the present with the master plan required by the court in Pauley $\underline{v}$ Bailey (1984) that courts will become involved in the administration of justice, if necessary. The attention focused in Pauley $\underline{v}$ Bailey on school facilities is a significant step in the direction toward specific court cases aimed at inequality (Truby, 1983).

## Current Methods of Funding Capital Outlay

That the funding of capital outlay is an issue of significance is well established. Jolley (1983) surveyed Utah school district superintendents in order to assess the interest level in alternatives for capital outlay funding and to establish criteria for state equalization of capital outlay. He also assessed the advantages and disadvantages of alternative methods available. Jolley found that there was a high degree of belief that sharing the wealth is a desirable goal and that the criteria most frequently mentioned included equal yield for equal effort, equal opportunity, adequacy, partnership, experimentation with innovative finance plans, and efficiency in achieving desired goals.

Other research has investigated present problems existing in capital outlay funding. Keller (1981) studied 1,071 Texas school districts to determine: (1) if poor districts as defined by assessed
valuations were exerting more or less effort for maintenance and operation than wealthier districts, (2) how size was related to wealth, and (3) the number of districts levying for debt service. Keller concluded that wealthier districts were able to tax less for service and simultaneously produce more tax monies per ADA and that, on the whole, smaller districts in Texas tended to be wealthier than larger districts.

Ikoku (1983), in a study of capital outlay bonding in Oklahoma, found that significant wealth disparities existed in per pupil bond revenue available. Similar evidence was found by Darbison (1978) of the relationship of local ability to pay as it affected the quality of programs and facilities in his survey of representative Oklahoma school districts' capital outlay capacity.

As definitions of quality education and of equity have begun to emerge from the work of scholars and developing court decisions, the issue of financing capital outlay as a measure of quality seems to be omnipresent. Nowhere was the issue more concisely stated than in the words of Governor Calvin Rampton's address to the Utah Conference on School Finance in 1972 (cited in Webb, 1972, p. 1): "If we think there are inequities in the state systems for funding current expenditures of public schools, wait till we examine the way we finance school buildings!"

Numerous methods by which to fund capital outlay projects have been devised by the various states. Methods in use range from no aid or total local responsibility, as in the state of Kansas, to full state assumption. Webb (1972) identified six major methods of state assistance in funding capital outlay in those states which provide
some form of assistance. Broad categories identified included full state funding, approved project-cost grants, flat grants, state equalizing grants, state loan programs, and school building authorities.

A similar series of classifications was produced by Thomas (1978) and again by Salmon and Thomas (1981). Groupings were identified as: full state support, state/local sharing, flat grants, equalized grants, and state loans and authorities. Salmon and Thomas further identified methods of funding within the broad categories as four general options of current revenues, reserve funds, general obligation bonds, and shared facilities.

Cross (1983) accepted the six classifications of funding methods proposed by McGuffey (1978). Categories illustrated were: emergency funding, loan programs, consolidation grants with cost sharing, general aid formulas, debt service retirement, and state grants with district cost sharing. For purposes of the present study, the categories of total local support, full state funding, flat grants, equalizing grants, and state loan programs were adopted within the added characteristics of current revenues, reserve funds, and general obligation bonds as vehicles for capital accumulation.

Current Revenues

The method of financing facilities in general can be viewed either on a cash or debt basis. As the name implies, the current revenues method is a pay-as-you-go method (Salmon, 1981). It may be observed that such an option is available only to the more affluent school district, as the proportional relationship of operating cost to budget authority is an inverse relationship. The current revenue
method eliminates the attendant costs of debt instruments such as bond attorney fees, interest payments, and election costs. In most districts, however, the usefulness of such an alternative is limited by its impracticability based on insufficient revenues obtainable from low assessed valuations. Arguments which have traditionally been used to attack the use of current revenue methods in funding capital outlay include the impracticality of cash basis operation during periods of moderate to high inflation, and the inflationary benefits received from borrowed funds in times of escalating inflation.

## Reserve Funds

A second alternative is referred to as capital reserve funding. Reserve funds are a method by which some states allow the accumulation of unused authority in anticipation of future needs. Perceived advantages of the alternative include the elimination of bond election costs and the immediate availability of funds. Opponents argue that the benefits-received principle is a relevant concern in a mobile society and that strict monitoring is necessary to prevent pressing needs from diverting funds to more immediate projects.

## Bonded Indebtedness

A third type of finance method is by issuance of general revenue or general obligation bonds. By far the most common method of financing facilities construction, general obligation bonds have proved, in many instances, to be the only practicable way to construct facilities and to service debt obligations. To issue bonds, general or special elections must be held in which the voters of a district agree to
allow funds to be raised by issuing bonds in the district's name. Bonds are merely a financial instrument issued by a corporate body to borrow money from investors who purchase the bonds. The date of issuance, interest, method of principal repayment, and the term of the debt are clearly stated (Thomas, 1978). Bonds may be term or serial and are backed by the issuer's pledge of faith, credit, and taxing power. In most states, the law regulates precisely the manner and conditions of bond issues (Salmon, 1981). Bonds are generally attractive to investors, being tax-exempt from federal income taxes and generally quite safe investments. Bonds are rated on their desirability as investments, which may attach added cost to the district. Generally, governmental entities such as school districts enjoy a higher safety rating which, in turn, is favorable to the district in market interest rate, thereby lowering the eventual total long-term cost of bonds for capital improvements projects (Thomas, 1978).

Total Local Support

Once the decision has been made regarding cash basis or debt creation, a variety of options remain for districts within the statutes governing the respective states. The choice of alternatives is not always easy, and it is made more difficult in those states which provide no support to school districts for capital outlay funds.

Total local support refers to the absence of a state role in funding capital outlay accounts and to the absence of any dollars other than locally generated tax revenues from within the district itself. Traditionally, the method by which schools have been financed, the practice of total local support or zero aid is currently
in practice in the states of Arizona, Colorado, Iowa, Kansas, Louisiana, Montana, Nebraska, Nevada, Oregon, Oklahoma, South Dakota, and Texas (Cross, 1983). Kansas is identified as one of the 12 states providing no aid to capital outlay, leaving each district to fend for itself on the basis of assessed valuation.

## Full State Funding

At the opposite end of the spectrum lie the states which purport to totally, or at least substantially, support capital outlay projects at the state level. In actual practice, a more accurate restatement of the principle may be that local districts are not required to participate in construction costs in order to receive funds (Cross, 1983). In such a scheme, the determination of need is ultimately made at the state level and the local assessed valuation is not a limiting factor in the ability to receive needed funds.

McGuffey (1978) identified seven states providing funds for capital outlay with no district cost sharing required. The states of Florida, Hawaii, Maryland, Mississippi, North Carolina, South Carolina, and West Virginia were identified as full state funding states at a significant support level. Cross (1983), in discussing McGuffey's work, indicated that Maryland has backed off the full funding scheme by requiring local districts to reshoulder a part of the burden due to revenue shortfalls experienced in the first six years of the program. In the other states identified by McGuffey, all tended to be characterized by centralized mechanisms outside the local district, and considerable state involvement has worked its way down to the local level. Florida has been financing capital outlay to a
significant extent since 1973, requiring a facilities survey by the state board of education and supervision by the state commissioner of education who determines the allocations to individual districts. The state of Mississippi has been involved in capital outlay funding since 1953, and a 1975 revision called for grants, legislative funding, and state school bonds, together with allowing local districts the ability to levy for capital outlay and to issue emergency bonds. In both North and South Carolina, grants have been provided on a per pupil basis without requirement of local contribution, although local districts retain the power to levy and to supplement state grants.

In 1972, West Virginia passed a constitutional amendment requiring state bonding for financing construction of school facilities. Funds were to be distributed on the basis of a formula flat grant, combined with ability-to-pay, and local districts could exceed funds allocated by election.

It is clear from the discussion that full state funding, as conceptualized by its name, has been less pure in practice than might be supposed (Webb, 1972; Salmon, 1981). A number of features of full state funding and other types of methods of facilities funding of ten become combined with the critical element identified as whether or not the local school district is required to participate with local effort. A number of advantages and disadvantages such as less reliance on assessed valuation and the loss of local control where the state becomes involved have been argued eloquently with equally ineffective results, as evidenced by the continuation of traditional local funding practices.

Flat Grants

A number of states participate in a flat grant approach to capital outlay funding. In more than one state, the use of flat grants or a specific dollar amount allocated on a uniform basis is combined with other formulations, making a sum total of 50 states within the categories inappropriate if each state is accounted for individually. The flat grant approach utilizes some objective basis for allocation such as ADA, ADM, classroom unit, or other criterion, and distributes the funds equally. A level of support is decided upon by the legislatures and also a determination is made of how the local district may use the funds and whether or not the district may elect to add local money. States identified by Salmon (1981) as utilizing the flat grant concept in some form included: Alabama, Georgia, Illinois, Indiana, Kentucky, Mississippi, Missouri, Nevada, New Jersey, and South Carolina. The advantages to flat grants have been perceived as local control remaining a reality, the use of a statewide tax base providing a greater measure of equity by virtue of less reliance on local assessed valuation, and a simpler administration than is required by more complex formulas. The disadvantages have been similarly perceived as grants tending to be merely supplementary in practice to local effort, and that districts have tended to receive funds without demonstrable need. Additionally, districts have tended to exert pressure to continue such grants once a program is in place, disregarding either need or effectiveness in the achievement of equity.

## State Loan Programs

State loan programs are often similar to flat grants, except that
the loans are not debt-free participation by the states in aid to school districts. In return for needed loans, districts pledge themselves to eventual repayment of borrowed funds, except in those instances where the funds made available are classified as loan-grants which specify that if repayment is too burdensome, the loan becomes a grant.

A number of advantages and disadvantages are seen to accrue to loan programs. Perceived advantages have included the notion that the state as a lender becomes a cheaper source of borrowed funds. In some instances, debt limitations imposed by states have not applied as a deduction and consequently the district is left free to engage in other contract practices. Similarly advantageous is that often the amount of time needed to obtain funds is much shorter than where elections must be held and that the taxbase for the loan reserve is broader than where assessed valuation is a limiting factor. Disadvantages noted have included the fact that loans have tended to serve as stop-gap measures without correction to the real issue of insufficient capacity, and that districts conceivably may not be in a position to borrow wisely.

## Equalized Grants

The principles of equalizing grants are based on the same measures which brought equalization to state general aid formulas. They are designed to supply a measure of equity to taxpayers within the state. Where equalization effort is not in place, a disparate tax rate at the local level is often necessary to generate an equal number of dollars needed to fund similar capital projects. Consequently, as
in the case of equalized general aid, equalized grants provide dollars for capital outlay purposes in an inverse relationship to local ability to pay for facilities.

Advantages perceived by the use of equalized grants are several. The unequal tax load tends to be alleviated by providing aid in inverse relation to ability. Further, the requirement of some local participation should reduce the lack of vested interest in the unwise use of money, and the reduction of dependency by the school district on the locally raised dollar should allow other governmental agencies the opportunity to have a greater share of the tax base. Disadvantages cited have included the observation that in order for such a program to be truly effective, large initial investments would probably be required to fund current needs immediately. States identified by Salmon (1981) as participating in equalizing grant programs included: Alabama, Illinois, Maine, Massachusetts, Michigan, New Jersey, New Mexico, New York, Pennsylvania, Rhode Island, Tennessee, Utah, Washington, Wisconsin, and Wyoming.

## School Building Authorities

An arrangement by which private or public capital constructs, leases, and in certain instances eventually deeds, buildings to school districts once the debt is retired, is a final alternative to capital outlay funding. State statutes must be carefully studied to determine how, if indeed at all, such arrangements may be conducted within the individual states. Advantages seen as accruing to states which allow such practices of blending private or public capital with public needs have included an avoidance of restrictive debt limitations which are a
function of assessed valuation, and that building authorities have allowed for the acquisition of school facilities without the need for costly bond elections required under traditional circumstances.

Likewise, several disadvantages have been observed. In the current marketplace, interest rates have tended to be high and have lacked the very favorable state financing rates seen in state participation plans. Taxation issues also are unresolved and voter opinion is seen as being dangerously ignored. States allowing for the operation of building authorities were identified by Salmon (1981) as: California, Florida, Indiana, Illinois, Iowa, Kentucky, Massachusetts, New York, Pennsylvania, Georgia, Maine, Maryland, North Dakota, Virginia, and Wyoming. While the potential usefulness of such arrangements is significant, widespread use is not likely to become a reality except where fiscal conditions and political climates are favorable to their development (Camp, 1983).

## Capital Outlay Principles and Issues

It was evident throughout the review of relevant research that, despite the paucity of direct litigation concerning the issue of capital outlay funding, there continues to be substantial interest in the topic. There is concern about its potential effect upon schools and school budgets in the future. As educational finance continues into the present decade, an everpresent reality in the face of a popular resurgence of fiscal conservatism and shrinking school district budgets is that the needs of individuals will come into sharper focus as the reality of potential cutbacks is recognized by special interest groups who will seek to maintain or increase their level of
support at the expense of less aggressive programs (Berne and Stiefel, 1984). Competition for the educational dollar will continue to grow and the resources to be distributed can at best be expected to remain static, if not to decline.

Embodied in every discipline and scholarly pursuit are philosophical underpinnings and assumptions upon which all progression of thought and critical evaluation rest. Several models for desirable capital outlay conditions have been formulated. As early as Updegraff, capital outlay concerns were evidenced by his logical extension of Cubberley's general work in equity (Cross, 1983). Updegraff called for a percentage amount to be related to actual costs and fiscal ability. Mort proposed a percentage addition to the foundation program and Morrison promoted the revolutionary idea of abolition of local school districts and advocated a plan similar to what may be found in Hawaii today (Cross, 1983).

One of the better formulations of a model for capital facilities planning was promoted by Barr and Jordan (cited in Cross, 1983) in the NEFP project. They proposed incorporation of nine concepts into any formulation for the construction and financing of school facilities:

1. The primary purpose of school facility financing programs is to provide funds for housing educational programs which will meet the diverse needs of the total school population.
2. The state has a primary responsibility for establishing school facility standards.
3. Educational facility needs are derived from locallydetermined, state-approved, educational programs.
4. A mixture of federal-state-local funding is necessary.
5. Retention of fiscal leeway is a necessary condition for the proper functioning of any school facility financing program.
6. Equalization through intergovernmental grants-in-aid is an essential feature of viable capital outlay programs.
7. Permissive short- and long-term borrowing from varied governmental and nongovernmental sources and appropriations from all levels of government are options which must be available to local districts.
8. Long range planning for construction and financing school facilities is an essential element.
9. Provisions of school facility financing programs should be responsive to changing economic and sociological conditions, but should also be stable and predictable to facilitate long-range planning (pp. 71-72).

Although critics may claim that the immediate needs for the primacy of concern in capital outlay funding are less pressing in periods of enrollment decline, there is still a need for competent planning and indeed for continued construction. Nearly all states are presently experiencing population shifts and existing facilities age rapidly and must either be replaced or extensively renovated. Additionally, a number of districts are actually increasing in enrollment as the economic climate changes unpredictably, creating a need for capacity in school districts to adequately meet the demands of quality education and equal opportunity. In the formulation of alternative methods of funding capital outlay in the state of Kansas, the concepts proposed by scholars such as Barr and Jordan (cited in Cross, 1983) and Berne and Stiefel (1984), among others, need be incorporated into the evaluation of progress toward the achievement of equity.

## Capital Outlay Financing in the State of Kansas

Although the state of Kansas does not participate directly in funding capital outlay budgets and expenditures, provisions for financing capital outlay projects have been statutorily provided in the laws of the state. Kansas law does not provide for the equalization of any fund other than the general fund budget and, as a result, no deliberate attempt is made by the state at providing movement toward equity in capital outlay expenditures. Decisions regarding capital outlay are entirely an issue of local control, and subject only to fiscal capacity conditions in terms of either unadjusted assessed valuation as the maximum allowable four mill capital outlay levy will raise or the bonded indebtedness capacity will permit, which again surfaces as a function of the assessed valuation operation.

Several different methods currently exist by which Kansas school districts have created capital funds. The method under review in this study was that districts may legally impose a mill levy against the unadjusted assessed valuation of the school district in order to raise revenue for capital outlay purposes as described. Laws governing capital outlay levies provide that a school board may elect without a vote of the residents to levy up to but not exceeding four mills for capital outlay purposes for a period of up to five years, except that a budget hearing is required where a levy may be protested. Revenue from the capital outlay levy must be deposited to the capital outlay account from which it may be expended for any legal purpose, or it may be allowed to accumulate for future use. Interst monies earned on capital outlay accounts must be deposited to the same account as well.

If accumulation of the capital outlay fund is permitted to occur over a period of time, the accumulated funds may be sufficient for projects of repair and upkeep of facilities and perhaps for some smaller building needs. The value of the capital outlay account continues to be, however, a function of the local assessed valuation times a locally approved mill rate plus any interest earned on the account.

An additional source of funds for the capital outlay account has been in the elective use of interest earned on the general fund budget. Districts may presently elect to deposit interest from the general fund to the capital outlay account. If cash balances are high and capital outlay contributions under levy are significant, a considerable amount of combined funds can be contributed to the fund balance.

Districts may also transfer money from the general fund to capital outlay one time per year but the district must have previously budgeted a capital outlay levy of not less than three and one-half mills for the current year. The amount of the transfer is not permitted to exceed one percent of the legally adopted general fund budget of operating expenses in the four largest enrollment districts and two percent of the budget in all other districts. No transfers from the general fund to the capital outlay fund may be made prior to June 1 of the school year. Expenditures for any purpose or program must be made from the respective special funds, with the exception that a district may make expenditures from capital outlay for the acquisition of equipment and repair to school buildings from the general fund. Thus, the only fragment of state support to capital outlay surfaces here through equipment and repair and by transfer from the general fund
budget to capital outlay. It has not been effective in equalization, however, as school districts which strain to raise money will likewise have little unused budget authority to transfer and then they must have previously levied three and one-half mills to be eligible to make such transfers.

A third method by which districts have added monies to capital outlay accounts is through motor vehicle property tax and the motor vehicle stamp tax. Such monies have not been a great source of revenue for school districts in general, as in order to be eligible for receipt of these funds the district must be already levying the four mill capital outlay levy. Where mill rates are already high due to low assessed valuation, there may be a reluctance on the part of local boards to levy the required mill rates to be eligible to receive motor vehicle tax proceeds.

A fourth method which has been used by school districts to fund capital outlay projects is through the issuance of revenue or general obligation bonds. Bonding requires voter approval of the district for proposed projects. In Kansas, such method of funding is directly related to the assessed valuation of the district, as districts are limited by the bonded indebtedness capacity of the district. Bonding has long been the predominant means of facilities financing in the state of Kansas, as it is clearly less than practical in significant projects to expend from reserves in such large amounts, even if the capacity to do so exists, making the cash basis a generally impractical alternative in most cases. In the event that bonded indebtedness capacity is found to be not sufficient to meet the need of the
district, appeal may be made to the State Board of Tax Appeals for exception.

To determine the local bonding capacity of a district requires extensive knowledge of the tax base. All tangible taxable property must be determined and summed. Tangible taxable property includes the assessed valuation upon which the school district's general fund budget is formulated, the motor vehicle assessed valuation, and the value of business aircraft within the district. Although farm machinery is not currently taxable, it is included as a measure of district wealth in assessing fiscal capacity determinations for school districts contemplating bonded indebtedness.

If the project cost is to be equal to or less than $14 \%$ of the debt limitation, all that is required of the school district is to publish by resolution the intent for the issuance of bonds as prescribed by law, to hold an election and, if approved, to proceed with the project. If the accumulated project cost exceeds $14 \%$ of local capacity, the district must petition the state for permission to hold the election. Customary practice upon appeal to the tax appeals board has been to approve requests up to 25-30\%. If approval is gained, the election still must be held to determine the will of the electorate.

School bonds in the state of Kansas are classified as municipal bonds and may be either revenue or general obligation funds. General obligation bonds may be issued to purchase or improve any site needed for school district purposes, including the housing of pupils, and to construct, equip, furnish, repair, remodel, or expand buildings. Additionally, bonds may be used to acquire equipment or to purchase school buses, and may be issued without election in an amount not
exceeding $\$ 20,000$ upon securing written permission from the state board of education.

General limitations applying to bond issues other than the debt limitation described have included a variety of requirements regarding length of maturity, permissible interest rates, frequency of elections, and other concerns designed to protect the interests of the electorate.

## Summary

The past decade has focused sharply in society on issues in school finance. Many court cases were filed around the nation claiming constitutional violations of equal protection clauses, and litigation continues to be a reality in school finance.

When the U.S. Supreme Court issued its ruling in Rodriguez $\underline{v}$ San Antonio Independent School District in 1973 denying relief under the federal constitution's equal protection clause, litigation continued in the individual states under the specific language of their separate constitutions. State courts ruled separately on issues focusing on language and reviews of framing interpretations. Decisions were sought which would affirm education as a fundamental right under the respective constitutions and thus cause finance systems to have to justify themselves under strict judicial scrutiny. The consequences of the unconstitutional ruling of various state schemes brought about the modification of numerous finance formulas based either on actual violations or anticipations of challenges in the remaining states.

Among other important reference points, the case of Pauley et al. $\underline{v}$ Bailey et al. (1984) in West Virginia indicated the growing concern
for the scope of equity. In an extensive review of the scope of quality education, capital outlay was identified as a substantive issue of real concern. Excessive reliance upon the local wealth base of property has been the primary determinant of the quality of educational facilities provided and it is certain to continue to raise serious equity questions.

A review of major research literature in the field of equity and capital outlay financing produced mixed results. It is apparent on the one hand that the topic is ripe for a full-scale and significant legal challenge based on principles of pupil equity and taxpayer equity and yet there is a lack of related literature. Capital outlay as an equity issue is clearly in its early stages of development. Complex issues of property tax equity, property tax relief, limitations imposed on local tax revenues, the disparity of local effort rates in providing for school facilities, and issues focusing on the preservation of the American ideal of local control need immediate attention.

There has been limited research on the topic of capital outlay funding for school districts. Research and related literature are particularly sparse in the state of Kansas, which provides no direct money for facilities to local school districts. It is appropriate at the present time to review the function of district wealth as it relates to the funding of capital outlay in the state of Kansas and to propose the effects of alternative methods for providing capital outlay revenues.

## CHAPTER III

## RESEARCH DESIGN

## Introduction

To be judged successful, a reform must reduce the relationship between wealth and expenditures per pupil (Funk, 1980). The issue of equity in school finance is not a new issue among researchers in the educational field. Analysts have been struggling with the problems surfacing in the process of providing the best and most equitable education for citizens of the individual states within limited resources since early in this century when, in 1905, Cubberley first focused attention on the concept of a foundation approach as a means to alleviate capacity disparities (Burrup, 1977).

As interest in equity has gathered, finance schemes in the various states were initiated in succession as states sought during the ensuing decades to define their proper role in the financing for public education. Many formulations were offered during the early years of this century, and eventually the concepts were refined to include the equalization principles evident today in the general fund formulas governing general school finance schemes.

During the past decade, a flurry of school finance reform occurred in the wake of court decisions in the tradition of Serrano $v$ Priest (1971, 1976) in California. At first, the courts were reluctant to
become involved in finance schemes beyond the determination of constitutional issues, deferring to the expertise of the legislatures and the propriety of the legislative role as in McInness $v$ Shapiro (1968), McInness $\underline{\text { v Ogilvie (1969), }}$, and Burrus $v$ Wilkerson (1970).

Courts later became involved to a greater extent in the administration of reform after it became apparent that the force of law would become necessary in some instances to affect change. Courts have also indicated a disposition to become involved if necessary, not only in the determination of issues of equity as they relate merely to economic inputs, but also as related to increasingly broader interpretations of the meaning of equal educational opportunity which may be extended to the financing of capital outlay.

Because of the potential for equity claims in capital outlay concerns and because Kansas does not participate in funding capital outlay accounts, the problem of the study was to review the prevalent alternative methods of funding capital outlay accounts, and specifically to review the practice in the state of Kansas with direct reference to accepted principles of equity. It was also accepted that. the study would project revenues under simulation of alternative finance schemes by application of a hypothetical four mill capital outlay levy within five selected alternative schemes. The specific aspects of the problem were:

1. To build the case for inclusion of capital outlay as a valid object of equity.
2. To identify the broad major practices currently in use in the 50 states and to identify alternatives for funding capital outlay accounts.
3. To identify specific criteria for school finance equity standards.
4. To operationalize the specific criteria for capital outlay alternatives and to generate revenue resource simulations under five alternative schemes using available data for the state of Kansas.

Three equity standards identified from the literature as resource accessibility, ex post fiscal neutrality, and ex ante fiscal neutrality were used to compare the relative degree of equity achieved under each of the simulations of revenue calculated under the five alternative schemes for funding capital outlay accounts in Kansas. When a degree of equalization in a state funding formula is achieved, then a degree of equity is also believed to be achieved (Carlton, 1980). Standards were used to assess the degree of equity achieved under: (1) total local support, (2) full state funding, (3) equalized percentage grant, (4) flat percentage grant, and (5) flat percentage loan funding alternatives. Achievement of equity was identified as the capacity to fund a calculated mean budget per pupil, which was derived from a three-year average of actual capital outlay expenditures across the state.

## Establishment of a Mean Budget Per Pupil

In setting or establishing a target level of funding as representative of perceived adequacy for educational facilities and programs for capital outlay, it may be observed that the present method of funding the equalized general state aid to individual school districts in Kansas takes into account legislatively established enrollment categories which purport to recognize differential costs of education
based on enrollment population extremes. Implicit in the scheme is an assumption that the enrollment category median represents an adequate level for quality expressed by the fact that statutory budget limitations allow school districts below the median budget per pupil of the enrollment category to raise their budgets by the maximum authority established by the legislature, expressed as percentages above a base 100. For example, a school district whose budget per pupil was below the median in 1983-84 was allowed to raise its budget by a maximum of $115 \%$, while a district at or above the median budget per pupil was only allowed an increase of 105\%. Carlton (1980) reviewed statistical procedures appropriate for analysis of Kansas school district funding formulas and found the median as more representative of equity than other measures of central tendency, given the uniqueness of the use of a median in school finance formulas.

In the present research, however, spurious results would have been obtained if enrollment category expenditures were arrayed and a median figure derived, since a considerable number of districts may not have capital outlay expenditures for a given year, while other districts may have several very large costs. The results in such a situation would be misrepresentative because of extremes. A more responsive measure of adequacy was obtained by summing the capital outlay expenditures across the state for all enrollment categories for a period of three years to reduce single-year values and then dividing by the sum of the number of pupils in the state based on full-time enrollment (FTE). The result was a mean budget per pupil, which served as a definition of adequacy against which alternative formulations or simulations could be compared. Further, the effect of
enrollment categories as a measure of cost differential or price adjustment was deemed insignificant, because an averaged dollar cost per pupil can be viewed as representative of the state as a whole. Further effects of prevailing wage laws in Kansas and recognition of the nonspecific residence of construction companies and a three percent protective bid rate tend to mitigate any significant effect of geography in capital outlay costs. The mean budget per pupil as a measure of central tendency was accepted for this study as applicable to the establishment of an adequate support level under hypothetical revenue simulation and analysis of capital outlay alternatives.

To establish a mean budget per pupil revenue support level for purposes of capital outlay equity projection where no such figure has previously been established required a method to be determined by which to calculate that figure. To arrive at a mean level of support, state department data was used to derive a total of all actual capital outlay expenditures reported for a three-year period, from 1980 to 1983, and divided by the number of pupils for the same period. Calculation of the mean budget per pupil for capital outlay was shown as a formula:

$$
\frac{\mathrm{COE}_{80}+\mathrm{COE}_{81}+\mathrm{COE}_{82}}{N p_{80}+N p_{81}+N p_{82}}
$$

$\overline{\mathrm{BPP}}=$
3
where:
$\overline{B P P}=$ mean budget per pupil for adequacy of support for capital outlay funding

```
COE = capital outlay expenditures for a given year
    Np = number of pupils defined as the FTE on September 15 of each year shown
```

It was noted that the establishment of a mean budget per pupil made no assumption regarding the actual needs within school districts for capital outlay funds. The purpose of establishing a mean budget per pupil for this study was to provide an objective standard against which alternative revenue simulations may be compared to determine relative satisfaction of equity conditions. The present study was limited to examination of capacity under capital outlay provisions without considerations of actual facilities needs. A discussion of this issue is undertaken in Chapter $V$.

The mean level of support calculated was used as a measure of adequacy against which revenue simulations under each of the five alternative capital outlay funding efforts could be assessed using the three equity standards of resource accessibility, ex post fiscal neutrality, and ex ante fiscal neutrality using selected statistical measures. Revenue resource simulations were calculated for alternatives of sufficiency of support at the mean budget per pupil by: total local support, (2) full state funding, (3) percentage equalized state grants, (4) flat percentage grants, and (5) flat percentage state loan programs. Relative differences in ability of each funding alternative in relation to equity approximation as operationalized by the equity principles were observed and discussed. Application of the principles of equity against funding alternatives produced quantifiable results used the substantive considerations appropriate to the study.

## Operationalization of Equity Principles

"Inequality cannot be measured in the abstract. It must be based upon a clearly-defined philosophical position" (Grams, Guthrie, and Pierce, 1978, p. 318). Equity has been a broadly-defined term in the research literature and definitions of equity are as varied and diverse as the perspective of the researcher. A recognition of those value judgments which influence research perspectives is essential in order to allow consumers of research to properly understand the emphases being advanced by different studies (Berne and Stiefel, 1984).

The most universally and broadbased definition of equity has been that equity is the equal treatment of equals and the unequal treatment of unequals (Carlton, 1980). Equity is further assumed to distribute funds in educational finance not necessarily on an equal per dollar basis but rather on the basis of legitimate need for optimization of opportunity in the American ideal (Berne and Stiefel, 1984).

Equity has been further divided into two inclusive categories of student or pupil equity and taxpayer equity (Carlton, 1980; Funk, 1980; Berne and Stiefel, 1984). Pupil equity refers to a variety of objects which may be distributed and can cover a spectrum of inputs considering raw dollars, price-adjusted dollars or physical resources, outputs such as achievement and student behaviors, or it may consider outputs such as earnings, income potential, and pupil satisfaction. Pupil equity has arisen from a concern for students as the primary object of educational services and is ideologically premised as well on the belief that the present educational system will be a major determinant of the quality of future life (Berne and Stiefel, 1984).

The goal of pupil equity is that all students in like circumstances will be treated alike and that funds needed to provide an adequate education suited to their needs will not be unduly tied to the local district but rather to the wealth of the state as a whole. Grams, Guthrie, and Pierce (1978) stated the goals of student equity to be that: (1) local district wealth is not a significant factor, (2) different educational needs are overcome, and (3) differences in the educational costs are neutralized by the state's school finance formula. A review of the literature by Berne and Stiefel (1984) indicated that, of the two broad categories of pupil equity and taxpayer equity, pupil equity studies have predominated significantly over taxpayer studies.

Taxpayer equity studies have encompassed the remainder of equity studies. Taxpayer equity is based on the principle of equal yield for equal effort and the ability to pay for educational services. The ability to pay concept indicates that taxpayers should not be unduly taxed to the point of overburden (Carlton, 1980). Additionally, equal yield for equal effort implies that horizontal equity is present among taxing subdivisions. Thus, the ex ante formulation is a measure of wealth neutrality (Berne and Stiefel, 1984). If there are to be differences in expenditure, it is incumbent upon the system that such differences be a function of expressed preference rather than an expression of capacity (Berne and Stiefel, 1984). In practice, the issue of equality in school finance has become one which is based more on the formula than on what actually has been spent.

## Resource Equity Operationalized

The equal accessibility, resource accessibility, and resource equity standards are essentially the same principles by different names. Resource equity is defined by requiring that all students in a state have equal access to the economic resources needed for a program to fit their needs. Johns and Magers (1978) indicated that equity should be measured by program adequacy, but no comprehensive and mutually accepted definition of what a good program is has been developed. The assumption of the notion of a mathematically derived and reality-based mean budget per pupil for capital outlay finance is appropriate for purposes of defining program adequacy in this study.

Therefore, the operational definition of resource equity for purposes of the present research was that resource equity is achieved when all students in a school district have equal access to the economic resources of the state for purposes of capital outlay funding as defined by the mean budget per pupil established for the three-year period preceding the year of the study.

Statistical measurement was necessary to assess the degree of resource accessibility to the mean budget per pupil once resource simulations were calculated. Assessment utilized the range, the restricted range, the federal range ratio, relative mean deviation, and the Gini coefficient.

The range exhibited the value of extreme scores and the restricted range demonstrated a more representative view of the cluster of scores disregarding extremes. The federal range ratio utilized the wealth neutrality test established for receipt of federal funds. The
relative mean deviation allowed examination of the difference in each district's per pupil revenue capacity and the mean per pupil capacity for distribution. The Gini coefficient indicated the association of revenue produced to the population by giving a bivariate plot of the cumulative percentage of total school revenue to cumulative proportions of the population in the district to the state's student population, thereby yielding a degree of wealth concentration.

Examination of resource equity allowed response to substantive issues regarding capital outlay. Among the issues to be determined were questions concerning which alternative showed the greatest amount of resource accessibility under simulation in relation to funding at the mean revenue for the state, which alternative showed the least movement toward resource equity, which alternative allowed for the greatest variation in resource equity, and which alternative allowed the least variation.
ex post Fiscal Neutrality Operationalization

The ex post fiscal neutrality standard refers to equity among pupils on the basis of the absence of a positive relationship between wealth and residence. The ex post fiscal neutrality standard represents the principle that residence should not be a factor in revenue capacity and that variations in expenditures should be a consequence of local decisions and not a result in disparities in accessible revenue tied to the tax base. It is a fiscal neutrality concept, exploring wealth attributable relationships in revenue to the aggregate wealth of the state as a whole rather than the individual district. Friedman (1977) summarized the ex post fiscal neutrality
standard as:

1. Ex post fiscal neutrality measures the degree of equity after funding choices have been made.
2. Ex post fiscal neutrality is violated if high wealth districts tend to spend more for education than the low wealth districts.
3. The ex post fiscal neutrality test is concerned with actuat expenditures not being systematically related to the wealth of the district ( p .33 ).

As the relationship between capacity and revenue received will vary proportionally according to the type of support scheme simulated, an either/or evaluation was needed. Therefore, the operational definition of ex post fiscal neutrality for purposes of the present study was that school districts receive aid in an inverse relation to the ability to raise specified revenue to fund the mean budget per pupil or that fiscal capacity not be related to aid received in order to fund the mean budget per pupil.

Statistical measurement was necessary to assess the degree of ex post equity present in each alternative funding method. Assessment utilized the range, the restricted range, the federal range ratio, relative mean deviation, Gini coefficient, and the Pearson productmoment correlation coefficient.

The range demonstrated the continuum of values existing under each alternative funding scheme and is discussed regarding the ex post formulation. Similar evaluation of the restricted range and federal range ratio occurs. The relative mean deviation was used to assess the position of the local districts in relation to the mean to determine ability to fund the mean value. The Gini coefficient reexamined the issue of wealth concentration and the Pearson product-moment
correlation examined the relationship between the need unit and taxbase accessibility.

Examination of ex post fiscal neutrality allowed for responses to substantive questions, including a determination of which alternative showed the greatest reliance on local capacity to fund the mean budget per pupil, which alternatives showed the least reliance on local capacity to fund the mean, and which alternatives showed the greatest and the least variation in generated revenue available.
ex ante Operationalization

The taxpayer equity standard is the alternative formulation to pupil equity. As with pupil equity, the concern may be for horizontal equity or for vertical equity. The vertical equity concern may be for the ability to pay principle and the horizontal concern may be for the equal yield for equal effort principle. Friedman (1977) summarized the elements of ex ante fiscal neutrality:

1. Equal tax effort will yield equal revenues.
2. Tax effort is measured by the property tax rate.
3. A tax rate scale should be printed that gives expenditures for each tax unit. Then a district merely chooses the expenditure level it desires and the differences is made up by the state.
4. The ex ante fiscal neutrality test is concerned with the rules of any finance plan; i.e., that equal effort yields equal expenditures. The resulting patterns of expenditures do not matter so long as the rules are fair (p. 34).

To operationalize the ex ante neutrality standard in capital outlay funding, consideration was again given to the either/or proposition considered earlier. The operationalized definition of ex ante
neutrality was that school districts either receive aid which meets the mean budget per pupil irrespective of local effort, or aid is received in inverse proportion to ability to pay as measured by uniform effort rate deficiency.

Statistical measurement was necessary to assess the degree of ex ante equity present under each alternative funding method. Assessment utilized the range, the restricted range, the federal range ratio, relative means deviation, and the Pearson product-moment correlation coefficient.

Range measures assessed different aspects of the varying degree of ability of each funding alternative to fund the mean budget per pupil established for capital outlay. An additional measure of dispersion was found by examination of the relative mean deviation. Relative mean deviation assessed how different are the mill rates required in local districts to provide equal revenues and the range measures assessed the disparity of results under an equal four mill assessment. Computation of the Pearson correlation coefficient provided an assessment of the relationship between effort and revenue, or between wealth and tax rate.

Analysis of the data allowed assessment of the funding alternatives for capital outlay. Substantive questions under all three equity principles were answered regarding the relative approximation of equity provided by each alternative simulation, which alternative provided the greatest and the least variation in available revenue, and what the cost to the state would be under each alternative to fund a mean budget per pupil.

## Resource Simulations

A total of five alternative funding simulations were run for capital outlay funding in all 304 school districts in the state of Kansas. To provide for computation of desired data, original formulas and an original computer program were designed for the purpose.

The five funding alternatives represented a reasonable crosssection of current practices which could be acceptable within the economic and political realities of modern school finance in Kansas. The alternative methods were: (1) total local support and is the current method for capital projects in the state, (2) full state funding, (3) percentage equalized grant, (4) flat percentage state loan program at a $50 \%$ cost-sharing level with the local district, and (5) flat percentage state grant program at a $50 \%$ cost-sharing level with the local district. All five alternative formulations were based upon the property wealth of the local districts, defined as the unadjusted assessed valuations of the districts upon which local boards may impose capital outlay mill levies. Each alternative was seen in its election as possessing particular advantages and disadvantages accruing to it individually. Total local support had the advantage of preserving full local decision-making autonomy and the concomitant disadvantage of a possibly severe limitation on the ability to generate revenue by virtue of being a function of a single factor of assessed valuation. Full state funding had the unique advantage of wealth-free discrimination insofar as the wealth of the state as a whole and political decisions were determinants in support levels, with the potential disadvantage that a significant decline in local
autonomy almost invariably resulted. The percentage equalized grant combined some measures in common with other alternatives explored. Particular advantages of the use of the local effort rate to establish local control and the delimiting measure of state property wealth to compensate for varying local deficiencies were powerful arguments for its use. Relatively few disadvantages in percentage equalized grants could be found, except on a strictly home rule basis. The flat percentage loan program had the advantage of favorable state financing and the simultaneous disadvantage of incurring debt in a district where property measures likely already indicate a relative inability to pay.

The alternative of a flat percentage grant program had the obvious advantage over the percentage loan program alternative by virtue of loan forgiveness, but the limiting factor may be the same as in the loan program, where even at an equal share level of $50 \%$, local ability theoretically might not be sufficient in some cases to fund the mean budget per pupil level of adequacy.

## Property Wealth Index

In order to have a taxable base upon which the simulations of revenue projection could be calculated, the present capacity for capital outlay funding had to be known. Since assessable property wealth as defined by assessed valuation is the only currently accessible source of tax revenue, a property wealth index for measurement of individual school district's capacity for capital outlay purposes was shown as:

$$
P W I=A V(C M M)
$$

where:

$$
\begin{aligned}
\text { PWI }= & \text { property wealth index } \\
\text { AV }= & \text { assessed valuation of the district } \\
\text { CMM }= & \text { constant maximum assessable mill level, currently four } \\
& \text { mills }(.004)
\end{aligned}
$$

This measure demonstrated the local district's ability to generate revenue under a constant mill rate across the state based on uniform objects of assessed valuation. Current practice in Kansas requires that up to a four mill capital outlay levy may be applied and, if levied, brought against the actual unadjusted assessed valuation of the district, rather than against the adjusted valuation, which is a measure of wealth based upon theoretical uniform assessment statewide. In practice, assessment levels vary widely across the state, as evidenced by the sales assessment ratio study performed by the state's taxation subdivision used in general equalized fund tax rates.

A second indicator of school district capacity to fund capital outlay at the mean budget per pupil was shown as:

$$
\text { WPP }=\text { PWI/FTE }
$$

where:
WPP = wealth per pupil
PWI = property wealth index
FTE $=$ full-time equivalency, defined as the pupil count enrollment on September 15

This measure yielded the present wealth per pupil for capital outlay in the individual districts across the state.

## Total Local Support

Having determined a wealth base against which funding alternatives could be applied, an examination of the five alternative schemes is appropriate.

Total local support is a funding alternative which leaves each school district free to chart its own capital outlay course independently of assessed valuation as a limiting factor in the local fiscal capacity index. The theoretical capital outlay capacity of each school district disregarding current obligation was expressed as seen previously by a property wealth index of assessed valuation times a constant maximum mill rate and alternatively, by a wealth per pupil index of property wealth divided by the pupil count. The measure allowed for a direct comparison of the individual school district's ability to fund capital outlay with the mean budget per pupil established previously. When the ability of the school district is known and expressed in dollars per pupil, the value for each school district may be subtracted from the mean budget per pupil established for the state. The resulting data observes the relationship between local districts' ability to fund capital outlay expenditures at the mean. Descriptive statistics of dispersion could then be calculated.

A further measure of ability to pay was found by calculation of an effort index holding the object of the mean budget per pupil constant and finding the required mill rate needed to fund the mean. This was expressed by the formula:

$$
\text { RLMR }=\frac{\overline{\mathrm{BPP}}(\mathrm{FTE})}{\mathrm{AV}}
$$

where:

$$
\begin{aligned}
\mathrm{FTE} & =\text { number of pupils in the district } \\
\text { RLMR } & =\text { required local mill rate } \\
\overline{\mathrm{BPP}} & =\text { mean budget per pupil for capital outlay } \\
\mathrm{AV} & =\text { assessed valuation of the district }
\end{aligned}
$$

Statistical measures described earlier were applied to observe the distribution of results in disparity of local mill rates for evaluation under the stated equity principles. Additionally, the cost to the state was calculated.

## Full State Funding

The full state funding alternative for capital outlay expenditures requires the state to fund the expenditure and leaves the local district independent of the limitation of assessed valuation as a determinant of aid after a uniform statewide mill level for accumulation in a capital reserve fund. With the assessment of a four mill capital outlay levy in each school district applied to the assessed valuation available, a reserve fund was established with funds allocable to each district on a per pupil or FTE basis in Kansas, since all districts were eligible to participate. In such a scheme, negative aid resulted to some school districts. At issue was the sufficiency of the reserve fund to meet the allocation and the size of any deficit. The formula for expressing the operation of full state funding was shown as:

$$
\text { SAFULL }=\left[\begin{array}{ll}
(\overline{B P P}) & (F T E)
\end{array}\right]-\left[\begin{array}{ll}
(R L M R) & (A V)
\end{array}\right]
$$

where:
SAFULL = state aid available
$\overline{\mathrm{BPP}}=$ mean budget per pupil for capital outlay
FTE = number of pupils in the district
RLMR $=$ required local mill rate at a constant . 004
$A V=$ assessed valuation
The value produced for each district was the state aid available under the uniform four mill assessment and was summed to derive the total aid available across the state for allocation among districts based on the need formulation.

Calculation of an additional measure yielded the amount of aid needed per district and was multiplied to find the aid needed across the state. Subtraction then yielded the sufficiency of the reserve fund. Cost of excess funding to the state was found. The formula for the measure was:

$$
\text { RAFULL }=(F T E) \quad(\overline{B P P})
$$

where:
RAFULL $=$ required aid
FTE $=$ number of pupils in the district
$\overline{B P P}=$ mean budget per pupil for capital outlay
Descriptive statistics were applied to assess the relative performance of funding alternatives as expressed by simulation under the stated principles of equity.

Percentage Equalized Grant

The percentage equalized grant alternative is a measure which
combines the benefits of power equalizing with local participation to ensure a continuation of local vested interest and a measure of local autonomy. The percentage equalized grant has a theoretical state participation range of 0 to $100 \%$ support in causing the district to fund the mean budget per pupil when all districts uniformly apply the maximum four mill capital outlay levy. Under the simulation of this alternative, districts participated in funding the mean budget per pupil according to ability based on assessed valuation as the measure of property wealth with the assurance that locally generated revenues remained in the local district, as no negative aid provision existed. The formula was expressed as a two-step process;
where:

$$
\text { SAEQ }=\left[\begin{array}{ll}
(\overline{\mathrm{BPP}}) & (\mathrm{FTE})]-[(\mathrm{RLMR}) \\
(\mathrm{AV})
\end{array}\right]
$$

SAEQ = state aid to the local district
$\overline{B P P}=$ mean budget per pupil for capital outlay
FTE = number of pupils in the district
RLMR $=$ required local mill rate
$A V=$ assessed valuation in the district
The first calculation provided the solution for the dollar amount of state aid required in funding the mean. Calculation of a second formula yielded the percentage of state aid given to each school district in providing funding at the mean budget per pupil when expressed as:
where:

$$
\% \operatorname{SAEQ}=\operatorname{SAEQ} /[(\overline{\mathrm{BPP}}) \quad(\mathrm{FTE})]
$$

\% SAEQ $=$ percentage of state aid awarded to the district

$$
\begin{aligned}
\text { AV } & =\text { assessed valuation of the district } \\
\text { RLMR } & =\text { required local mill rate } \\
\text { SAEQ } & =\text { state aid entitlement } \\
\text { FTE } & =\text { number of pupils in the district }
\end{aligned}
$$

The absence of negative aid which distinguished this alternative from full state funding was expressed by the condition:

$$
\text { If } \overline{B P P}(F T E)<(.004)(A V) \text { then } S A E Q=0
$$

The resulting values for each district in relation to the mean allowed descriptive statistics to be calculated to assess the relative achievement of equity of the funding alternative. The unfunded balance beyond state aid needed to be met by the four mill capital outlay levy. It was then possible to calculate the cost of state participation.

## Flat Percentage Grant Program

The capital outlay funding alternative using a flat grant at a stated percentage as its method of state participation ensures each district that it will be treated equally on the basis of allocation per pupil in the district. It further requires the local district to participate within the four mill maximum levy in projects and thus the issue of local control is ameliorated. For purposes of simulation, state participation was set at $50 \%$ of the mean budget per pupil. The question to be answered by the applied formula then asked if the assessed valuation was sufficiently great to fund the local $50 \%$ share and was expressed as:

$$
A V=\frac{(B P P)(F T E)}{.008}
$$

where:

$$
\begin{aligned}
\mathrm{AV} & =\text { assessed valuation of the local district } \\
\overline{\mathrm{BPP}} & =\text { mean budget per pupil for capital outlay } \\
\text { RLMR } & =\text { required local mill rate } \\
.008 & =\text { one-half responsibility of the local district }
\end{aligned}
$$

In order for the assessed valuation to be adequate, the statement

$$
A V \geq \frac{(\overline{\mathrm{BPP}})(\mathrm{FTE})}{.008}
$$

had to be satisfied.
Calculation of descriptive measures were performed in order to determine the relative achievement of equity of the funding alternative. The unfunded balance needed to be able to be met under the four mill capital outlay levy. The cost of the program of the state was calculable from the data.

## Flat Percentage State Loan Program

The flat percentage loan program, like the flat grant, contains the desirable features of both state and local participation in capital projects and the disadvantage of incurring debt which must be repaid from local revenue.

Calculation of state aid was expressed as in the flat percentage grant formula:

$$
A V=\frac{(\overline{B P P})(F T E)}{.008}
$$

where:
AV = assessed valuation of the district
$\overline{B P P}=$ mean budget per pupil for capital outlay
FTE = number of pupils in the district
The function of the four mill maximum levy for capital outlay becomes extremely important with a loan program, as its value becomes even more critical since it must be used to meet not only the unfunded $50 \%$ of the mean budget per pupil but also repayment of the loan if the debt is to be repaid from capital outlay monies rather than from special bond and interest levies. The effect is dependent upon the size of the other special assessments which make up the total district mill rate. The effect is less if the district is able to levy separately for bond and interest payments, assuming prior bonding is a reality and given that interest will be charged on the percentage loan. Given these assumptions, statistical measures were employed to observe the distribution of results for evaluation under stated equity principles. Like the flat percentage grant, the total cost to the state was calculated.

## Hypotheses

Three hypotheses were stated for the study:
Hol. Any of the alternative funding schemes will result in greater equity than the present total local support method.

Ho2. The disparity among individual school districts' capital outlay revenue per pupil capacity to fund the mean budget per pupil will be reduced by the introduction of state aid in capital outlay.

Ho3. The disparity among individual school districts' capital outlay required local mill rate to fund the mean budget per pupil will be reduced by the introduction of state aid to capital outlay.

Study Population and Sources of Data

The study population included all 304 unified school districts in the state of Kansas operating in the year of the study. Data for the study was obtained from the Kansas State Department of Education, Division of Financial Services. Enrollment figures for 1983-84 were obtained from the Kansas State Department of Education (KSDE) (1984e) publication entitled 1984 Unified School District Wealth. The 1983 assessed valuation data were obtained from the KSDE (1984a) publication entitled General Fund Property Tax Rates of School Districts. Data on 1983 mill levies in Kansas school districts were obtained from the KSDE (1984d) publication entitled 1983 Mill Levies of the 304 Unified School Districts of Kansas. Data on the percentage of line items of the total budget related to capital outlay were obtained from the KSDE (1983a) publication entitled Percentage of Line Items of General Fund Budgets for USD's 1983-84. Information on enrollment categories, bonding requirements, and other legal and procedural data was obtained from the KSDE (1983b) publication entitled School Bond Guide 1983, various KSDE memoranda, the KSDE (1984c) publication entitled Guidelines for Financial Reporting: Unified School Districts 1984, and direct references to appropriate sections of the Kansas Statutes Annotated (1984). Data used in establishing the three-year average or mean budget per pupil for capital outlay was obtained from a study currently underway at the State Department of Education on building accounts and fund balances. Background and historical data on the equalized general fund budget was obtained from the KSDE (1984f) publication entitled USD Report on Enrollments and General

Fund Budget Per Pupil, 1983-1984, the KSDE (1984a) publication entitled General Fund Property Tax Rates of School Districts: 1983 Actual and Adjusted Rates 1984, and the KSDE (1984b) publication entitled General State Equalization Aid for Kansas USD - 1983-84.

Summary of Research Design

The purpose of the study was to review alternative methods of funding capital outlay accounts and to project revenue resource simulations using five selected alternative methods of: (1) total local support, (2) full state funding, (3) percentage equalized grants, (4) flat percentage grants, and (5) flat percentage loans.

Revenues generated by simulation were compared to each other and to a derived level of funding adequacy as defined by a statewide three-year average capital outlay expenditure level. The alternative resource simulations were analyzed using statistical measures designed to assess relative achievement of equity as defined by three equity principles of resource accessibility, ex post fiscal neutrality, and ex ante fiscal neutrality. In each resource simulation, the cost to the state in its funding role was found.

## CHAPTER IV

## PRESENTATION OF THE FINDINGS

## Introduction

The results of the statistical analysis of the generated data are presented in Chapter IV. The results are reported under separate headings corresponding to the five alternative plans of Total Local Control, Full State Funding, Percentage Equalized Grants, and a combined Flat Percentage Grant and Loan. Statistical results are presented and discussed and are followed by a discussion of the three equity principles of ex post fiscal neutrality, ex ante fiscal neutrality, and resource accessibility.

Support financial data was generated by original microprocessor programs. Data generated for each unified school district in the state of Kansas is located in the Appendixes. The data produced was analyzed using original microprocessor programs which were constructed to utilize the statistical techniques.

Appendix A contains general data on assessed valuations (AV), full-time equivalency (FTE), property wealth index (PWI), wealth per pupil index (WPP), and the mean budget per pupil ( $\overline{\mathrm{BPP}})$. The general relationship between wealth per pupil and mean budget per pupil for each district can be easily viewed in this data. Data in the general
data appendix is cross-arrayed by unified school district number (USD) and again by assessed valuation.

Appendix B contains all financial data generated by the computer programs under the total local control alternative. Information regarding the district capacity under the constant maximum four mills (CMM) is displayed, as is data on the property wealth index, assessed valuation, FTE , mean budget per pupil, and the variable required local mill rate (RLMR) to fund the mean. Data is cross-arrayed by USD number, assessed valuation, and required local mill rate. Data may thus be accessed by intended use easily.

Appendix $C$ contains the computer-generated data on the full state funding alternative. Data on USD number, FTE, assessed valuation, and constant maximum mill rate is displayed, as is data on required aid and full state aid to each district. Data on required aid and available aid is expressed as income or as negative aid values. It may easily be seen which districts will receive aid and which districts have excess capacity. Data arrays on USD number and required aid are included.

Appendix D contains the data on percentage equalized grants. Data displayed includes the USD number, FTE, assessed valuation, constant maximum mill rate, equalized state aid in dollars, and the percentage of state aid to each individual district. Although it may be seen that the formula construction allowed for consideration of negative aid under equalization, it is important to observe that all negative numbers under the columns of SAEQ and \% SAEQ must be read equal to zero, as the plan presented assumes a zero base. The data in

Appendix $D$ is cross-arrayed by USD number and by percentage of state aid to each district.

Appendix E presents data generated under the combined flat percentage grant and flat percentage loan alternatives. Data displayed includes the USD number, FTE, assessed valuation, constant maximum mill rate, required aid for each district, and the grant/loan data on the assessed valuation sufficiency. It must be remembered that the required aid for each district is a $50 \%$ cost share, with the local district and the state responsible for equal halves. It is also imperative in examining the data to remember that the grant/loan column is a sufficiency statement which asks if the assessed valuation is adequate to fund the local share under the constant maximum mill rate. A visual comparison of each district's assessed valuation to the grant/loan column is required to test for sufficiency. Data arrays are presented in Appendix E by USD number and simultaneously by grant/loan, required aid, and FTE.

## Hypotheses

Three hypotheses were stated for the study:
Hol. Any of the alternative funding schemes will result in greater equity than the present total local support method.

Ho2. The disparity among individual school districts' capital outlay revenue per pupil capacity to fund the mean budget per pupil will be reduced by the introduction of state aid to capital outlay.

Ho3. The disparity among individual school districts' capital outlay required local mill rate to fund the mean budget per pupil will be reduced by the introduction of state aid to capital outlay.

Statistical analysis of the data indicated a strong support for the hypotheses stated. The total local control alternative consistently returned the greatest variation in receipt of per pupil revenues, and ranged the furthest from an equitable distribution of resources when compared to the remaining alternatives.

The flat percentage loan alternative provided the second least equitable arrangement for funding capital outlay. Even though only $50 \%$ of the cost had to be carried by the local district, an even greater cost was imposed on participating districts because the districts were liable not only for repayment of the loan, but also for the accompanying interest costs.

The flat percentage grant occupied the middle position in the rank of alternatives. As in the loan program, the districts were responsible for $50 \%$ of the mean budget per pupil, but a greater movement toward equity resulted as a consequence of the grant itself.

Little significant difference was found betweeen the percentage equalized grant and full state funding, except to the districts at the higher end of the capacity distribution. Either plan appeared to work equally well in achievement of equity. The state, however, tended to benefit heavily by the negative aid provisions present in full state funding, while a cost to the state may be found under the percentage equalized grant.

Total Local Control

Data from the total local control alternative are presented in

Tables I and II. Table I presents results of statistical treatment of the data to determine the equity position; Table II presents a financial data summary.

The assessed valuations of districts ranged from a low of $\$ 4,543,864$ to a high of $\$ 974,604,480$, yielding a simple range of $\$ 970,060,616$. The property wealth index for capital outlay yielded a range from $\$ 18,175.46$ to $\$ 3,898,417.92$, or a simple range of $\$ 3,880,242.46$. The wealth per pupil index at the individual level of analysis provided the most meaningful scores because they may be compared directly to the mean budget per pupil. The wealth per pupil range was found to be from $\$ 24.04$ to $\$ 1,625.62$, for a spread of $\$ 1,601.58$. Compared to the $\$ 54.75$ mean budget per pupil calculated earlier, it may be seen that scores fluctuate widely about the mean, indicating a negative skewness to the distribution of 304 school districts where the actual mean of the distribution was found as $\$ 195.77$ and the median value was found at $\$ 122.35$.

Additional range measures also indicated the width of the capacity in the distribution. Calculation of the restricted range measure at the 95 th to 5 th percentile to disregard extreme scores yielded a value of $\$ 224.31$, indicating once again the negative skewness of the distribution. The federal range ratio yielded a value of 4.77 , indicating a considerable degree of inequity within the distribution under the wealth neutrality measure.

Similar results were achieved with the relative mean deviation, Pearson correlation coefficient, and Gini coefficient measures. A calculated value of .72 on the relative mean deviation indicated a significant effect of the role of assessed valuation in districts'

TABLE I
TOTAL LOCAL CONTROL, EQUITY POSITION

| WPP Range | R. Range | F Range Ratio | Pearson R | Gini Coeff. | RLMR Range | Rel. Mn. Dev. | \# Dist. Below Mn. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & 24.04 \\ & 1625.62 \end{aligned}$ | 224.31 | 4.77 | . 82 | . 2052003 | $\begin{aligned} & .0001 \\ & .0091 \end{aligned}$ | . 72 | 29 |

TABLE II
TOTAL LOCAL CONTROL, FINANCIAL DATA SUMMARY

| Option | Req. Aid | Avail. Aid | Deficit | Surplus | State $\$$ | Note |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Total <br> local <br> control | 17947849 | 35185118 | -416142 | - | 0 | No state duty. The defi- <br> cit is the sum of districts <br> failing to meet the mean. |

Note: $N=304$
capacity to fund the mean budget per pupil where the closer the value approaches 1.00 , the inequity increases. Similarly, the Pearson correlation coefficient, when correlating wealth per pupil to revenue per pupil, indicated a strong positive relationship of . 82 , observing a positive variance between wealth per pupil and revenue per pupil. The calculation of the Gini coefficient which estimates the size of the lower half of the distribution also yielded a significant value of . 205200325 , demonstrating the presence of the districts which were incapable of funding the mean under equal effort in the individual districts.

Twenty-nine districts of the total population of 304 were incapable of funding the mean budget per pupil at or below the four mill maximum rate when levied against the actual unadjusted assessed valuations of the districts. These districts accounted for $9.5 \%$ of the total population. The sum of unfunded revenues in those districts was totaled at $\$ 416,142.54$ for all districts to meet or exceed the mean. For all districts to meet the mean budget per pupil, the required local mill rates were calculated and ranged from .0001 to .0091 mills.

Under the local control alternative, no cost to the state could be found, as the state did not participate in the cost of capital outlay. The total local control alternative presently in place was judged to be the least equitable arrangement, resulting in significant reliance upon local wealth for the ability to fund the mean budget per pupil.

Full State Funding

Data from the full state funding alternative are presented in

Tables III and IV. Table III presents results from the statistical treatment of the data to determine the equity position; Table IV presents a financial data summary.

The assessed valuations of districts were unaffected and ranged from $\$ 970,060,616$. The property wealth index likewise yielded the simple range of $\$ 3,880,242.46$ and the wealth per pupil index range remained at $\$ 1,601.58$. These values remained the same across all five plans, as none of the alternatives varied the valuation structure in the state. As a consequence, although the alternatives achieved significantly different results, the property tax base remained unaffected and attempts were made to release revenue from a property base relationship.

Under full state funding, all districts were funded at $100 \%$ of the mean budget per pupil. Range measures calculated demonstrated that fact uniformly and no variance related to assessed valuation could be observed. The required local mill rate to fund the mean was set at .00 and the aid range was .00 as well, since all districts levied equally and were reimbursed at the mean budget per pupil amount multiplied by the FTE. Similarly, the restricted range and the federal range ratio were calculated at zero, since all districts shared equally without exception on the per pupil basis. Range measures of equal values indicated the high degree of equity achieved.

The three remaining statistical measures likewise demonstrated the same degree of equity achieved by the full state funding alternative. The relative mean deviation was set at . 00 , indicating the lack of variance in aid to per pupil units and the Pearson correlation coefficient calculated on aid per pupil to wealth per pupil yielded a

TABLE III
FULL STATE FUNDING, EQUITY POSITION

| WPP <br> Range | R. Range | F Range <br> Ratio | Pearson R | Gini <br> Coeff. | RLMR <br> Range | Re1. Mn. <br> Dev. | \# Dist. <br> Below Mn. |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 24.04 <br> 1625.62 | .00 | .00 | .00 | .00 | .00 | .00 | 0 |
| Note: Mn. $=54.75 ; ~ N=304$ |  |  |  |  |  |  |  |

TABLE IV
FULL STATE FUNDING, FINANCIAL DATA SUMMARY

| Option | Req. Aid | Avail. Aid | Deficit | Surplus | State $\$$ | Note |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Full <br> state <br> funding | 17947849 | 35185118 | -- | 17237268 | 0 | Establishment of negative <br> aid provisions yields a <br> surplus. |

Note: $N=304$
value of .00 , indicating the absence of any relationship between aid and wealth. The Gini coefficient similarly yielded a value of .00 , demonstrating the absence of districts funded at less than the mean budget per pupil.

Negative aid provisions inherent in the full state funding concept caused districts at the higher end of the distribution to pay as much as $-141.74 \%$ in reserve pool funds to the state before reallocation of the mean budget per pupil multiplied by the FTE. As a consequence, full state funding proved to be a far greater advantage to the lower end of the distribution, while disadvantaging the more populous group above the mean. This, however, was not found to be inconsistent with the focus of equity reform.

A summation of aid available under the constant maximum mill rate yielded $\$ 435,185,118$ from all districts, compared to the required aid amount of $\$ 17,947,849.94$. The state cost was calculated by subtracting the required aid from the available aid, yielding a value in this instance of zero cost to the state and netting the state a surplus of $\$ 17,237,268.06$, again due to the fact that the distribution was negatively skewed, with only 29 districts incapable of independently funding the mean.

The full state funding alternative was judged to meet the equity conditions because all districts were able to fund the mean regardless of wealth capacity and because no relationship between ability and aid was found.

## Percentage Equalized Grant

Data from the percentage equalized grant alternative are
presented in Tables V and VI. Table V presents the results of the statistical analysis of the data to determine the equity position; Table VI presents a financial data summary.

As stated earlier, no change was affected in the assessed valuations, property wealth index, and wealth per pupil measures calculated. The effect of a percentage equalized grant alternative is to impose an inverse relationship between wealth and aid per pupil. Such a relationship was present under the proposed alternative, despite the wide variation in wealth measures.

The multiple range measures found for the aid distribution indicated a strong inverse relationship to ability to pay. The restricted range and the federal range ratio were both set at . 00 because all students were funded at the mean budget per pupil. The relative mean deviation value was also .00, indicating the achievement of uniformity in funding all units at the mean. Similarly, the required local mill rate range was set at .00, with all districts levying equally and receiving the mean amount per pupil.

The remaining measures of the Pearson correlation coefficient and the Gini coefficient expressed a high degree of equity. The Pearson correlation coefficient yielded a value of .00 , indicating an inverse relationship between aid per pupil and wealth per pupil as seen in the aid range calculated at $0-56 \%$. The Gini coefficient likewise yielded a value of .00 , indicating that after aid, all districts were successful in funding the mean.

Percentage equalized aid ranged from 0 to $56 \%$. Thirty districts required equalized aid out of the 304 total distribution and accounted for $9.8 \%$ of the population. The amount of aid needed in those 30

TABLE V
PERCENTAGE EQUALIZED GRANT, EQUITY POSITION

| WPP <br> Range | R. Range | F Range <br> Ratio | Pearson R | Gini <br> Coeff. | RLMR <br> Range | Re1. Mn. <br> Dev. | \# Dist. <br> Below Mn. |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 24.04 <br> 1625.62 | .00 | .00 | .00 | .00 | .00 | .00 | 0 |
| Note: Mn. $=54.75 ; N=304$ |  |  |  |  |  |  |  |

TABLE VI
PERCENTAGE EQUALIZED GRANT, FINANCIAL DATA SUMMARY

| Option | Req. Aid | Avail. Aid | Deficit | Surplus | State $\$$ | Note |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Percent. <br> equalized <br> grant | 17947849 | 35185118 | -445166 | -- | 445166 | Absence of negative aid <br> creates deficit to state. |
| Note: $N=304$ |  |  |  |  |  |  |

districts was totaled at $\$ 445,166.79$, resulting in a cost to the state of the same amount, as the percentage equalized grant alternative disregarded excess capacity and did not allow for establishment of negative aid reserves.

The percentage equalized grant was judged to be equitable to all districts, as the state participation depended upon the inverse relationship between ability and aid and because all units were successfully funded at the mean.

Flat Percentage Grant and Loan

Data for the flat percentage grant and flat percentage loan are reported concurrently because of the similarity of results, differing only in the eventual consequences. Data for the flat percentage grant and loan are presented in Tables VII through IX. Table VII presents the results of the statistical analysis of the data to determine the equity position and Tables VIII and IX present a financial data summary.

No change may be observed in any of the static wealth base range measures. The unique characteristic of the grant/loan alternative is that only $50 \%$ of the cost of aid per pupil has to be borne by the local district, thereby lessening or delaying the impact of the total responsibility, depending upon the alternative chosen. As a consequence, the assessed valuations, property wealth index, and wealth per pupil measures remained identical to all previous alternatives, and the grant/loan examined a $50 \%$ shared cost with the state and checked to see if the existing assessed valuation was sufficient to fund the local share. As such, it was necessary to consider the grant/loan

TABLE VII
FLAT PERCENTAGE GRANT LOAN OPTION, EQUITY POSITION

| WPP Range | R. Range | F Range Ratio | Pearson R | Gini Coeff. | RLMR Range | ```Rel.Mn. Dev.``` | \# Dist. <br> Below Mn. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & 24.04 \\ & 1625.62 \end{aligned}$ | . 00 | . 00 | . 0001 | . 0083983 | . 00 | -. 001 | 1 |

TABLE VIII
FLAT PERCENTAGE GRANT LOAN OPTION, FINANCIAL DATA SUMMARY

| Option | Req. Aid | Avail. Aid | Deficit | Surplus | State $\$$ | Note |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Flat <br> percent. <br> grant | 8973924 | - | -8073924 | - | 8973924 | Fifty percent results in <br> true state cost of defi- <br> cit shown. |

Note: $N=304$

TABLE IX
FLAT PERCENTAGE LOAN AID DATA, FINANCIAL DATA SUMMARY

| Option | Req. Aid | Avail. Aid | Deficit | Surplus | State $\$$ | Note |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Flat <br> percent. <br> grant | 8973924 | -- | 8973924 | -- | 23215.54 | State's cost is the grant <br> to one district unable to <br> fund man. Balance is re- <br> coverable plus interest. |

Note: $N=304$
column in Appendix $E$ as a sufficiency statement to be compared to the district's assessed valuation to determine equity.

The multiple range measures found for the aid distribution revealed almost no inequity in ability to fund the mean. The presence of a single school district which was incapable of funding its 50\% share caused the less than perfect measures where indicated. The restricted range ratio was calculated at . 00 and disregarded extreme scores, thereby dropping the single district, and the federal range ratio likewise disregarded the single district and was calculated at .00. Neither measure was particularly sensitive to a single score. The relative mean deviation was found at -.001 , reflecting the presence of that district within the distribution, and the mill rate range was also set at .00 , as all districts levied equally across the entire distribution.

The remaining measures similarly reflected the presence of a single limiting district. The Pearson correlation coefficient between aid per pupil and wealth per pupil yielded a low value of .0001 , indicating the overwhelming sufficiency of the assessed valuation to fund the $50 \%$ cost share in all but one instance; likewise, the Gini coefficient reflected the single district below the mean with a value of .00839831742 . The skewness of the distribution toward an adequate tax base above the mean to fund a $50 \%$ cost share was demonstrated by the statistical measures.

Of the 304 operating school districts in the year of the study, only one was unable to fund the cost of the proposed grant/loan alternative under the four mill maximum, and accounted for $.003 \%$ of the distribution. That single district experienced a shortfall of
$\$ 23,215.54$. The amount of required aid was calculated by multiplying the full amount of required aid where all districts participate times one-half, yielding an aid value of $\$ 8,973,924.97$. The cost to the state of initiating these programs was equal to the required state aid, although it should be recognized that the state would recapture the investment plus interest in all but one instance under the loan alternative.

The flat percentage grant proposal was judged to be more equitable than either the flat percentage loan or the total local control alternative. The flat percentage loan alternative was judged to be less equitable than the flat grant because of the repayment feature, which would result in added cost to the district in an undesirable proportion to capacity for repayment.

Summary statistics for all five alternative methods of funding capital outlay are presented in Tables $X$ through XIII. Table $X$ presents a comparison of summary measures of distribution, central tendency, and variation. Table XI collects the variables and results of the Pearson correlation measures, and Table XII indicates a summary of the results of the Gini coefficient which examined the bottom half of the distribution. Finally, Table XIII compares the financial data under the individual alternatives.

## Analysis Under Equity Principles

Three principles of equity were identified earlier to be used in assessing the relative equity condition of each of the five alternative funding schemes for capital outlay. Equity principles stated

TABLE X
DISTRIBUTION, CENTRAL TENDENCY, AND VARIATION

| Measure | Total Local | Full State | \% Equal. | \% Grant | \% Loan |
| :---: | :---: | :---: | :---: | :---: | :---: |
| WPP | 24.04 | 24.04 | 24.04 | 24.04 | 24.04 |
| Range | 1625.62 | 1625.62 | 1625.62 | 1625.62 | 1625.62 |
| Restrict |  |  |  |  |  |
| Range | 224.31 | . 00 | . 00 | . 00 | . 00 |
| Federal |  |  |  |  |  |
| Range R | 4.77 | . 00 | . 00 | . 00 | . 00 |
| Rel. Mean Deviation | 0.72 | . 00 | . 00 | -. 001 | -. 001 |
| Pearson R | 0.82 | . 00 | . 00 | . 0001 | . 0001 |
| Gini Coeff. | . 2052003 | . 00 | . 00 | . 0083983 | . 0083983 |
| RLMR | . 0001 |  |  |  |  |
| Range | . 0091 | . 00 | . 00 | . 00 | . 00 |
| Mean BPP | 54.75 | 54.75 | 54.75 | 54.75 | 54.75 |
| \# Dist. <br> Below Mn. | 29 | 0 |  | 1 | 1 |

Note: $N=304$

TABLE XI

## PEARSON PRODUCT-MOMENT CORRELATIONS

| Option | Variables Correlated | Correlation Coeff. |
| :--- | :--- | :---: |
| Total <br> local <br> control | Revenue per pupil and <br> wealth |  |
| Full <br> state <br> funding | Aid per pupil and <br> wealth | .82 |
| Percent. <br> equal. <br> grant | Aid per pupil and <br> wealth | .00 |
| Flat <br> percent. <br> grant | Aid per pupil and <br> wealth | .00 |
| Flat <br> percent. <br> grant | Aid per pupil and <br> wealth | .0001 |

TABLE XII
GINI COEFFICIENT

| Alternative | Coefficient |
| :--- | :---: |
| Total local control | .2052003 |
| Full state funding | .00 |
| Percent. equal. grant | .00 |
| Flat percent. grant | .0083983 |
| Flat percent. loan | .0083983 |
| Note: $N=304$ |  |

TABLE XIII
COST OF STATE PARTICIPATION

| Option | Req. Aid | Avail. Aid | Deficit | Surplus | State $\$$ | Note |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Total <br> local <br> control | 17947849 | 35185118 | -416142 | -- | 0 | No state duty. The <br> deficit is the sum of <br> below means. |
| Full <br> state <br> funding | 17947849 | 35185118 | -- | 17237268 | 0 | Establishment of nega- <br> tive aid yields surplus. |
| Percent. <br> equal <br> grant | 17947849 | 35185118 | -445166 | -- | 445166 | Absence of negative aid <br> accounts for state cost. |
| Flat <br> percent. <br> grant | 8973924 | -- | -8973924 | -- | 8973924 | Fifty percent provision <br> results in true cost to <br> stat <br> percent. |
| loan |  |  |  |  |  |  |

Note: $N=304$
were the ex post fiscal neutrality principle, the ex ante fiscal neutrality standard, and the resource accessibility principle.

The resource accessibility principle is a broad restatement of the principles laid down in Serrano $\underline{v}$ Priest $(1971,1976)$ and subsequent related decisions which have indicated that education is to be a function of the wealth of the state as a whole, and that each child is to have access to adequate funds to meet his educational needs.

The ex post fiscal neutrality standard is likewise a function of the same general equity condition and requires that variation in funds not be unduly tied to local wealth. The ex ante fiscal neutrality standard is a taxpayer standard which relates effort to yield. Under the conditions of this study, equity in resource accessibility and ex post fiscal neutrality would be achieved when ability to fund the mean budget per pupil is present. Equity would also be present under the ex ante fiscal neutrality standard when all students receive the funding of the mean budget per pupil under equal taxing conditions.

Analysis of the data indicated that the total local control alternative tended to violate all three equity principles. Under the resource accessibility standard, ability to fund the mean budget per pupil was seen to be a direct function of the adequacy of the assessed valuation, and the wealth per pupil amount as defined by the property wealth index and the wealth per pupil index. The ex post fiscal neutrality standard was likewise violated for the same reasons that variations in available funds were a direct product of local wealth. Similarly, the ex ante fiscal neutrality standard was violated when the required local mill rates to fund the mean budget per pupil ranged from .0001 to . 0091.

The full state funding alternative achieved a higher degree of equity because of the introduction of state aid to capital outlay financing and the absence of a positive relationship between aid received and wealth per pupil. The resource accessibility and ex post fiscal neutrality standards were generally satisfied by the full state funding alternative because of the guarantee that each student will receive the mean budget per pupil, regardless of the local capacity as defined by assessed valuation. Also, there was satisfaction of the ability-to-pay principle becuase the wealthier districts which had excess capacity were forced to release those funds under the negative aid provisions which, in turn, went to fund the lowest districts' shortfall. The ex ante fiscal neutrality taxpayer equity principle also tended to be satisfied because all districts levied the constant maximum millage equally and received funds per FTE, irrespective of local capacity.

The percentage equalizing grant likewise achieved a higher degree of equity for the same reasons, but in a different perspective. Access to funds was directly related to capacity in that the lowest districts received proportionately higher aid. The ex post fiscal neutrality principle was also adequately met, since aid was received inversely to capacity. The ex ante fiscal neutrality principle was satisfied, since all districts levying equally were able to fund the mean, either as a consequence of assessed valuation sufficiency or because of state aid making up the difference between capacity and need. The absence of negative aid in excess capacity districts created an unmet cost to the state which would have to be funded from general revenues or other alternative funding sources.

The flat percentage grant alternative achieved the middle rank of equitability among the five alternatives. Because it was a grant, the district achieved greater equity than under either total local control or the flat percentage loan. The data indicated that all districts except one had the capacity under equal effort to fund their share of the cost. Because the grant funds come from the state, the resource accessibility standard and the ex post fiscal neutrality standard were better satisfied. There was still a local effort required, but the introduction of state aid created more dollars at a lesser overall expense to the district.

The ex ante fiscal neutrality principle was similarly better met because lower districts levying equally produced a greater amount of revenue due to the function of state aid in funding the mean. No obligation was incurred from the receipt of state aid, although many districts stood to receive unneeded aid because of excess capacity, while districts with lower capacity would have to work harder in overall tax load to fund the required share.

The flat percentage loan shared the same characteristics of the flat percentage grant, except that local districts levying equally would not only occupy different actual effort levels due to relative ability, but also would incur a debt to be repaid with interest from local revenues. If districts shouldered a greater burden in funding the mean budget per pupil at the lower end of the distribution, there would remain a positive and unresolved relationship between effort and sufficiency. The three equity principles were, however, again better aided through the introduction of state aid in loan form to individual districts than they presently are under the present total
local control method, but there was less equity present than under either full state assumption, percentage equalized grants, or flat percentage grant programs.

It was the conclusion, under the conditions of this research, that the hypothesis which stated that the introduction of state aid to capital outlay funding would result in greater equity had to be accepted. Similarly, the hypothesis that the disparity among individual school districts' capacity to fund the mean would be reduced by the introduction of state aid, was accepted. Finally, the hypothesis that the disparity among individual districts' required local mill rate to fund the mean budget per pupil would be reduced by the introduction of state aid, was accepted.

## CHAPTER V

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

## Summary

The issue of equity in school finance is longstanding and largely unresolved. New research is frequently conducted attempting to both define and measure equity more fully. The courts have been slow to act in forcing equity definitions upon school organizations, but there are clear indications that the issue is very current and will continue to be an area of emphasis in the foreseeable future.

Proposals for increasing the equitable distribution of available resources have been frequent and numerous. As the role of agencies outside the immediate sphere of local control has increased in recent years, so has the interest and involvement of a variety of organizational observers. In recent times, the areas of equitable concern have been expanded to include capital outlay funding. Although no major studies have been conducted in the area of capital outlay resource simulations in tandem with specific equity principles and a sparsity of research at the doctoral level has been noted as well, the primary impetus for the interest in capital concerns has been in court cases where capital outlay has been mentioned as a future area of possible relief.

Thus, while the role of equity in the area of capital outlay is not, at present, fully developed, it may be observed that capital outlay will remain a current concern and will almost certainly increase as awareness grows regarding the dependence of adequacy of physical facilities upon the local capacity of school districts to fund their budgets based on traditional property values. In many instances, the fiscal capacity for capital outlay is directly related to the assessed valuation of the school district which is, in turn, a clear violation of equity principles laid down under which the condition of equity is that capacity should not be unduly tied to local ability. In instances where the link is present, there must be evidence that differences in expenditure are the result of local preference rather than capacity, and any further relationship should be to the wealth of the state as a whole.

The present study has defined the scope of equity in general and specifically as equity can be seen as relating to capital outlay in the state of Kansas. The study has proposed to examine capital outlay lay funding alternatives defined as options of total local control, full state assumption, percentage equalized grants, and $50 \%$ cost share grant and loan programs. Resource simulations for the state of Kansas were run and analyzed statistically by multiple measures and the results were examined under three selected equity principles with the goal of determining which alternatives most closely approached equity. An analysis of the results was presented in Chapter IV and the present chapter provides additional discussion with conclusions and recommendations.

The analysis of the data provided several interesting insights into the sufficiency of current practices of funding capital outlay in the state of Kansas and also allowed for a comparative evaluation of the sufficiency of the alternatives examined. The analysis of the data in general indicated that a very wide range of ability for capital outlay exists among individual school districts under the conditions of the study. The assessed valuation range exceeded $\$ 970$ million in property values and when the maximum levy allowed by law was applied and found at the per pupil level, the range of ability was from $\$ 24.04$ to $\$ 1,625.62$ per pupil for capital outlay expenditures. Such a disparity in capacity resulted in the highest school district having over 67 times the capacity of the lowest district. Current practices over a three-year period yielded a mean expenditure per pupil of $\$ 54.75$, from which the capacity found for the 304 individual school districts ranged widely.

The five alternatives examined for capital outlay planning produced widely differing results. The multiple statistical measures used to assess the equity condition consistently returned appropriate calculated values and served to indicate the reliability of the data and the methods.

The total local control option currently in place in Kansas consistently returned results by all statistical measures employed that indicate that this method is significantly less equitable in its distribution of resources. Indeed, it may be said that in fact, no distribution takes place and that capacity of individual school districts for capital outlay purposes is a function of geography rather than of design. At present, only the general fund budget is equalized
by the state aid formula and capital expenditures or capital outlay funds are not included in the general fund budget. Capital outlay accounts are special accounts governed by strict laws regarding the power to levy and the use and transfer of funds within the category.

The total local control alternative measured a high degree of variation in fiscal capacity for capital outlay, as expressed by the statistical measures employed, and the alternative resulted in the greatest inequity of the options explored. Evaluation under the equity principles indicated that total local control tended to violate all three equity principles. The ex post fiscal neutrality and resource accessibility standards were violated by the function of geography and the role of assessed valuation of the districts, and the ex ante fiscal neutrality principle was likewise violated when the range of required local mill rates spanned a wide .0001 to .0091 . A range of that size is unacceptable to fund a mean amount of only $\$ 54.75$ per pupil.

The full state funding alternative was found to be highly equitable on all measures. Statistical analysis of the data indicated that where all students receive the same resources under the conditions of the study, equity is achieved to a satisfactory extent. All districts under the full state funding alternative were assured of objective receipt of funds at the mean level of support for each student in the district. As such, geography, residence, or assessed valuation was not relevant to the receipt of aid to the district, except as the wealth of the state as a whole established the reserve pool under a constant four mill levy against the cumulative assessed valuations for capital outlay purposes.

The full state funding alternative provided a very powerful resource pool for funding capital accounts. The wealth of the state is not insignificant, as was indicated by the negative skew of the distribution of wealth per pupil across the state. It may be observed that the districts at the lower end of the distribution profited greatly by full state funding, while districts at the top end experienced considerable loss of funds under the negative aid provisions inherent in the alternative. It should be realized, however, that if equity considerations are paramount in decision making, aiding the lower end of a distribution at the expense of the more wealthy districts is not inconsistent with equity principles. It may also be argued that since all districts are assured of receiving the mean, all districts benefit by being protected from changes of individual fortune.

The full state funding alternative resulted in a surplus to the state which could be used in several ways. The surplus could be used to reduce the mill rate by the proper amount to fund the mean. It could also be used to generate additional interest income which could be distributed to districts proportionately to either reduce the relative proportion of the four mill levy in relation to the district's assessed capacity, or to provide extra funds to be used for improvements beyond the base essentials. The surplus could alternatively be allowed to accumulate as a protection against future surprises. A very significant possibility for the surplus lies in the question regarding the adequacy of the mean to fund the actual need. There is no evidence that the derived mean, which is an expression of past practice, is sufficient for a small district with large capital
needs. It is likely that the per pupil cost of facilities would increase as the enrollment decreases.

Under the conditions of the study, the full state funding alternative achieved a high degree of equity, and the alternative was ranked at the top in both desirability and sufficiency. The conditions of equity expressed by the three standards of ex post fiscal neutrality, ex ante fiscal neutrality, and resource accessibility were fully satisfied.

The percentage equalized grant alternative was also found to be highly equitable on all measures. Statistical analysis of the data indicated that all students were funded at the mean according to need, which was a feature not present in the full state funding alternative where need was not a consideration. Aid to individual school districts ranged from 0-56\%, with the majority of districts receiving no aid to fund the mean, demonstrating the skewness of the distribution.

The advantages inherent to the percentage equalized alternative resulted in a cost to the state because no district was required to surrender excess capacity. The deficit indicated across the state was not a large amount, which was due, in part, to the relatively low mean budget per pupil. If the mean figure was to be recalculated on a needs survey basis rather than the actual past practice average, there would be a possibility of a sizable shift in both the deficit amount and the number of districts eligible for state aid under the alternative.

The percentage equalized grant alternative was judged to be highly equitable under the conditions of the study and congruent with principles of equity. Aid under the alternative is received in an inverse relation to ability and the local effort is a reality, together with a
true need basis as a qualifier for eligibility. The principles of ex post fiscal neutrality, resource accessibility, and ex ante fiscal neutrality were satisfied where the wealth base as a whole is available and effort is equal to the extent that the mean is funded, regardless of local capacity.

The flat $50 \%$ grant and loan alternatives can be considered in tandem with appropriate notation regarding their differences. Both the grant and loan alternatives were judged by statistical analysis to be only slightly inequitable, although a significant difference, in effect, may be theorized. The statistical analysis indicated the effect of the presence of the single school district which was unable to meet the $50 \%$ reduced share of the mean. Measures which were adequately sensitive to the total distribution indicated an extremely small degree of inequity, nevertheless, a significant one in substantive considerations.

Two factors are important in the consideration of the flat grant and loan alternatives which likely cause the inequity demonstrated in the statistical analysis to be greater than is observed. The first factor is that the ability to fund the cost share under either the grant or the loan alternative is still a function of proportional capacity. The poorer district still exerts greater effort in funding the reduced mean, even though it levies the same as the wealthier district, simply because the equal levy consumes a greater proportion of a smaller taxbase. This consideration is, however, somewhat mitigated by the fact that the remaining taxbase for the general fund budget is equalized by the state aid formula and thereby should not
prove any more unacceptably burdensome to the poorer district than any of the other alternatives which require an equal levy.

A far more significant factor is present in the loan alternative. Under the provisions of the alternative, the state would regain a full investment plus a sizable interest cost from loans made. It is readily apparent that the districts availing themselves of the benefits of a loan program would be in inverse relationship to the ability to fund themselves. Those districts who could comfortably fund the mean would not generally apply for loans unless favorable interest costs made it profitable to do so, while as the capacity to fund the mean diminishes, the frequency of applications would increase correspondingly. The application for loans from less capable districts would also have attendant interest charges to those districts, thereby creating an even larger debt than was required for principal repayment.

There are several advantages, however, which make the grant/loan alternative a more desirable option than the total local control alternative. First, the grant is indeed a grant, and as such it does reduce by $50 \%$ the responsibility of the local district in funding the mean. Additionally, the loan alternative does have the added benefit of making available immediate funds and at a lower cost than is typically required in the open marketplace. If a district intends to borrow funds for capital outlay purposes, it should do so from the cheapest source and from the most stable lender, which is generally a governmental body such as the state. Finally, there is a forgiveness feature built into the loan alternative which requires an evaluation of the condition of the district's finances and, where the burden is too great, the loan becomes a grant. That feature accounts for the
cost to the state shown under the loan alternative in the single district which was unable to fund the reduced share.

As a consequence of the substantive considerations discussed, there appears to be a higher degree of achieved equity in both the flat percentage grant and flat percentage loan than is present in the total local control alternative, but there is significantly less equity achieved than is present under either the full state funding or percentage equalized grant alternatives. The flat percentage grant achieves a higher degree of equity than the flat percentage loan alternative for the substantive reasons discussed.

The research conducted in this project indicates that there is a need for some type of substantial participation by the state in capital costs. The research has indicated five alternative methods the state could use to participate. There are certainly other alternatives that can be constructed and there are numerous combinations possible within the alternatives presented.

The research shows a need for participation based upon both the insufficiency of the current dependence upon local assessed valuation adequacy and the possible legal ramifications which are as yet undefined. The impact of state participation is an area which needs to be explored carefully before acting, but the impact of failure to act should not be ignored. The cost to the state in lost resources as a consequence of insufficient capacity needs to be noted, but the realistic cost of state participation needs consideration as well. Each of the alternative plans projected the cost of state participation which should be considered as tentative until a comprehensive assessment of facilities needs can be made across the state. It may be expected
that the true needs will be greater than first thought, but less than possible because of the fact that a number of districts already have fine facilities. In any event, very careful consideration to all aspects should be given and considerable planning and dialogue need to occur before a concerted effort to improve the equity conditions for capital outlay in Kansas is begun.

The conclusions and recommendations which follow offer some considerations to be evaluated if the state should indicate interest in a statewide capital outlay project.

## Conclusions

It may be concluded on the basis of this research and other existing studies that research in the area of capital outlay funding is both needed and scarce. This research has indicated at least the following under the conditions set up for the study:

1. Wealth per pupil in general varies widely in the state of Kansas and, as such, wealth is a strong determinant of the quality of educational facilities available to the children of the state. Wealthy districts are able to provide high expenditures at low or moderate effort levels.
2. The equity standards of ex post fiscal neutrality, ex ante fiscal neutrality, and resource accessibility tend to be violated under the present provisions of total local control of funding for capital outlay accounts.
3. The equity standards of ex post fiscal neutrality, ex ante fiscal neutrality, and resource accessibility are aided greatly under the
full state funding and percentage equalized funding alternatives, and to a lesser but significantly improved extent under the flat percentage grant and flat percentage loan alternatives.
4. The introduction of state aid, regardless of the amount and type, results in a significant achievement in equity concerns.
5. A state aid system which recognizes only those variations in capacity arising from geographic location of properties and ignores the variations flowing from that distribution in fact assures the districts of the continuance of inequity in capacity and tax effort.
6. The past effort of school districts in funding capital outlay may not be an adequate or reliable estimate of school facility needs. No current data exists for assessing statewide capital outlay needs in the state of Kansas. Statewide assessment of facilities needs would be a necessary prerequisite to any aid program.
7. There is no provision in Kansas for equalization of capital outlay accounts. As such, any account not subject to equalization formulas appears to be open to question on equal educational opportunity grounds.
8. Considerations of the cost per pupil of facilities needs to be explored, particularly in relation to existing enrollment classification. Data on the number of students to be housed, the programs provided, and projected construction costs are required in computing aid programs. Special conditions should also be noted and accounted for in eligibility standards.
9. Districts are in need of state support to limit reliance on the traditional property tax.
10. It may be concluded that ex post fiscal neutrality, ex ante fiscal neutrality, and resource accessibility are legitimate school finance equity standards for assessing capital outlay conditions in school districts.
11. It may be concluded that the introduction of state aid to capital outlay funding significantly reduces the role of geography as a major determinant of district revenue capacity. While the capacity as defined by assessed valuation remains unaffected by the alternatives examined in this research, the aid per pupil is less related to residence than is otherwise true.
12. The percentage equalized grant and the full state funding alternatives provide the greatest equity under the conditions of the study and the cost is not inconsiderate to the state.
13. The methodology utilized in this study is widely applicable to any district and any state by substituting appropriate data for the study. Many individualized modifications are possible which allow the basic study to remain intact while emphasizing special interests or unique characteristics of a new and different project.

## Recommendations

As more states move toward an examination and an awareness of the role of capital outlay in equity considerations, several recommendations deserve attention for the state of Kansas:

1. In reviewing any plan for possible involvement in capital outlay financing, the state should undertake an assessment of what is currently being done and considered in other states.
2. In formulating a plan of action, the state should not overlook the need for a comprehensive review of current facilities needs. A study should be undertaken which determines by uniform assessment the current needs in school districts, allowing for long-range planning and evaluation of needs and costs.
3. In planning for realistic cost estimates, the assessment of needs should be used to establish an adequate funding level. The varying costs per pupil, particularly as related to enrollment size, need to be considered in estimates of the actual costs to the state.
4. The possible consolidation of extremely small enrollment districts should not be overlooked in terms of cost effectiveness and efficiency.
5. The state should recognize the need to develop a comprehensive plan for state assistance to school districts' capital needs. The state should accept the goal of fiscal neutrality in the distribution of state funds in aid.
6. The state department of education should develop uniform criteria for assessing facilities needs and should be responsible for statewide coordination.
7. Sources of revenue should be expanded not only to create a statewide taxbase for capital outlay funding, but should include broadbased measures including income as a measure of wealth.
8. The state plan should provide for stability and projection of anticipated revenues to enhance the effectiveness of long-range planning.
9. The unique features of a state's school finance formula need to be considered. The state should consider the appropriateness of
unifying capital outlay under the equalized general fund formula which takes into account a median budget figure and relates it to enrollment classification.
10. The state, in making its needs assessment, should develop a priority project schedule based on need.
11. The issue of equal yield must not be over looked, as it is at the root of the problem. Any realistic appraisal of fiscal needs should require a recognition of the most basic inequity in the present system, which is due to the unequal assessment of property and lagging property valuations. The legislature should deal with a statewide uniform reappraisal of property before entering into any plan for aiding individual districts on more than a temporary basis.
12. The equity analysis used in this study is appropriate for use in any setting to examine both resource sufficiency and simulation. Multiple effective variations on the basic framework are possible with great utility. A wide application of the model is needed with appropriate modification to the circumstance.

Policy makers must ultimately determine the role of capital outlay funding in the state of Kansas. Some very difficult decisions must be made regarding the desirability of a funding scheme and the method of implementation. The possible effects of initiating a funding program need to be considered carefully and the consequences of failure to implement a usable plan should be considered as well.

Once the specific goals have been legislatively determined, it will be possible to develop a comprehensive plan to aid equity in the state of Kansas. A great deal of planning, organization, and further research and analysis will be needed for new programs to be successful and to benefit the children of the state.

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APPENDIXES

## APPENDIX A

## general data on assessed valuations

G－w

| FTE ${ }^{\text {c }}$ | AV ${ }^{\text {V }}$ | CMM |
| :---: | :---: | :---: |
| 1198.5 | 23365265 | ． 204 |
| 578.0 | 23135440 | ． 294 |
| 221．5 | 15362634 | ． 904 |
| 351.0 | 11321589 | ． 994 |
| 311.8 | 38964206 | 09 |
| 3695．5 | 43417439 | 004 |
| 849.5 | 8591565 | 094 |
| 1334.7 | 23938939 | ． 90 |
| 632．0 | 19045924 | ． 094 |
| 540.5 | 23237621 | ． 994 |
| 308.0 | 43457199 | ． 28 |
| 143.5 | 53313270 | ． 004 |
| 358.3 | 158394593 | ． 904 |
| 764.5 | 16992995 | ． 004 |
| 209.0 | 7734889 | ． 204 |
| 163.9 | 5179144 | ． 204 |
| 1413.9 | 154539461 | ． 304 |
| 595.5 | 124375676 | ． 294 |
| 334.9 | 37969915 | ． 994 |
| 186.0 | 79524751 | ． 294 |
| 575.1 | 53177794 | ． 904 |
| 201.8 | 13893393 | ． 994 |
| 274.5 | 49441632 | ． 904 |
| 189.0 | 9405773 | ． 084 |
| 437.5 | 19769228 | ． 094 |
| 436.5 | 18799787 | ． 884 |
| 189.2 | 17030017 | ． 294 |
| 710.5 | 12311312 | ． 984 |
| 413.5 | 51922897 | ． 294 |
| 255.1 | 23973899 | ． 2024 |
| 131.5 | 15457119 | ． 994 |
| 3692.1 | 88441718 | ． 994 |
| 1199.0 | 11377932 | ． 084 |
| 1557.4 | 23016512 | ． 0204 |
| 1553.5 | 17423776 | ． 904 |
| 9539．9 | 157922539 | ． 204 |
| 1355.0 | 355357e9 | ． 20 |
| 531.0 | 11334215 | ． 294 |
| 34．9 | 5797404 | ． 204 |
| 585.5 | 14998362 | ． 29 |
| 210.0 | 5869139 | ． 304 |
| 583.0 | 21537114 | ． 894 |
| 451.9 | 13970767 | ． 204 |
| 34.5 .5 | 14949759 | ． 204 |
| 101.0 | 5537308 | ． 294 |
| 540.5 | 10304395 | ． 084 |
| 795.0 | 254453129 | ． 208 |
| 370.9 | 17462092 | ． 004 |
| EES． 0 | 5855202 | ． 094 |
| 771.5 | 13889249 | ． 294 |
| 1097.8 | 16059721 | ． 094 |
| 431.5 | 5800247 | ． 994 |
| 2840． | 43237785 | ． 204 |
| 571.6 | 13901981 | 024 |
| 519.3 | 15360363 | ． 904 |
| 4197.9 | 7663472 ！ | ． 204 |
| 788.4 | 47725491 | ． 984 |
| 363.5 | 34670937 | 09 |
| 308.0 | $14047 E 1 ?$ | 80 |
| 1839.0 | 3295307E | ge |
| EEE．0 | 175451 ？ | 80 |


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| 30545， 76 |
| 55459．74 |
| 45885.75 |
| 152255．82 |
| 173669．75 |
| 34366.25 |
| 35755．73 |
| 75183.79 |
| 93159．43 |
| 173823．73 |
| 233277．09 |
| 573578 |
| 64911．E2 |
| 30939．52 |
| 24716．58 |
| 618131．34 |
| 437502． 58 |
| 151343．65 |
| 282099．00 |
| 213710．32 |
| 75.573 |
| 15176E．53 |
| 37523.11 |
| 43942.71 |
| 75163.15 |
| 58120. |
| $49 E 45$. |
| 297591. |
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| 451：1 |
| 93074．0 |
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| $5 \cdot 1$ |
| －2．13．15 |
| 45335.86 |
| 23189．${ }^{\text {a }}$ |
| 59993．45 |
| 27440．72 |
| 36146．46 |
| 552e3．15 |
| 59799． |
| 22349． 3 3 |
| 41317．${ }^{\text {a }}$ |
| 1017832．72 |
| E9843．51 |
| 27420 |
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| E4EQ2．${ }^{\text {a }}$ |
| 2320． 93 |
| 173951．14 |
| $\rightarrow$－09 |
| －11 |
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| 306．539．！2 |
| 130905． 60 |
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| 3293417．92 | 93． 31 |
| 485354．51 | 10.85 |
| 143355.52 | 46.74 |
| 94942．12 | 56.49 |
| E4749．71 | 39.07 |
| 147323.43 | 172.89 |
| 121743.72 | 74.85 |
| 65906． 33 | 55.47 |
| 121196．0E | 69.40 |
| 52211．13 | 199.19 |
| 137397．92 | SE4． 3 E |
| 2013こ4．31 | 3－5． 36 |
| 170103.74 | 329．72 |
| 56199.75 | 10E． 58 |
| 108707.87 | 125．54 |
| 112314．45 | 224． 85 |
| 44357.85 | 443． 50 |
| 32508． 13 | 105.35 |
| 32243．15 | 163.79 |
| S9E13．37 | 429.88 |
| 1！8521．07 | 219.89 |
| 78899.48 | 154.26 |
| 19783．36 | 103.15 |
| 111654.06 | 202．E4 |
| 33243.23 | 159.05 |
| 68199.03 | 134．34 |
| 51308.84 | 73.92 |
| 37473.77 | 71.39 |
| 51525.71 | 31.53 |
| 139676.92 | 63.83 |
| 30936． 69 | 151.94 |
| 47898.54 | 191.38 |
| 58955．68 | 123.29 |
| 198144.41 | 1E1．34 |
| 30613.90 | 245．39 |
| Esge7．50 | 141．93 |
| 73373．49 | 290.45 |
| 41721.78 | 310.08 |
| 209875．54 | E00．30 |
| 91347．39 | 912． 57 |
| E1749．7 | 325．96 |
| 111545.04 | 332．99 |
| 54643.04 | 543.75 |
| 474854， 33 | 7. |
| 39011．4E | 14.16 |
| 31751．55 | 118.95 |
| 415292．02 | 83．78 |
| 120172．05 | E5． |
| 85514．13 | ¢56．53 |
| 36597． 95 | 134． 37 |
| 134395． 00 | 124．73 |
| 173343.85 | 82.45 |
| 37609． 34 | 241．52 |
| 138583． 3 ¢ | $1!3.39$ |
| 30¢ะこ． 31 | 15E．4E |
| E3060．44 | 267． $\mathrm{E}^{\text {1 }}$ |
|  | 140． 38 |
| 4181． 35 | －78．44 |
| 78：3ワこ．E | 735.83 |
| 4595.73 | 12ق．${ }^{\text {a }}$ |

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| TEE． 0 | 4E4EEB4 |
| 361．3 | 472982 |
| 191.8 | 4945846 |
| 337．0 | 4－4G9E2 |
| 3！ 3.5 | 4954835 |
| 399.5 | 5135492 |
| 275.9 | 5 S 2715 |
| 90．0 | 5239234 |
| 3ex． 6 | Јesm01 |
| 47.3 | 5404201 |
| 417．7 | 5541353 |
| 101.0 | 5307008 |
| 85.3 | J65110 |
| 84.0 | 513404 |
| 431.5 | 50g9247 |
| 402.5 | 5151334 |
| 153.9 | 6179144 |
| 154.5 | 6287901 |
| 231.5 | Ex20563 |
| 212．5 | E351535 |
| 312． 5 | 5473094 |
| 709.0 | 6831892 |
| 553． 0 | EE55202 |
| 210．0 | Ee50130 |
| 510.9 | 7076585 |
| 341.5 | 7119252 |
| 459.5 | 7298404 |
| 73.3 | 7433923 |
| 53.5 | 7505330 |
| 124．5 | 76.3474 |
| 33.3 | 760676 |
| 137.0 | 7253 |
| 299.0 | 7154803 |
| 224.0 | 779149 |
| 175．5 | 78001：3 |
| E8E．${ }^{\text {c }}$ | 7894885 |
| 178．${ }^{\text {a }}$ | 73 EE 04 |
| 48， 3 | 7398954 |
| 三EE． 7 | 700950 |
| 19， 0 | 006046 |
| Eอ®． | 9169ee1 |
| 203． 5 | 8153933 |
| Ti | 81753E3 |
| 184， 6 | Exer34 |
| 2－．7 | 8810817 |
| E®E．5 | Ex5954 |
| E4E．E | SETEES |
| E玉． 0 | EE43E40 |
| E－4． | 91－1307 |
| F®．E | Eseces |
| 501.5 | 980576 |
| EEE． 0 | EE9EE2 |
| ！ 89.9 | 949578 |
| 143．5 | 3453889 |
| こここ． 3 | －4EES3E |
| $=31.8$ | 9498e53 |
| $1: 9$ | 35851.56 |
| Eee． 0 | E8EE9！ |
| こ． | 209413 |
| E4．9 | F202：1 |
| こ．5．3 | 18018573 |


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| $3 \pm 3.0$ |  |
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| Ese． 5 | 1004 E2ad |
| อ60． 5 | comeess |
| 158.5 | 10000010 |
| E40．5 | 10304305 |
| 335.5 | 16318931 |
| 418.5 | 103837to |
| 138.5 | 104E5445 |
| 117．5 | 19689553 |
| 393.0 | 1076906 |
| 437.5 | 107 Ec |
| 252．0 | 10859828 |
| 685．5 | 10953213 |
| 49 S ． 5 | 19956996 |
| 152.5 | 10978 |
| 100.9 | 11969464 |
| 139.0 | $1127 / 352$ |
| 376.5 | 11294095 |
| 351.0 | 11321609 |
| 531.2 | 11334215 |
| 154．1 | 113895 |
| 375.6 | 11459182 |
| 484.0 | 11340479 |
| E4． 4 | 11695638 |
| 11.7 .7 | 11399000 |
| 24.5 | 11974885 |
| 397.1 | 12083943 |
| 413.5 | $1290185^{\text {ces }}$ |
| 79.5 | 13311312 |
| 551.2 | 12313143 |
| 388． | 12331112 |
| 1136.5 | 12513857 |
| 352.5 | 13548699 |
| EES．5 | 12514493 |
| 38．${ }^{\text {a }}$ | 12352 ED |
| E31．3 | 12381451 |
| 775.2 | 1293940 |
| 76.5 | 13952311 |
| SE1．1 | 13952109 |
| 513.5 | 1385378 |
| 1248.9 | 13950219 |
| 315.5 | 13392947 |
| 353.0 | 13615315 |
| 100.5 | 1 SEseoge |
| 875.0 | 13071341 |
| 345.9 | 13725712 |
| 411.7 | 1373997！ |
| 71.5 | 15 ec 040 |
| 1124.4 | 13934101 |
| 451.0 | 1397078 |
| 306.0 | 14047617 |
| 155.5 | 14136ee |
| 1171.0 | 14150512 |
| 105.5 | 14541583 |
| SeE． 0 | 14 Feger |
| 345.5 | 1494975 |
| E86．5 | 149 cese |
| 48 E ， | 1503671 |
| 191.7 | 130405 |
| FE． 0 | Selita |
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| 9404 | Pl｜${ }_{\text {40，}}$ |
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| － 204 | 10194 99 |
| ． 694 | 40571.44 |
| ． 094 | 49000.84 |
| ． 64 | 41217.39 |
| ． 604 | 41275.72 |
| ． 684 | 41535.68 |
| ． 604 | 41791.70 |
| ． 004 | 42759．41 |
| ．004 | 43000.02 |
| ． 004 | 43049.91 |
| ． 204 | 43555.91 |
| ． 0904 | 43529.35 |
| ． 084 | 43897.99 |
| ． 004 | 43901.58 |
| ． 004 | 44357.85 |
| ． 804 | 45111.73 |
| ． 024 | 45176.38 |
| ． 00.94 | 45 Ec 5.75 |
| ． 804 | 45352.95 |
| ． 804 | 45556.25 |
| ． 08. | 45336.73 |
| 094 | 47361.38 |
| ． 004 | 47582.35 |
| ． 204 | 47599.32 |
| ． 684 | 47599.54 |
| ． 094 | 49015.73 |
| 094 | 43897.30 |
| ． 204 | 49245．35 |
| ． 694 | 45252.57 |
| ． 694 | 4E324．45 |
| ． 284 | －0079． 43 |
| ． 604 | 58192.40 |
| ． 084 | 50458． 30 |
| ． 604 | 51419.69 |
| ． 004 | E13E5．71 |
| ． 898 | E1598．3E |
| ． 604 | 51808．94 |
| ． 094 | E3211．13 |
| ． 804 | E®e15．15 |
| ． 904 | ES469．e8 |
| ． 894 | 53571.79 |
| ． 004 | 54450.65 |
| ． 04 | E4548．64 |
| ． 024 | ESEE5．3E |
| ． 894 | 54905． 37 |
| ． 204 | 54923．$\because$ |
| ． 004 | EEED． 35 |
| ．004 | 55736.40 |
| ． 9024 | seses． 15 |
| ． 604 | E5139．47 |
| ． 204 | G6545．65 |
| ． 804 | EEE25．05 |
| ． 62 | Exice． 3 |
| ． 24 | 59e55．e8 |
| ． 0.4 | 39739．04 |
| ． 804 | Seepe． $4=$ |
| ． 804 | E1E5．48 |
| ． 6.4 | E1E1． 43 |
| ． 004 | ecees．es |
| 604 | E494 |



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| $\mathrm{TE}_{102}$ | A 2159010 |
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| 159.5 |  |
| $353 . \geq$ | 24640405 |
| 350.5 | 24670937 |
| 93.0 | 24979758 |
| 881.0 | 25171009 |
| 892.2 | 35176957 |
| 75.3 | 25134324 |
| 931.5 | 25531470 |
| 1312.0 | 25E437e9 |
| 742.0 | EsE7ETE0 |
| 618.9 | 3E009304 |
| 1598.0 | 3519193 |
| 719.5 | 2EEs6512 |
| 105E.E | EEE37E83 |
| 90e. | 27936102 |
| 573.9 | 27499925 |
| 397.0 | ב7eases |
| 551.0 | 77313515 |
| 953. 5 | 27947148 |
| 3047.7 | 39857543 |
| 493.5 | 39973E12 |
| 811.0 | 38109169 |
| 1389.5 | 29957394 |
| 1182.3 | 3955617 |
| 1525.8 | 29531454 |
| 533.6 | 29630Es |
| ! 4094.5 | 36043015 |
| 1590.8 | 302Ex60 |
| 1355.6 | 39299915 |
| 1543.9 | 39437175 |
| 384.9 | 39615959 |
| 1759.8 | zeentic |
| 386.5 | 51097889 |
| 4e6. ${ }^{\text {a }}$ | 31109761 |
| 1052.6 | 31712350 |
| 330. 5 | 31245734 |
| 1344.5 | zectese4 |
| 1829.6 | 3205305 |
| 50.0 | 32171693 |
| 2047.4 | 32569004 |
| 1549.5 | 33673715 |
| 1961.5 | 33721249 |
| EET.0 | 3459512 |
| 243.5 | 3434947 |
| 1171.5 | 3467681 |
| 1955.0 | 3553789 |
| 394.E | 35841400 |
| 85.5 | 3695305 |
| 457.4 | 370E0531 |
| 192.0 | 3T2ez9e? |
| 430.5 | 372xpe71 |
| 1300.6 | 57879017 |
| 192.6 | 3700060 |
| 234.2 | 3735016 |
| 1145.4 | 3005e411 |
| 311.3 | 30654206 |
| :1E0.1 | こE311959 |
| 43.3 | 4015015 |
| E.4.5 | 4 LHEE |
| Ees. 5 | 4.71TE1 |


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| TE | A |
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| 3.6 | 417EETE4 |
| 2147.3 | 41782535 |
| 446.3 | 42525935 |
| 1857.5 | 43078454 |
| $1 \Xi \underbrace{5.8}$ | 4319296 |
| EP40.5 | 48 E 7785 |
| 3102.5 | 43355914 |
| $3 E 55.5$ | 43417439 |
| 808.0 | 43457139 |
| 377.5 | 44103863 |
| 2535.0 | 45894195 |
| 3165.8 | 164E540E |
| 2402.7 | Le4eses |
| 78.4 | 4 THE 401 |
| 573.5 | $47 \mathrm{EL4109}$ |
| 393.0 | 4995sees |
| 585.5 | 50351202 |
| 1143.2 | 5109ces |
| 3133.3 | 51497674 |
| 9058. 3 | 5151E4E9 |
| 413. | 5198089 |
| 3890.3 | 52303967 |
| 419.5 | 3245e909 |
| EST. | sexemeee |
| 5.E.1 | 5317794 |
| 4880.2 | 5539316 |
| 525.4 | 5911309 |
| 143.5 | 5c313270 |
| E2Ee. 5 | ミeez7915 |
| 4 ea .8 | 62E23745 |
| 3800.2 | 65115079 |
| 1075.2 | 6545303 |
| 135.0 | 70524751 |
| 375.8 | 74703046 |
| 2359.5 | TE474E34 |
| 41.7 .3 | TEEEHTE! |
| 217. 3 | 391293e |
| 1427,7 | geocele |
| อยะอ. | 98441715 |
| 3 ET .5 | E® 4 IEE61 |
| 3018.5 | 9711913 |
| 34 E. 3 | 102412445 |
| 4955.9 | 100200595 |
| Ye. | 10488540 |
| Eac. | duexaze |
| SEse.1 | 118713707 |
| 4542.3 | 121395620 |
| 5®e. | 12417030 |
| E0E.E | $1312 \%$ ETo |
| 1419.9 | 15450461 |
| 495.8 | 135154543 |
| 9530. 9 | 15TVeeese |
| 88.9 | 150394593 |
| 581.2 | 1714099e |
| 1061.3 | 195343492 |
| TES | EE4TE100 |
| 14174.4 | E95093941 |
| 3 317.7 | ze8198ees |
| \%ers. | Ex4Eese4 |


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## APPENDIX B

TOTAL LOCAL CONTROL FINANCIAL DATA


| 1193.5 |  |
| :---: | :---: |
| 1193.5 573.8 | 33965265 30136440 |
| 331.5 | 1 1－362E 114 |
| S11．8 | 11321589 |
| 3695.5 | 43417439 |
| 349.5 | 3591565 |
| 1334.7 | こ3938939 |
| 532.8 | 19045924 |
| 549.5 | 23E87621 |
| 293.6 | 43457129 |
| 143.5 | 5E319279 |
| 76． |  |
| 209.8 | 7734829 |
| 163.0 | 5179144 |
| 1418.9 | 154539461 |
| 595.5 | 1543756 |
| 234．2 | 379699 |
| ¢ 76.1 | 5317 |
| 291．9 | 19893393 |
| 274.5 | 45441532 |
| $193 \cdot 9$ | 9405 |
| 437.5 | 19769238 |
| 439.5 | 18799737 |
| 710.5 | 12311313 |
| 413.5 | 51322897 |
| 355.1 | 239738 |
| 3692.1 | 38441713 |
| 1195．g | 11377 |
| 1533.3 | 17429776 |
| F539．3 | $1579 \exists 3$ |
| 531.9 | $1133421 E$ |
| 54.8 | E797404 |
| 585.5 | 149983 E2 |
| 819.8 | E369139 |
| 583.9 | 31597 |
| 345.5 | 14949759 |
| 191.9 | 5597308 |
| 79.6 | 254453120 |
| 370.6 | 17462963 |
| $5 E 3.8$ | $585529 \%$ |
| 1997.8 | 169507 E ！ |
| 431.5 | 5890947 |
| －2．2． | －3E． |
| E19．9 | 153693） |
| 4137.3 | 7 EE3474 |
| 769 | 47735401 |
|  |  |
| ใ 3 Ea． | 泡5305 |



| WFP | PPP | RLM |
| :---: | :---: | :---: |
| 79.65 | 54.75 | ． 0 |
| 395.49 |  |  |
| 400． 38 | 5．75 | 09 |
| 4 C .93 | 54．75 | 20 |
| 49.39 | 54.75 | ． 295 |
| 49.49 | 54.75 | ． 094 |
| 130.54 | E4．75 | 08 |
| $172 \cdot 34$ | 5.75 | ． 92.3 |
| 明， |  | ． 89 |
| － 734.63 | 5.75 | －609 |
| 83．73 | E4， 75 | \％0 |
| 14 E .24 | 54.75 | 00 |
| 151．E4 | E4．75 | ． 0914 |
| 435.31 | 54.75 | ． 290 |
| 839．33 | 54．75 | ． 9003 |
| E43．92 | 54.75 | ． 9090 |
| $1515.6 E$ | 54.75 |  |
| 37\％ | 54．75 | 0096 |
| 539.31 | E4． 75 | ． 0004 |
| $199.8{ }^{\text {c }}$ | 54.75 | ． 0911 |
| 38．38 | 54.75 | － 9032 |
| 172.20 | 54.75 | ． 0913 |
| 369.13 | 54.75 | － 0909 |
| ¢02． 3 | 54.75 | ． 6094 |
| 375．99 | 54．75 | ． 0006 |
| 479.13 | 54．75 | － 0085 |
| 污．${ }^{\text {a }}$ | 54.75 | －9023 |
| 59.12 | 54．75 | ． 2037 |
| 42.16 | 54.75 | ． 095 |
| 5． 3 ¢ | 54．75 | ．0033 |
| 73.34 | 54.75 | ． 9030 |
| ，${ }^{37.62}$ | E4．7E | 9985 |
| 102．39 | E4．75 | 8031 |
| 139.67 | E4．75 | 0017 |
| 146.5 ！ | E4．75 | ． 0915 |
| 1 13． 31 | S．TE | 0913 |
| SE1． $0^{2}$ | B． 4.75 | 88 |
| －76． 3 E | E4．75 | ． 003 |
| 1330．39 | E4．7E | 902 |
| EE．70 | E4， 75 | ． 29.1 |
| 71.95 | E．75 | ． 6090 |
|  | E4．75 | 2037 |
|  |  | 905 |
| 107． 3 | E．7E | ． 6 de |
| 119．18 | E4．75 | ． 9015 |
| 2． 14 | E4．75 | － 290 |
|  | E4．7E | ． 20 |
| ！ 3 － 4.4 |  | 13 |
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| FTE | AU |
| :---: | :---: |
| 41590.4 | 974504430 |
| 4542．3 | 121338529 |
| 3941.5 | 35341408 |
| 1500.8 | 23733531 |
| 1557．1 | $1 \mathrm{E137427}$ |
| 855．9 | 36955855 |
| 1643.7 | 30437175 |
| 1137.3 | 15475583 |
| 1355.5 | 39299015 |
| 521.1 | 13052789 |
| 343.5 | 34349479 |
| 535.5 | 50331392 |
| 446.8 | 42525935 |
| E21．8 | 15549941 |
| 392.2 | 2517696？ |
| 499.5 | 23078612 |
| 100.0 | 11083464 |
| 399.5 | 8152033 |
| 197.0 | 3062949 |
| 141．0 | 15153317 |
| 539.9 | 29539258 |
| 511.5 | 19790119 |
| 191.8 | 4945846 |
| 551.0 | 27913515 |
| E07．7 | 8310817 |
| 507．9 | 17927259 |
| 709.5 | ！ 3952211 |
| 535.0 | 9363692 |
| 531．2 | 12921427 |
| 2947．4 | 32669924 |
| 204.8 | 7749149 |
| 243.5 | 11774335 |
| 323.0 | 14738920 |
| 663．2 | 27936192 |
| 134.5 | 7653474 |
| 438.0 | 1625E919 |
| 391.0 | 19594619 |
| 138． 5 | 10425445 |
| 419.5 | E2463909 |
| 100.1 | こ2835972 |
| 189.5 | 13437442 |
| 337． 2 | 27896269 |
| 100.5 | 13662099 |
| E393．4 | 1137：3707 |
| 509.8 | こココธコ®5 |
| EE3．7 | 7390300 |
| 4955.0 | 103209505 |
| 1404.5 | $300430: 三$ |
| 513.5 | 21378533 |
| 234． 5 | 9149487 |
| 1031.5 | 33731249 |
| 2192．5 | 43335914 |
| 164．2 | 3992311 |
| 1171.5 | 346798 L |
| 197．0 | 7705578 |
| 86.3 | 576.5110 |
| 477.5 | 16817279 |
| 1953．${ }^{\text {¢ }}$ | 13545452 |
| 10E1． 3 | 195343438 |
| 27．${ }^{\text {a }}$ | 11459：93 |
| ごき，ミ | อココะะここ |


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| :---: |
| 3898417.9 |
| 143365.6 |
| 94942． 12 |
| 64749. |
| 147823.42 |
| 121748. |
| 65905 |
| 121195.06 |
| E3211 |
| 137397 |
| 201324.8 |
| 179193. |
| 56193 |
| 100797． 57 |
| 112314.45 |
| 44.357 .86 |
| 32 E 98. |
| 32348. |
| E25！3． |
| 118521. |
| 78908.48 |
| 19783． 39 |
| 111654．05 |
| 33243.29 |
| EE193． 98 |
| 51898.3 |
| 37478.77 |
| 51525.7 |
| 130575．92 |
| 39996.69 |
| 7 T |
| 58955.58 |
| 198144．41 |
| 30513.30 |
| 6592 |
| 73378. |
| 41791 |
| 909875． |
| 91347 |
| 61749 |
| 11545. |
| 54642. |
| 74. |
| 990 |
| 3！ 9 ¢ |
| 4．Eege |
| こ017E． |
| EEE14 |
| 36597. |
| $489$ |
| フコミ43． |
| 30609． |
| 386e3． |
| 30eze． |
| 2306． |
| ยาEยコ |
| 4．E． |
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| ごご吅 |


| WPP | EPP | PLMP |
| :---: | :---: | :---: |
| 93．51 | 54．75 | ． 0023 |
| 16E． 35 | 54.75 | ． 0020 |
| 48.74 | 54，75 | ． 0945 |
| 56.49 | 54．75 | ． 2039 |
| 39.07 | E4．75 | ． 0956 |
| 172．39 | 54.75 | ． 0013 |
| 74.06 | 54．75 | ． 0030 |
| 53.47 | 54.75 | ． 2939 |
| 29.48 | 54.75 | ． 0024 |
| 109.19 | 54.75 | ． 902 E |
| 564.35 | 54.75 | ． 0004 |
| 375．95 | 54.75 | ． 2006 |
| 3\％0．7E | 54，75 | ． 2005 |
| 10．E0 | 54.75 | ． 2021 |
| 1ミ5．54 | 54.75 | ． 0017 |
| 2こ． 3.35 | 54.75 | ． 0010 |
| 443.58 | 54.75 | ． 6095 |
| 105.35 | 54.75 | ． 0021 |
| 153．70 | 54.75 | ． 2013 |
| 4 5 ． 83 | E4．75 | ． 8005 |
| 219．39 | 54.75 | ． 0010 |
| 1．4．0E | 54.75 | ． 0014 |
| 103．15 | 54.75 | ． 0021 |
| 222．E4 | 54.75 | ． 02 |
| 160.95 | 54.75 | ． 9214 |
| 134.34 | 54．75 | ． 0015 |
| 73．22 | 54.75 | ． 0830 |
| 71.39 | 54.75 | ． 0931 |
| 31.63 | 54．75 | ． 2027 |
| 63.83 | 54.75 | ． 0234 |
| 151.94 | 54.75 | .0914 |
| 191.78 | 54．75 | ． 021 |
| 133.09 | 54.75 | ． 00.12 |
| 151.34 | 54.75 | ． 2914 |
| 245.89 | 54．75 | ． 9809 |
| 144.93 | E4．75 | ． 9015 |
| 300.46 | 54.75 | ． 20.11 |
| 210.03 | 54.75 | ． 20.9 |
| 50.30 | E1．75 | ． 2094 |
| 212．$=7$ | 51．75 | ． 0.08 |
| 3ะร． 36 | 54．75 | ． 0907 |
| 330.39 | 54.75 | ． 29097 |
| 543.76 | 54.75 | ． 0904 |
| 71.97 | 54，－5 | － 2930 |
| 1．E．1E | E4．75 | － 095 |
| 113.35 | E4．75 | ． 0918 |
| 83．73 | 54.75 | ． 2025 |
| 35． 35 | E4．75 | ． 20 es |
| ¢5E． 33 | 54.75 | ． 2013 |
| 24.27 | 54．75 | ． 0918 |
| E4．73 | 54．75 | － 010 |
| 82．4．5 | E4．75 | ． 0027 |
| 24． 5 | 54．75 | － 090 |
| 118.38 | E4．-5 | ． 0918 |
| EE． 46 | 54．75 | ． 621 |
| 2E7．31 | 34．75 | ． 0008 |
| 149.98 | 4．75 | ． 0018 |
| －2．41 | 5．E | 2931 |
| TE． 83 | 4．E | 2093 |
| 13き，ショ | － | 2 g |




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59192.40
45175.38
149082.60
104351.22
37855.52
57173.15
40074.72
50979.45
WPF




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 $\stackrel{\text { w }}{6}$

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| FP | EFF | PLTR |
| :---: | :---: | :---: |
| 24, 94 | E4.75 | . 60 |
| 49.57 | 54.75 | .044 |
| 103.15 | E4.73 | . 9021 |
| 58.75 | 54.75 | . 006 |
| 52.05 | 34, 75 | . 805 |
| 51.42 | 54.75 | . 0042 |
| 76.84 | 54.75 | . 608 |
| 68.49 | 54.75 | .0032 |
| E5.05 | 54.75 | . 0042 |
| 4.62 | E4.75 | . 6949 |
| 53.07 | E.75 | . 0041 |
| 321. $3^{3}$ | E4.73 | . 010 |
| E57.24 | E4. 75 | . 000 |
| 376.07 | E4.75 | . 3000 |
| 53.77 | 54.75 | . 9041 |
| 61.35 | 54.75 | , 605 |
| 151.64 | E4. 75 | 2014 |
| 152. 30 | E4.75 | . 8214 |
| 169.31 | E4.75 | . 000 |
| 119.55 | 54.75 | .3013 |
| 22. 86 | 54.75 | . 9805 |
| 59.04 | 54.75 | . 905 E |
| 43.78 | S. 7.7 | . 2045 |
| 130.57 | E4.75 | . 3017 |
| 55.59 | 54.75 | . 6 ce |
| 33.39 | 54.75 | . Wee |
| 52.85 | 54.75 | . 005 |
| 37.51 | E4.75 | , cose |
| 47.55 | 54.75 | . 0.46 |
| 245.99 | 54.75 | . 6909 |
| 127.74 | 54.75 | . 2017 |
| 156.46 | 54.75 | . 2014 |
| 143.04 | 54.75 | . 0815 |
| 151.94 | E.4.75 | . 6914 |
| 159.19 | E4.75 | . 0914 |
| 52.11 | E. 75 | .2042 |
| 178.0 | E. - $^{-5}$ | . 012 |
| 71.84 | E4.7 | , met |
| 119.EE | E.-5 | . 2015 |
| 153.79 | 5.75 | . 6013 |
| 51.53 | E4. 75 | . 6042 |
| 105.36 | 84.75 | . 2901 |
| 42.29 | 54.73 | . 30.58 |
| 190.34 | E4. 5 | . 8012 |
| 160.05 | 5.-5 | . 0014 |
| 86.08 | E4.75 | . 60 E |
| 40.39 | E4.75 | .0954 |
| E1.EE | E4.75 | . 9042 |
| 124.37 | E4.75 | . 8013 |
| 65. 35 | E4.75 | . 0084 |
| 74.72 | 54,75 | . wa |
| 71.39 | E4.75 | . me ¢ |
| 199.86 | E.4.75 | . 2011 |
| EEE.ES | E4.7E | . 9 |
| 142.E- | S4.7E | 0015 |
| 7.7. | 54.75 | gee |
| 340. 5 | E4.75 | 390 |
| - 2.7 | E4.75 | .031 |
| :10.E: | E4.75 | 010 |
| 24: 3 E | E. | . 809 |


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| TE | M ${ }^{\text {den }}$ |
| :---: | :---: |
| 50 | 1510－60 |
| 519.9 | 1505083 |
| 199.5 | 15437442 |
| 131.5 | 1545119 |
| 34.2 | 15453142 |
| 194.0 | 15797681 |
| E81．5 | 1.5747478 |
| 908.0 | 15965135 |
| 754.5 | 1600290 |
| 352.6 | 1092949 |
| 525.5 | 10949974 |
| 1997.9 | 1695072！ |
| 1EST．1 | 16137427 |
| 458.0 | 1 EE56919 |
| 321.5 | 16353E84 |
| 1167.3 | 154763E3 |
| 521.0 | 16549941 |
| 481.0 | 167esebi |
| 47.5 | 1681787 |
| 316.3 | 16857491 |
| 597.8 | 1702725 |
| 139.6 | 17039017 |
| 381.2 | 17147941 |
| 16.35 .5 | 17488775 |
| 379.9 | 17452902 |
| 132.5 | 17471407 |
| 558.8 | 17545187 |
| 399.9 | 17747356 |
| 671.6 | 19001281 |
| 1053.5 | 18515462 |
| Es6．5 | 10573482 |
| 436.5 | 19790787 |
| 201.0 | 19893093 |
| 327.5 | 192en7i3 |
| 532.9 | 15045924 |
| 29E．5 | 19439732 |
| Eヨ1．8 | $1=594519$ |
| 311.5 | 19700119 |
| 58.0 | 3913E449 |
| 691.5 | 29E19515 |
| 713.8 | 30558351 |
| 561.5 | 21099700 |
| see．E | 215ごT0 |
| 54.0 | 215E4T31 |
| 246.0 | 2137559 |
| 513.5 | こ1こ70533 |
| 449.5 | 3144697 |
| E86． 0 | 31537114 |
| 1358.0 | 215497E2 |
| 417.5 | 221E®スこ2 |
| 60.0 | 23esees5 |
| 100.1 | こぎ35972 |
| 1557.4 | こ2015512 |
| 540.5 |  |
| 1609.6 | ミ3735s |
| 1198．${ }^{\text {a }}$ | E3cesees |
| ！ 9 E． 7 | geeseex |
| こ55．1 | こ397e86E |
| こモ®．3 | 3413985 |
| ！ 1.6 | －4E |

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| EPP | RLIF |
| :---: | :---: |
| E.7. 5 | $.012$ |
| E4.75 |  |
| E4. ${ }^{\text {a }}$ | ¢ 91 |
| E. 4.7 | ,001E |
| 84.75 | 2006 |
| 54.75 | .087 |
| E4.75 | . 647 |
| 54.75 | 000 |
| E4.75 | . 696 |
| E.75 | cose |
| E4,75 | cos |
| E.4.7E | 0 |
| E4.75 | . 6008 |
| E4.75 | .6007 |
| 54.75 | ,003 |
| E.4.7 | .000 |
| 34.73 | . 8913 |
| 64.75 | .0ee |
| 54.75 | . 902 E |
| E4.75 | . 6904 |
| E4.7E | . 681 |
| E4. 7 | . 9004 |
| E4. 75 | . 0065 |
| E4, 7 | . 2006 |
| 34.75 | . $\mathbf{3} 942$ |
| E. 73 | . 0.095 |
| 8.73 | . 9001 |
| E4.75 | . 608 |
| E4.75 | . 8004 |
| 54.75 | . 908 |
| E. 7.5 | . 080 |
| 8. 75 | . 6201 |
| 54.75 | , |
| E.4.73 | . 90 E |
| E4.7E | , 680 |
| E4.7E | . 6215 |
| E. 78 | . 600 |
| E, ${ }^{-7}$ | . me |
| E4.7E | . 6 ce 4 |
| E4, 73 | . 2017 |
| 5.7. 7 | . 2045 |
| E4.75 | .9025 |
| S | . 204 |
| E. ${ }^{-1}$ | . 6 |
| E4.7E | . 3000 |
| E4. 5 | , 0 ev |
| E. , $^{\text {a }}$ | \%ege |
| E4.75 | . W 0 e |
| E4.7E | . 625 |
| E4.75 | .6017 |
| E4.75 | , 080 |
| E4. 75 | . 3003 |
| E4.7 | . |
| E.-E | Wes |
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| E | \% |
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| FTE | A． |
| :---: | :---: |
| 195.6 | $70504751$ |
| 160.1 | 3xasegt |
| 358.5 | 124179559 |
| 735.0 | 254452120 |
| 506.5 | 124375570 |
| 172.9 | 37209 200 |
| 858.7 | 168394593 |
| 334.2 | 3736916 |
| 1961.7 | 195343438 |
| 172.0 | 37002098 |
| 375.3 | 74709048 |
| 2\％．5 | 4410083 |
| 208.9 | 43457120 |
| 419.5 | E24E6999 |
| 267.0 | 34zeeels |
| 311.8 | 38954206 |
| 343.5 | 34349479 |
| 482.0 | 62693746 |
| 132.5 | 17471407 |
| 100.5 | 13EE3099 |
| 161.8 | 2422771 |
| 298．5 | 41711751 |
| 163.5 | 24535019 |
| 413.5 | $5132 \mathrm{E97}$ |
| 374.5 | 40441632 |
| 73.9 | 104835492 |
| 131.5 | 1545119 |
| 525.4 | 3eetise9 |
| 141.0 | 15153317 |
| 1418.5 | 154530461 |
| 159.9 | 11889454 |
| 398.0 | 24138299 |
| 202.5 | 1942975 |
| 112.9 | 35351.55 |
| 439.6 | 49115016 |
| EE5． | 35376999 |
| 155.5 | 14136 EE |
| 30.0 | 180gege |
| 555.3 | 56831392 |
| 445.8 | 42535935 |
| 117.5 | 18EEs63 |
| 345.0 | 2137.530 |
| 56.1 | 5817704 |
| 308.5 | 31546734 |
| $4 \mathrm{EB.5}$ | ETEE9371 |
| 189.0 | 17939017 |
| 306． 5 | 31997899 |
| 3E4．0 | 361930 |
| 391.5 | 15Ebeer4 |
| 15.5 | 15437442 |
| 194.9 | 15997681 |
| 57.5 | 47824100 |
| 337.2 | 27896250 |
| 45.1 | 37620531 |
| 3EE． | 2467087 |
| EEs．2 | 24E40495 |
| 1EE．E | 10997e96 |
| E4． | 5197404 |
| 淢， | 1006010 |
| ご． 3 | 2es |

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| :---: | :---: |
| 54．75 | ． 6 |
| 34．73 | ． 0001 |
| E4．75 | ． 9092 |
| 54.75 | ． 6020 |
| 54.75 | ． 0302 |
| 54，73 | ． 6093 |
| 54．75 | ． 0008 |
| 54．75 | ． 9003 |
| E4．73 | ． 0003 |
| 54.75 | ． 2908 |
| 54．75 | ． 6003 |
| 54.75 | ． 2003 |
| E4． 75 | ． 000 |
| 54．75 | ． 2000 |
| S4．75 | ． 0909 |
| E4．75 | ． 0904 |
| 54.75 | ． 0804 |
| 54．75 | ． 9004 |
| 54.75 | ． 604 |
| 54.75 | ． 0004 |
| 34．75 | ． 6094 |
| 54．75 | ． 0904 |
| E4．75 | ． 2004 |
| 54.75 | ． 0004 |
| 54.75 | ． 0904 |
| 54.75 | ． 2004 |
| 54.75 | ． 0004 |
| 54.75 | ． 6005 |
| 54.75 | ． 0005 |
| 54.75 | ． 8805 |
| 54．75 | ． 0205 |
| 54.75 | ． 0905 |
| 54.75 | ． 6005 |
| 54.75 | ． 6905 |
| 54.75 | ． 0905 |
| E4．75 | ． 3096 |
| 54．75 | ． 0095 |
| E4．75 | ． 0905 |
| E4， 75 | ． |
| S4， 75 | ． 000 |
| 54.75 | ． 506 |
| 54.75 | ． 2006 |
| S4．75 | ． 006 |
| E4．75 | ． 0008 |
| E．4．73 | ． 000 |
| 54．73 | ． 0005 |
| 54．75 | ． 0966 |
| E4． 5 | ． 0007 |
| E4．-5 | ． 2007 |
| E4． 5 | ． 607 |
| E4． 75 | ． 6007 |
| 34．75 | ．0007 |
| E4．75 | ． 80007 |
| E4．75 | ． 807 |
| 54．75 | ． 007 |
| E4， 75 | ， 0 |
| E4．75 | ． 000 |
| E4．73 | ． |
| E4， 73 | ． 0 |
|  | ．698 |


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| Per | P14 |
| :---: | :---: |
| E4.7E | . 6000 |
| 54.75 | . 2909 |
| 54.75 | ,009 |
| E4.75 | . 0009 |
| 54,75 | . 8909 |
| 54.75 | . 6909 |
| 54.75 | . 8095 |
| E4.75 | . 6098 |
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| E4.75 | . 0010 |
| 54.75 | .0910 |
| 54.75 | . 9040 |
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| 34.75 | . 0011 |
| 54.75 | . 2011 |
| 54.75 | . 6011 |
| 54.75 | . 2011 |
| 54.75 | . 2011 |
| E.7.75 | . 6011 |
| E.4.75 | . 611 |
| E4. 75 | .012 |
| 54.75 | . 9012 |
| E4.75 | .812 |
| 54.75 | . 60.12 |
| 54.75 | . 2012 |
| 54.75 | . 9012 |
| 54.75 | . 0012 |
| 54.75 | . 6912 |
| 54.75 | . 9012 |
| E4.73 | . 0912 |
| E4.73 | . 9913 |
| 54.75 | . 0.913 |
| 54.75 | . 0013 |
| E4.75 | . 3913 |
| E4.73 | . 8013 |
| E4, 75 | . 9913 |
| 54.75 | . 0913 |
| 54.73 | . 9913 |
| E.E | . 60 |
| 54.75 | . 0013 |
| E4.75 | . 2013 |
| E4.TE | . 8014 |
| E4.73 | , 014 |
| E4.75 | . 8014 |
| E4.75 | .6014 |
| E4.73 | . 0014 |
| E4.E | . 8014 |
| E4.73 | . 0014 |
| E.7. | . 914 |
| E4,75 | . 014 |
| E4.73 | .3014 |
| E4.75 | . 2014 |
| 54.7E | ,601E |
| E.7. | . 8015 |
| E. P $^{\text {a }}$ | . 8015 |
| E-E | ¢015 |




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EFP



|  | $16 \Xi 4994$ |
| :---: | :---: |
| 6815．0 | 171400 |
| E0：3．3 | 51515450 |
| 8．5 | 1305378 |
| 437.5 |  |
| 454.1 | E5 |
| 1182.3 | \％esecil |
|  | 130 |
| 418.5 | 10.83770 |
| 1344.5 | 32906934 |
| 31 3 ， 2 | 51497574 |
|  | ¢ |
|  |  |
| 4169.4 | 77 |
| 39676 | GE4598954 |
| 1355.6 |  |
| 3873.6 | 39443561 |
| 1．2 | 12313143 |
| 521.9 | 11334215 |
| 1549.5 | 3E572716 |
| 38.5 |  |
| 341.5 | 7119e5e |
| 14174.4 | e95cese41 |
| 8\％6．5 | 165 |
| 312.5 | 5473 |
| 4956 | 19356 |
| 764 | 1686ze96 |
| 1399 | 295 |
| 404.5 | 30943815 |
| 631.2 | 12331427 |
| 5203 | 109657582 |
| 2ase． | 589 1916 |
| 1130.5 | ： |
| 2192 | 4359514 |
| 91 | 13093943 |
| 2493.9 | $4 E 485 E 57$ |
| E94 | 1199659 |
| ！ 310.9 | EEE4ET79 |
| 3330.2 | ＝5115079 |
| 314．E | 41782535 |
| EE8． 5 | 13514499 |
| 786.9 | 15867172 |
| 501.6 | 38 |
| S01． 3 | $34 \times$ |
| 275. | Seentis |
| 598 | 393 |
| 540 | 12384395 |
| $\stackrel{185}{\text { Eib }}$ | 353579 |
| 419.9 | T0 |
| 1625．9 | 23Ex1454 |
| 4643 | 30437175 |
| 76 | 12953311 |
| EEse． 4 | 118713797 |
|  | $1 \leq$ eef |
| eeso． | －ecesol |
| － | E45E5402 |
| 8． | 1556155 |
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| 10se． | 195454E |
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| 145.3 | －300e |
| 1739.3 | 908ETh7 |
| 391.6 | 1714794 |
| 2989．0 | 4 Pa |
| 386.8 | seseesa |
| 719.5 | 12311312 |
| TE |  |
| EE3．${ }^{\text {a }}$ | 15792 L |
| 1599.6 | E5191937 |
| Ses． 5 | 169 |
|  |  |
| 57.3 | 3 ES |
| 375.6 | 1567134 |
| 13E．5 | 29S43s |
| 45.5 | 7 T 2404 |
| ¢ 90.3 | 43 ％itas |
| 462.5 | 5161324 |
| 155 | 23012513 |
| 537．8 | 494 |
| 1997.8 | 16950r ${ }^{\text {a }}$ |
| 31E5．6 | 46455402 |
| \％s．1 | 13891113 |
| 1157.8 | 1E4TEES |
| 1689.6 | 2573539 |
| 382．9 | 14541559 |
| $\underline{8164.7}$ | \％ 3 ¢6754 |
| 4000.9 | 553ee31 |
| 519.9 | ， |
| －3：7 | こotees |
|  | $5{ }^{\text {5 }}$ |
| 431.5 | ${ }^{56990}$ |
| ceer | SE4Es42 |
| SEs． | 210 |
| \＃\＃9． | E13549 |
| 1334.7 | E393ese |
|  | 47 |
| Esil． | 5534140 |
| ： | 4415512 |
| Ex5． | 7 Ec |
| 18.4 | 159\％ |
|  | ${ }^{-1}$ |
| 13\％．${ }^{\text {\％}}$ | 1251505 |
| 396． | 杫 |
| － | 51 |
| 115．${ }^{\text {a }}$ | 1193 |
| 312.5 | EEE |
| ＝ | 13974E |
| 159.6 | $1:$ |
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## APPENDIX C

FULL STATE FUNDING ALTERNATIVE DATA




| CMM | SAFULL $-29943.17$ |
| :---: | :---: |
| ． 004 | $-29843.13$ |
| ． 904 | － 48390.25 |
| .994 | －31544． 31 |
| ． 294 | －135185．77 |
| ． 994 | 28713．62 |
| ． 984 | 11551.12 |
| ． 2084 | 10169．11 |
| ． 094 | －41581．78 |
| .894 | －63558．11 |
| ． 294 | －162440． 72 |
| ． 294 | －225420．45 |
| ． 804 | －625553．69 |
| ． 094 | －22：55． 25 |
| ． 994 | －19436．77 |
| .984 | －15792．33 |
| ． 294 | －540436．34 |
| ． 094 | －464236． 61 |
| ． 284 | －139032．15 |
| ． 994 | －271915．50 |
| ． 284 | －121159．34 |
| ． 894 | －E4563．82 |
| ． 984 | －145737．E5 |
| .984 | －27275．36 |
| ． 904 | －13087．79 |
| ． 994 | －51364．77 |
| ． 994 | －57772．32 |
| ． 094 | －10345．37 |
| ． 094 | －135052．46 |
| ． 904 | －81948．51 |
| ． 294 | －54623．85 |
| .804 | －151E24．48 |
| ． 994 | 20533． 52 |
| ． 924 | －5896．49 |
| ． 904 | 29814.02 |
| ． 204 | －199873． 38 |
| ． 984 | －34559．41 |
| ． 904 | －16212．11 |
| ． 092 | －13590．62 |
| ． 924 | －27832．57 |
| ． 294 | －1．5943． 32 |
| ． 008 | －53955．45 |
| ． 904 | －31179．90 |
| ． 024 | －40232． 91 |
| ． 004 | －16813．48 |
| ． 094 | －11524．35 |
| ． 094 | －974306．47 |
| ． 294 | －49590． 51 |
| ． 084 | 3483.44 |
| ． 204 | －13231．34 |
| ． 024 | －4142．13 |
| .004 | 423．64 |
| ． 294 | －17433．77 |
| ． 004 | －э5อこ7．${ }^{\text {a }}$ |
| ． 004 | －3E97T．01 |
| ． 204 | －76704．19 |
| ． 084 | －147740．70 |
| ． 204 | －78504．7 |
| ． 204 | －3コココア．47 |
| ． 204 | －-39508.39 |

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| FTE <br> 41590.4 | $\begin{aligned} & A V \\ & 974504480 \end{aligned}$ |
| :---: | :---: |
| 4．542．3 | 121328628 |
| 2941．5 | 35841499 |
| 1580.8 | 23735531 |
| 1657.1 | 16137427 |
| 855.8 | 36955856 |
| 1543.9 | 30437175 |
| 1137.3 | 16476583 |
| 1355.6 | 36299015 |
| 521.1 | 13052780 |
| 343.5 | 34349479 |
| 535.5 | 59331202 |
| 446.8 | 42525935 |
| 521.9 | 15549941 |
| 392.3 | 25175967 |
| 499.5 | 28976612 |
| 199.0 | 11989464 |
| 399.5 | 3152933 |
| 197.8 | 80E2949 |
| 141．9 | 15153317 |
| 539.0 | 29630268 |
| 511.5 | 19799119 |
| 191.8 | 494534E |
| 551.0 | 27913515 |
| 297.7 | 3310819 |
| 597.8 | 17927269 |
| 799.5 | 12352211 |
| 525.0 | 9369592 |
| 631.2 | 12381427 |
| 2947.4 | 32569894 |
| 294.9 | 7747149 |
| 249.5 | 11774885 |
| 322.8 | 14738929 |
| 568.2 | 27936192 |
| 124.5 | 7553474 |
| 458.9 | 16256919 |
| 391.9 | 19594E19 |
| 198.5 | 19425446 |
| 419.5 | 524E3909 |
| 190.1 | 23836972 |
| 189.5 | 15437442 |
| 337.8 | 27886259 |
| 199.5 | 13652999 |
| 6.598 .4 | 113713707 |
| 699．8 | 2235335E |
| 358.7 | 7992390 |
| 4955.0 | 103300595 |
| 1404.5 | 30043015 |
| 513.5 | 21378533 |
| 294．5 | 3143437 |
| 1981．5 | 33721249 |
| 3102.5 | 43335914 |
| 164.0 | Э902311 |
| 1171.5 | 34678831 |
| 197．0 | 7705573 |
| 86.3 | 5765110 |
| 477.5 | 16317279 |
| 1053.5 | 13545452 |
| 108． 3 | 195343435 |
| 37518 | 11459182 9239 |

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22e2349．40 248690.93 92023． 80 99725.23 45811． 25 90093．53 55932.05 74219.10 28539． 33 13331． 63 39313．63 24462． 30 33999.75 43929.4 .5 27347.63 5475.90
.5945 .13 10785.75 7719.75
E9510．25 23904．E3 10501． 25 30157.25
11371.58 11371.58
37753.25 38345.13
35743.75 23743.75
34559.26 112095.15 11159.90 13659.13
17529.50 35583.95 6816． 33 35975.50 10067.38
 19375.13 5502.32 361352.40 ミコこ4こ．75 14711.33

271341．02 75896.36 29：14．：3 15123.68 59213.13 8979.00 54139.63 $107 B 5.75$
4724. 25143.13 57679.13 E9139．92


| FTE ${ }_{164.5}$ | 6207001 |
| :---: | :---: |
| $\begin{array}{r} 164.5 \\ 710.5 \end{array}$ | $\begin{array}{r} 5287901 \\ 25808512 \end{array}$ |
| 246.0 | 21373530 |
| 713.9 | 20563351 |
| 525.4 | 58211299 |
| 516.3 | 16367491 |
| 597.1 | 12093948 |
| 1975．3 | 5E463832 |
| 288.5 | 41711761 |
| 1344.5 | 32096921 |
| 292.0 | 12852659 |
| 519.0 | 7076505 |
| 875.0 | 13671341 |
| 793.3 | 7439928 |
| 417.7 | 5541353 |
| 422.5 | 5161234 |
| 777.0 | 8175328 |
| 446.5 | 7929854 |
| 459.5 | 7239404 |
| 775.0 | 12399640 |
| 399.5 | 5135492 |
| 3339.0 | 55115076 |
| 512.5 | 13953738 |
| 342.2 | 15465142 |
| 853.1 | 12331112 |
| 315.5 | 13392947 |
| 386.5 | 31097889 |
| 277．5 | 44103883 |
| 1389.6 | 37279017 |
| 1759.3 | 30827779 |
| 267.8 | 34288818 |
| 172.9 | 37302009 |
| 413.5 | 12291325 |
| 535.5 | 7556330 |
| 393.2 | 10709096 |
| 199.5 | 10956998 |
| 323.0 | 10943725 |
| 1057． 5 | 43073454 |
| 793.3 | 194835492 |
| 532.5 | 124170559 |
| 391.5 | 25.501470 |
| 1252.0 | 31712250 |
| 573.9 | 27409925 |
| 1052.5 | 14541558 |
| 1393．5 | 29057304 |
| 26E． 0 | 10839238 |
| 1E2．5 | 12997896 |
| 529.5 | 3109321 |
| 3923.0 | 49956989 |
| 432.5 | 37259371 |
| 1143.0 | 51098295 |
| 191.7 | 15040257 |
| 398.9 | 15906135 |
| 501.5 | 93EE776 |
| 549．5 | 336TE7！ |
| 625．5 | 15943974 |
| 265．5 | 94635．2 |
| 1235.0 | 43192905 |
| ESes． 1 | ¢ 0 EETEEJ |
| $\underline{195.5}$ | ع1549753 |


| Cum | $\text { SAFULL }-1 E: 45.33$ |
| :---: | :---: |
| ． 024 | －62334．17 |
| ． 004 | －720อ5．${ }^{\text {a }}$ |
| ． 004 | －43235．65 |
| ． 094 | －204079．19 |
| ． 024 | －39292．54 |
| ． 904 | －15324． 57 |
| ． 904 | －296989．13 |
| ． 204 | －151051．67 |
| ． 094 | －54416．32 |
| ． 084 | －35971．10 |
| ． 084 | －383． 5 |
| ． 204 | －5773．11 |
| ． 024 | 13950． 31 |
| ． 024 | 703．E6 |
| ． 804 | －2598．06 |
| ． 294 | 9839．44 |
| ． 084 | －7273．58 |
| ． 904 | －3723． 97 |
| ． 904 | －9167．31 |
| ． 084 | 1330．66 |
| ． 024 | －78142．72 |
| 004 | －23827． 38 |
| ． 904 | －431E5．12 |
| ． 004 | －2343．47 |
| ． 094 | －35293．16 |
| ． 004 | －103230．68 |
| ． 024 | －161232．41 |
| ． 984 | －735อง． 22 |
| ． 284 | －25962．07 |
| ． 2024 | －122537．02 |
| ． 984 | －138636．02 |
| ． 294 | －25163．16 |
| ． 984 | 4583.06 |
| ． 284 | －21333． 27 |
| ． 204 | －3E905． 37 |
| ． 084 | －2E430． 57 |
| ． 204 | －114395．63 |
| ． 904 | －375375．58 |
| ． 094 | －467199． 36 |
| ． 094 | －53515．25 |
| ． 024 | －59252． 90 |
| ． 094 | －73267． 35 |
| ． 024 | －541． 36 |
| ． 084 | －39E9E．${ }^{\text {a }}$ |
| ． 004 | －29012．41 |
| ． 004 | －35094．71 |
| ． 004 | 2025．34 |
| 024 | －39465． 21 |
| ． 024 | －125029．${ }^{\text {a }}$ |
| ． 004 | －141216． 33 |
| ． 204 | －33240． 55 |
| ． 024 | －13911．74 |
| ． 004 | －10004． 50 |
| ． 024 | －498．55．74 |
| ． 024 | －3935． 77 |
| ． 204 | －2334E． 02 |
| 084 | －192417．37 |
| 004 | －148002． 77 |
| 894 | －205E3．${ }^{\text {a }}$ |

RAFML 309E， 3 38899． 38 13463． 50 39936．75 28765．65 2e257． 43 32691． 3 53267． 20 157ヨ5． 38 736：1． 32 15439.50 ごほミコ． 59 47955.25 43706． 32 23863． 88 2อ836． 38 42540.75 24445.88 25157.53 42431.25 21272．63 13ミ317．50 23387．88 13735． 45 46989． 98 17273．63 21160.36 15132.13 75587.85 96349. 14618.25

10512．09 22539． 13 34943.38 21516.75 19922．E3 17634.25 4346 E .03 29482． 88 42899.63 37597.99 3137．75 TEEここ． 14344． 50
 150352.75

34057． 8 6こ57． 26920． 49 274E•远 อ4อコ5．！ $3424 E$ ． 1453E． 13 3E48E9．7シ

| 585 | FTE $_{352.5}$ | AV12548990 | $\begin{gathered} \text { CMM } \\ .004 \end{gathered}$ | EAFULLOS33.02 | $\text { RAFUL } 19 \text { E99.38 }$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 327 | 376.5 | 11294095 | ． 004 | － 24563.01 | 29E13．38 |
| 323 | 457.4 | 370206.51 | ． 004 | －123039． 35 | 25042． 55 |
| 389 | 518.0 | 26990394 | ． 204 | －79525． 72 | 33835． 50 |
| 390 | 142.5 | 9463880 | ． 204 | －30053．65 | 801．88 |
| 392 | 431.8 | 16793287 | ． 204 | －42838．49 | 35334．75 |
| 393 | 375.5 | 10018679 | ． 294 | －19515．09 | 20553．63 |
| 394 | 1125.5 | 12519857 | ． 204 | 11595.45 | 51575.88 |
| 395 | 486.8 | 31109751 | ． 084 | －97794．54 | 26E98．59 |
| 396 | 561.3 | 12313143 | ． 294 | －18525．37 | 38725.70 |
| 397 | 359.9 | 15195793 | ． 204 | －41620．33 | 19162． 50 |
| 393 | 411.7 | 13730971 | ． 084 | －32383． 31 | ここ540． 52 |
| 399 | 192.8 | 37232922 | ． 204 | － 138379.58 | 10512.00 |
| 402 | 811.0 | E3193159 | ． 984 | －68634．4．3 | 44403.35 |
| 401 | 333.0 | 24138239 | ． 284 | －93522．56 | 13030.50 |
| 402 | 1525.0 | 29591454 | ． 804 | －29357．07 | 88953.75 |
| 403 | 327.5 | 19921773 | ． 294 | －58155．47 | 17930．63 |
| 484 | 685.5 | 19955213 | ． 204 | －5289．73 | 37531．13 |
| 495 | 775.3 | 25194224 | ． 904 | －58234．47 | 42502.43 |
| 405 | 471.3 | 5494291 | ． 294 | 4214.25 | E5831．05 |
| 497 | 1497.7 | 36992157 | ． 904 | －270537． 93 | 77071.53 |
| 498 | 581.5 | 15747473 | ． 004 | －311．52．73 | 31937．13 |
| 499 | 1590.2 | 30222090 | ． 094 | －33835．50 | 3705E． 50 |
| 419 | 561.6 | 21.929789 | ． 294 | －53371． 52 | 39747.60 |
| 411 | 212.5 | 635153E | ． 284 | －13771．77 | 11634．38 |
| 412 | 549.9 | 21364731 | ． 2084 | －55481．17 | 32957.75 |
| 413 | 2147.3 | 41792635 | ． 904 | －43573．49 | 117592.05 |
| 415 | 1052.5 | 25337628 | ． 004 | －49729． 98 | 57629.35 |
| 416 | 381.2 | 17147941 | ． 004 | －1．4378．41 | 53799．75 |
| 417 | 352． 5 | 27947148 | ． 984 | －59639． 22 | 52149.38 |
| 418 | 2178.5 | 39129399 | ． 984 | －291398．72 | 119273.88 |
| 419 | 383.5 | 21323793 | ． 804 | －64013． 96 | 21275.35 |
| 420 | 504.5 | 11395638 | ． 204 | －11486．15 | 33996.38 |
| 421 | 341.5 | 7119262 | ． 284 | －9779． 32 | 13697.13 |
| 422 | 417.5 | 22168232 | ． 984 | －55814．89 | 33958．13 |
| 433 | 399.0 | $1774735 E$ | ． 294 | －49144．17 | 21345.35 |
| 424 | 13 E .5 | 17471407 | ． 094 | －E2E31． 35 | 7254.38 |
| 425 | 306.0 | 5239234 | ． 904 | －4293．44 | 15753.50 |
| 4 EE | E60．5 | 10992359 | ． 204 | －25109．0E | 14253． 38 |
| 12 ？ | 501.5 | 20213515 | ． 004 | －479．45． 34 | 32932．13 |
| 138 | 3428.3 | 193413446 | ． 808 | －225974．36 | 187699．43 |
| 429 | 381.3 | 4724932 | ． 024 | 1976.45 | 20876． 13 |
| 430 | 563．5 | 12514499 | ． 204 | －13857．6E | 35609． 38 |
| 431 | 737.0 | 41736734 | ． 0904 | －136795．13 | 40350.75 |
| 43 S | 442． 5 | 31440797 | ． 904 | － 51545.81 | 34117.39 |
| 433 | 231． 5 | 6920563 | ． 024 | －13E97． 55 | 12574． 3 |
| 134 | 1134.4 | 13934101 | ． 604 | 9109.50 | E4845． 90 |
| 4.5 | 1384.3 | 24.565422 | ． 204 | － 2 2443． 31 | 75317.89 |
| 4.36 | 386． 5 | 13573482 | ． 924 | －251．53．${ }^{\text {S }}$ | 48535.89 |
| $43^{7}$ | 2536．${ }^{\text {c }}$ | 45394195 | ． 964 | －42330．76 | 13904E． 08 |
| 4.38 | 330.5 | 31246734 | ． 804 | －109293．05 | 13994．88 |
| 439 | 382.0 | 5こ57201 | ． 284 | －114．30 | 20914． 50 |
| 440 | 539.0 | 15123514 | ． 204 | －25509． 81 | 34985． 35 |
| 441 | 323.0 | 2497ヨ7E | ． 204 | －49119．95 | socoe． 09 |
| 442 | 454.1 | 1138906 | ． 064 | －20694．23 | 24851． 3 ］ |
| 143 | 3873.6 | 69443651 | ． 294 | －145E35．04 | 21207E．E0 |
| 144 | 324.0 | 30618950 | ． 004 | －101451．89 | 21024．02 |
| 4.5 | 2999． 3 | 52308967 | ． 264 | －4．5489． 57 | 16374E．30 |
| 4 4E | 2423.9 | 4E425EJ7 | － 024 | －54339．10 | 131513.53 |
| 417 | 593.0 | E343E4 | ． 904 | 3167．19 | 3794：．75 |
| 119 | 34.50 | 1372eT13 | ． 004 | －35013．12 | ！seee．-5 |



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| :---: |
| 315. |
| ®75． |
| 482.9 |
| 4089.8 |
| 337.0 |
| 178. |
| 313.5 |
| 4352.0 |
| 1243.3 |
| Ese． |
| 4 AE |
| 785. |
| 433.9 |
| 383. |
| 1171.8 |
| 2133． |
| 1145. |
| 579.8 |
| 112.0 |
| 1157．3 |
| 2953. |
| 152.5 |
| 11 EE 3 |
| 151.2 |
| 6373. |
| 117. |
| 194.8 |
| 373. |
| 2es\％． |
| 404.0 |
| 363.2 |
| 573.5 |
| 891.0 |
| 239.3 |
| 558. |
| 3 3． |
| 30.3. |
| 2953.3 |
| 760. |
| E 5 ． 0 |
| 1310．0 |
| 439.6 |
| ！ 16 ¢ |
| 15E．5 |
| 6315．0 |
| 418. |
| 75 E． |
| 23317． |
| 1.1174. |
| こ9E． |
| 2047. |
| 501. |
| 319 |
| 1593 ． |
| E75． |
| 8．9 |
| E3． |
| － |





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| 2e33e．${ }^{\text {a }}$ |
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|  |
| 2711E2，00 |
| 57427． 35 |
| 13797.60 |
| 40EE4．50 |
| 43035 ． 5 |
| ここ706． |
| 31270．36 |
| E4112． |
| 115732．70 |
| E2710．65 |
| 31207.50 |
|  |
| E3295．03 |
| 161549.38 |
| 8349.38 |
| 64730．93 |
| 9814．75 |
|  |  |
|  |
| 106E1． 50 |
| 11974．13 |
| 152987.36 |
| 23119．00 |
| 19865.20 |
| $43 \mathrm{Ba}, 75$ |
|  |  |
|  |
|  |
| 2057． 183 |
| 15EEE2．35 |
| 113691．9E |
| 36ะこ．．00 |
| $\begin{aligned} & 4399.35 \\ & 7: 7 E 2,50 \end{aligned}$ |
|  |  |
|  |
| E3515.48 |
|  |  |
|  |
| $3 \equiv \Xi!3 \cdot 8$ |
|  |  |
|  |
| E04E．40 |
| 1198E． 38 |
| ！ 111.50 |
|  |  |
|  |
| $3754.35$ |
|  |  |
|  |
| 8074.80 |
|  |  |
|  |


| 80 | $F T E 84.8$ | $5797404$ | CMA <br> .004 | $\text { SAFUL }-18590 . E 2$ | RAFULE09.00 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| E36 | $34 \cdot 9$ | $\begin{aligned} & 5797404 \\ & 576 E 110 \end{aligned}$ | $.204$ | $-18530 . E E$ | 4724.03 |
| 275 | 100.9 | 11089454 | ． 004 | －3eeez． 36 | 5475.00 |
| 301 | 100.1 | 2อ836972 | ． 204 | －85867．41 | 5480.48 |
| 304 | 190.5 | 136 E 009 | ． 004 | －49145．6E | 5502． 38 |
| 242 | 101.0 | 5587308 | ． 804 | －16819．43 | 5529．75 |
| 468 | 112.0 | 9535156 | ． 984 | －32098．62 | 6132.09 |
| $47 E$ | 117.5 | 19689853 | ． 0204 | －36325． 29 | 6433．13 |
| 395 | 134.5 | 7653474 | ． 984 | －23797． 52 | 5815.38 |
| 328 | 131.5 | 15457119 | ． 994 | －54E23． 85 | $7!99.83$ |
| 424 | 132.5 | 17471407 | ． 804 | －52631． 35 | 7354.38 |
| 290 | 141.9 | 15153317 | ． 024 | －5Ee93． $5 \geq$ | 7719.7 |
| 399 | 142.5 | 94.38895 | ． 084 | －30953． 5 | 7801.88 |
| 309 | 143.5 | 58319279 | ． 004 | －E35420．45 | 7856.63 |
| 471 | 152.5 | 10200910 | ． 904 | －32450． 57 | 8349．38 |
| 496 | 156.5 | 14136652 | ． 984 | －47978． 27 | 8.568 .38 |
| 474 | 151.9 | 24327701 | ． 094 | －88096．9．5 | 88：4．75 |
| 371 | 152.5 | 19997896 | ． 294 | －35094．71 | 3895.88 |
| 213 | 163.0 | 6179144 | ． 904 | －15792． 33 | 8924． 25 |
| 511 | 163.5 | 2453510 | ． 894 | －89186．42 | 8951．6．3 |
| 314 | 164．9 | 9902311 | ． 284 | －306E9．24 | 3979.09 |
| 3 E 4 | 164.5 | 5207301 | ． 0.04 | －15145． 23 | 9096． 38 |
| 455 | 178.0 | 7322394 | ． 004 | －21943． 3 2 | 974．5． 50 |
| 599 | 134.8 | 8295784 | ． 304 | － 23199.14 | 10974．09 |
| 317 | 185.0 | 79.524751 | ． 204 | －27！915．30 | 19183． 30 |
| 321 | 189.8 | 9405778 | ． 094 | －27275．36 | 10347.75 |
| 324 | 139.9 | 17939017 | ． 984 | －57772． 3 E | 10347.75 |
| 392 | 129.5 | 15437442 | ． 004 | －51374．54 | 10375．13 |
| 383 | 191.3 | 4945845 | ． 084 | －9282． 33 | 10501.95 |
| 355 | 192.8 | 37392969 | ． 984 | －138695．90 | 10512.20 |
| 399 | 192.8 | 3722 929 | ． 984 | －138379． 58 | 10512.09 |
| 477 | 194.9 | 15797681 | ． 954 | －52299． 32 | 10621.59 |
| 384 | 196.5 | 7829163 | ． 984 | －20523． 38 | 19758.38 |
| 279 | 197.8 | 8062949 | ． 294 | － 21462.41 | 10785.75 |
| 315 | 197.9 | 7705578 | ． 904 | －20936． 55 | 10785．75 |
| 399 | 198.5 | 19425446 | ． 994 | －39833． 91 | 10967.88 |
| 359 | 193.5 | 1995 998 | ． 024 | －32995． 37 | 109E3．E3 |
| 219 | 291.3 | 18893393 | ． 004 | －54568． 32 | 1104.75 |
| 50 | 292.5 | 19429722 | ． 204 | －66632．${ }^{1}$ | 11085.88 |
| 391 | 204.0 | 7749149 | ． 904 | －19837． E $^{\text {d }}$ | 11159．99 |
| อ85 | 207.7 | 3310817 | ． 094 | － 31071.70 | 11371． 5 E |
| 298 | 298.9 | 434.57189 | ． 994 | －162440．73 | 11388.09 |
| 212 | 299.8 | 7734889 | ． 004 | －19496．77 | 11443．75 |
| 236 | 219.0 | E860190 | ． 084 | －15943． 3 3 | 11497.30 |
| $4: 1$ | 212． 5 | 5351536 | ． 204 | －13771．77 | 11834.39 |
| 193 | 321.5 | 16362684 | ． 094 | －53323．E1 | 13137.1 .3 |
| 433 | 231． 5 | 6320569 | ． 684 | －12607．E5 | 12574．${ }^{\text {a }}$ |
| 2！${ }^{\text {e }}$ | 234．0 | 379 9915 | ． 084 | －139932．1E | 13811.3 |
| 491 | 233．9 | 24！3＠${ }^{\text {a }}$ | ． 804 | －93522． －$^{\text {a }}$ | 13030.50 |
| 136 | 239．8 | 7657676 | ． 004 | －17502． 45 | 13129.05 |
| こ¢9 | 343.5 | 34349479 | ． 204 | －12406E． 39 | 13831．60 |
| こコE | 246.6 | 21373500 | ． 084 | －72025． 53 | 13468． 50 |
| こコ2 | 243.5 | 11974855 | ． 0.04 | －34339．43 | 13600.13 |
| 194 | 251．0 | 113こ1E89 | ． 004 | － 3 1544． 51 | 13742.35 |
| $\pm E$ | 25コ．0 | 16929499 | ． 804 | －503E1．90 | 13737.20 |
| こミ7 | 255．1 | 23978899 | ． 804 | －8！ 58.51 | 395E．73 |
| 4EE | 260． 5 | 10992859 | ． 004 | －EE109．0E | 4EE2． 3 ¢ |
| E69 | こEE．0 | 109ここออง | ． 004 | －20612．41 | 14344． 50 |
| 4 E | 253．${ }^{\text {c }}$ | 1351.5215 | ． 80.4 | －402E1． 1 | 143き日．こ5 |
|  | ミミミ．E | 34EEミここ | ． 20.4 | － 3332.80 | 4EこE． 13 |
| E． 5 | ここち．${ }^{\text {a }}$ | ミงะeยย！ | ． 0.4 |  | －1E：ミ． |



ETE


AV

| AV－000390 | CMM |
| :---: | :---: |
| 9609413 | 004 |
| 48441632 | 09 |
| 5227715 | 90 |
| 44193883 | 024 |
| 12852659 | 094 |
| 41711761 | 0 O 4 |
| 9149487 | 00 |
| 5239234 | 00 |
| 14947617 | 08 |
| 3152033 | 92 |
| 380E4205 | 90 |
| E473604 | O |
| 1339 E947 | 0 |
| 4354835 | ge |
| 14738920 | 904 |
| 19043705 | 09 |
| 19921773 | ． 004 |
| 31345734 | ． 004 |
| 10318931 | ． 20 |
| 27386250 | ． 294 |
| 4949 82 | ． 694 |
| 7119 ここ | ． 20 |
| 15453142 | ． 094 |
| 13726719 | ． 20 |
| 14349759 | ． 084 |
| 15195793 | ． 202 |
| 12548939 | ． 294 |
| 24649495 | ． 294 |
| 24679037 | ． 004 |
| 17462092 | ． 904 |
| 11459182 | ． 902 |
| 10918679 | ． 894 |
| 74703943 | ． 904 |
| 11294035 | ． 094 |
| 4724932 | ． 924 |
| 5257201 | ． 20. |
| 30512950 | ． 0 |
| 3109789 | ． 0.4 |
| 9360954 | ． 094 |
| 21323793 | ． 80 |
| 19594E！ | ． 804 |
| 1070909E | 00. |
| 17T73E | ．004 |
| 5133492 | ． 094 |
| E1E1234 | ． 004 |
| 11840472 | ． 984 |
| 13730971 | ． 084 |
| 1220193E | ． 004 |
| 51323997 | ． 094 |
| 22160232 | ． 294 |
| 5541353 | ． 204 |
| 10383770 | ． 004 |
| 52468909 | ． 204 |
| 589624 | ． 204 |
| 1 E033E7！ | ． 204 |
| 187907 | ． 804 |
| 10750EE | ． 804 |
| 37ミ5アゴ！ | ． 094 |
| 40115015 | 084 |



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| :---: |
| －23463 |
| 45737 |
| －5E54．E！ |
| －151232．41 |
| －35971． |
| －151051． |
| －20474．07 |
| －4E93． 44 |
| －39327．47 |
| －156E3．0 |
| －135135． |
| －3785．04 |
| －3E398．15 |
| －こ3ล5． |
| －41325．13 |
| －22430． |
| －5815E． 4 |
| －109292．05 |
| －22307．10 |
| －93094． 39 |
| －1349．12 |
| －97－9 |
|  |
|  |
| －36013．13 |
| －40883． 91 |
| －41620． 33 |
| －30893．93 |
| －76e7e |
| －78504．77 |
| －49599．5！ |
| －25305． 43 |
| －19515 |
| －27833 |
| －245E3 |
|  |
| 1976．45 |
| 111．30 |
| －191451 |
| －10ここうの |
| －1317E．44 |
| －540！ 9.96 |
|  |
| －35シ7． 3 |
| －21283． 37 |
| －49144．17 |
| こลu |
| －26 |
| －2524E |
| －3E3E3． |
| －EE1E8．13 |
| 185053．45 |
| －55814．30 |
| 763 |
| －1862a． |
| －19690e． 91 |
| $4 \geq 3$. |
| －9E429．${ }^{\text {a }}$ |
| －51264．77 |
| 9087．79 |
| －ミละこコ．E！ |
| E4E4．31 |
| －EEAE， 3 ！ |



[^6]
FTE


AV

$$
\begin{aligned}
& 72 \\
& 13 \\
& 11 \\
& 37 \\
& 10 \\
& 5 \\
& 16 \\
& 15 \\
& 62 \\
& 31 \\
& 15 \\
& 20
\end{aligned}
$$

72
12
11
37
15
7
16
16
62
31
15
20
798954
3595955
CM
.8
.8
 344
344
248
250
25 35831.05

25143．1．
35334.75
36389.50
36385.50
25608.50

过20．
 2747 27903．
38114．13 $38314 \cdot 13$ 29387． 38涊 85. 295
 28755． 6 29482． 33 39510.25 3959． 30057.75 30232.09 $305 \cdot$ ． 307 3074 $3130{ }^{2}$ ． 3134 $3: 3$ 3139 316 $3: 18$ 32110. ． 32193.60 32591．$\Xi 3$ まきอ 3309. 33172.50 32205．
 3ヨ9日 3424 3446 24Es 346 E 4 a

FTE




RAF シュออร． E4985． 2 36909.39
3570.10 35770.10
37531.13 37941.75 38325.00
3845.13 38845.13
38895.98 38899.89
3889.89 39335.75
49350.75 49359.75 41391.02 $4125 E .39$
42239.63 $42239 \cdot 63$ 42502.43 45540.75 $43933 .=0$ 43454.09 43E2E． 43705.9 44462 ． 46017.32 4E811． 46989.92 47924. 47996. 48535.8 A 4890. eg $491 E 5.30$ 3002． 00 콘․ 4 ． 3 E－ 09 シ743 5E97．90 576
 57898 Ee Eaミ！ EDE道泡 － 115 4 Aㅇ 5485影
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APPENDIX D

PERCENTAGE EQUALIZED GRANTS DATA

| USD | FTE | AV 205055 | CMM | SAEQ | \% $\operatorname{MAEP}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 101 | $1198.5$ | 23865265 | $.094$ | $-29843.19$ | $-6.45$ |
| 192 | 578.0 | 20136440 | . 294 | -48900. 36 | -1.55 |
| 103 | 221.5 | 16362584 | . 204 | -53323.61 | -4.49 |
| 104 | 251.0 | 11321689 | . 204 | -31544.51 | -2. 39 |
| 208 | 311.3 | 38064205 | . 2094 | -135185.77 | -7.92 |
| 292 | 3695.5 | 43417439 | . 094 | 23713.62 | . 14 |
| 293 | 840.5 | 8591565 | . 284 | 11651.12 | 25 |
| 294 | 1734.7 | 23938930 | . 204 | 101E9.11 | 10 |
| 205 | 632.0 | 19045924 | . 284 | -41581.79 | -1.20 |
| 206 | 540.5 | 23287621 | . 004 | -63558.11 | -2. 15 |
| 298 | 205.0 | 43457180 | . 924 | - 152440.72 | -14. 26 |
| 209 | 143.5 | 58319270 | . 024 | -225429.46 | -23.69 |
| 210 | 858.9 | 168394593 | . 294 | -525553.6u | -13.32 |
| 211 | 754.5 | 15092995 | . 004 | -22155. 25 | -0. 53 |
| 212 | 209.0 | 7734380 | . 004 | -19496. 77 | -1.79 |
| 213 | 163.0 | 6173144 | . 294 | -15792.33 | -1.77 |
| 214 | 1418.0 | 154.530461 | . 2024 | -549486. 34 | -5. 35 |
| 215 | 696.5 | 124375679 | . 094 | -464296. 31 | -13. 98 |
| 316 | 334.0 | 37969916 | . 994 | -139032.15 | -19.35 |
| 217 | 126.0 | 70524751 | . 904 | - 271715.58 | -25.79 |
| 218 | 576.1 | 53177794 | . 284 | -181169.34 | -5.74 |
| 319 | 201.9 | 18893393 | . 284 | -64562.82 | -5. 37 |
| 220 | 274.5 | 40441632 | . 204 | -14E737.65 | -9.76 |
| 221 | 189.0 | 9405778 | . 894 | -27275. 35 | -2.64 |
| 222 | 437.5 | 10760228 | . 904 | -19987.79 | -2. 80 |
| 223 | 436.5 | 18798787 | . 984 | -51364.77 | -2.15 |
| 224 | 189.9 | 17939017 | . 094 | -57772.32 | -5. 58 |
| 225 | 719.5 | 12311312 | . 904 | -10345. 37 | -0.27 |
| 226 | 413.5 | 51922897 | . 204 | -18.5052.46 | -8.17 |
| 227 | 255.1 | 23978809 | . 904 | -81948. 51 | -5. 37 |
| 228 | 131.5 | 15457119 | . 094 | -54E28.85 | -7.59 |
| 229 | 3692.1 | 88441718 | . 294 | -151624.40 | -9.75 |
| 239 | 1199.0 | 11277932 | . 994 | 20533. 52 | 31 |
| 231 | 1557.4 | 23018512 | . 884 | -5806. 49 | -9.08 |
| 332 | 1653.5 | 17428776 | . 984 | 20814.02 | . 23 |
| 233 | 9530.9 | 157922589 | . 294 | -129873.98 | -0. 21 |
| 234 | 1965.0 | 35535789 | . 2984 | -34559.41 | -0.32 |
| 235 | 521.0 | 11334216 | . 904 | -1E812.11 | -0.59 |
| 336 | 84.0 | 5797404 | . 084 | -18599.62 | -4. 24 |
| 337 | 585.5 | 14998362 | . 294 | -27882. 57 | -9.37 |
| 338 | 210.0 | 5269120 | . 2024 | -15943. 22 | -1.39 |
| 239 | 583.8 | 21537114 | . 894 | - 5395.46 | $-1.68$ |
| 348 | 451.9 | 13979787 | . 294 | -31190.99 | - -1.36 |
| 341 | 345.5 | 14949759 | . 004 | -40822. 91 | -2.15 |
| 342 | 101.0 | 5587308 | . 204 | -15819.48 | -3.04 |
| 243 | 549.5 | 19304305 | . 284 | -11624.85 | -6. 39 |
| 244 | 795.0 | 254458189 | . 204 | -974395.47 | -32.38 |
| 245 | 370.0 | 17462023 | . 204 | -49599. 51 | -2.45 |
| 346 | 563.8 | 5855202 | . 084 | 3403.44 | . 11 |
| 247 | 771.5 | 13380240 | . 204 | -13231.34 | -0.31 |
| 248 | 1097.8 | 16950721 | . 024 | -4142.13 | -0.07 |
| 249 | 431.5 | 5300247 | . 004 | 423.64 | . 22 |
| 259 | 2840.5 | 43237735 | . 204 | -17433.77 | -0.11 |
| 251 | 571.6 | 12001981 | . 204 | -35237.82 | -0.96 |
| อ52 | 519.7 | 15369383 | . 204 | -39377. 01 | -1.1E |
| 253 | 4197.9 | 76634731 | . 094 | -76704.10 | -0. 33 |
| 254 | 788.4 | 47725401 | . 204 | -147740.70 | -3.42 |
| 255 | 363.5 | 24570937 | . 204 | -78504.77 | -3. 69 |
| 256 | 303.0 | 14047617 | . 204 | -39327.47 | -2. 33 |
| 257 | 1820.0 | 32953076 | . 204 | -285E7.39 | -0. 29 |
| こ52 | 552.0 | 17545187 | . 204 | -39958.75 | -1.32 |



| FTE | － 974694480 |
| :---: | :---: |
| 41590.4 | 974604480 |
| 2941.6 | 35341406 |
| 1680.8 | 23735531 |
| 1557.1 | 16187427 |
| 355．0 | 36355856 |
| 1643.9 | 36437175 |
| 1187.8 | 15476583 |
| 1355.6 | 30299015 |
| 521.1 | 13052780 |
| 243.5 | 34343479 |
| 535.5 | 50331202 |
| 446.8 | 42525935 |
| 521.0 | 16.549941 |
| 802.3 | 25175967 |
| 493.5 | 28073612 |
| 100.0 | 11089464 |
| 399.5 | 8152033 |
| 197．9 | 2062040 |
| 141.8 | 15153317 |
| 537.9 | 29639268 |
| 511.5 | 19709117 |
| 191.3 | 494584E |
| 551.8 | 27913515 |
| 297.7 | 8310319 |
| 507.5 | 17027259 |
| 797.5 | 12952211 |
| 525.8 | 9369692 |
| 631.3 | 12881427 |
| 2047.4 | 32669994 |
| 204.9 | 7749149 |
| 249.5 | 11974885 |
| 322.0 | 14732920 |
| 668.2 | 27936192 |
| 124.5 | 7553474 |
| 458.8 | 16255919 |
| 391.0 | 19594619 |
| 178.5 | 10425446 |
| 419.5 | 59468909 |
| 199.1 | 22336972 |
| 139.5 | 15437442 |
| 337.9 | 27886260 |
| 109.5 | 136E2099 |
| E598．4 | 118713707 |
| E97． 8 | こ2こ5こ855 |
| 2EB． 7 | 7998390 |
| 4955.8 | 103800506 |
| 1404.5 | 30943016 |
| 513.5 | 21378533 |
| 294.5 | 9149487 |
| 1081.5 | 33721247 |
| 2102.5 | 433359.4 |
| 164．0 | 9902311 |
| 1171.5 | 34670821 |
| 197.0 | 7705578 |
| 85.3 | 5765110 |
| 477.5 | 16817279 |
| 1053.5 | 18545462 |
| 1061.9 | 195343438 |
| 375.0 | 11459122 |
| 572．5 | 9339522 |



$\%$ SAEQ
-2.71
-9.95
.11
$-0.03$
.29
$-2.16$
－ 0.01
$-9.53$
-9.33
-9.31
-9.31
-5.87
-5.95
-0.95
-2.35
-1.29
－ $\mathbf{-} .11$
$-7.10$
－-1.92
$-5.85$
-3.02
-1.31
$-0.38$
$-2.70$
-1.92
-1.45
$-2.33$
$-0.30$
$-0.49$
$-0.17$
－2． 51
$-2.34$
$-1.36$
$-1.59$
－2． 66
$-2.84$
$-15.14$
$-4.35$
$-5.05$
$-2.31$
－1． $\mathrm{F}^{7}$
$-6.53$
－0． 56
$-2.24$
$-1.28$
－ 3.41
$-1.16$
$-1.85$
$-3.6 E$
$-0.29$
$-12.44$
$-1.33$

| 490 | FTE 1 ¢ 4.5 | AV 6237001 | CMM 024 | $\begin{aligned} & \text { SAEQ } \\ & -16145 . .33 \end{aligned}$ | \%SAEQ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 324 325 | 164.5 | 6237901 26898512 | $\begin{array}{r} .024 \\ .004 \end{array}$ | $\begin{aligned} & -16145 . \Xi 3 \\ & -5021 \end{aligned}$ |  |
| 326 | 24E.0 | 21373530 | . 084 | -72025.62 | -E. 35 |
| 327 | 713.0 | 20568351 | . 004 | -43236. 55 | -1.11 |
| 328 | 525.4 | 58211299 | . 204 | -204979.17 | -7.09 |
| 329 | 515.3 | 16367491 | . 004 | -39202. 54 | -1.39 |
| 330 | 597.1 | 12003948 | . 084 | -15324. 57 | -0.47 |
| 331 | 1975. 3 | 56463832 | . 204 | -20698. 13 | -3. 52 |
| 332 | 283.5 | 41711761 | . 094 | -151051.67 | -9.5E |
| 333 | 1344.5 | 32006924 | . 004 | -5415.32 | -0.74 |
| 334 | 282.0 | 12852650 | . 204 | -35971.10 | -2.3E |
| 335 | 510.0 | 7876505 | . 204 | -383. 52 | -0.01 |
| 336 | 875.8 | 13671341 | . 004 | -5779.11 | -0.14 |
| 337 | 798.3 | 7439028 | . 004 | 13950. 31 | 32 |
| 33 ¢ | 417.7 | 5541353 | . 004 | 783.65 | 03 |
| 339 | 402.5 | 6161234 | . 004 | -2608.05 | -0.12 |
| 340 | 777.0 | 8175328 | . 904 | 9939.44 | 23 |
| 341 | 446.5 | 7929864 | . 094 | -7273.58 | -9.30 |
| 342 | 459.5 | 7229404 | . 904 | -3733. 39 | -9.15 |
| 343 | 775.9 | 12399540 | . 004 | -9167.31 | -9.32 |
| 344 | 399.5 | 5135492 | . 004 | 1330.56 | 06 |
| 345 | 3330.0 | 55115070 | . 004 | -78142.73 | -0.43 |
| 346 | 513.5 | 13953788 | . 204 | -33827. 23 | -2.34 |
| 347 | 342.2 | 15465142 | . 294 | -43125.12 | -2.38 |
| 348 | 853.1 | 12331112 | . 904 | -2343.47 | -9.0.5 |
| 349 | 31.5 .5 | 13392947 | . 004 | -36293.1E | -2.10 |
| 350 | 386.5 | 31897889 | - 004 | -103339.E8 | -4.86 |
| 351 | 277.5 | 44103823 | . 204 | -15122e.41 | -10.61 |
| 352 | 1380.5 | 37273017 | . 004 | -73523. 22 | -8. 37 |
| 353 | 1759.3 | 30827779 | . 204 | -25962.97 | -9.28 |
| 354 | 267.8 | 34288819 | . 204 | -122537.02 | -8.36 |
| 355 | 192.8 | 37302900 | . 804 | -133695.00 | -13.19 |
| 355 | 413.5 | 12201825 | . 204 | -25168.18 | -1.16 |
| 357 | 636.5 | 7565330 | . 2084 | 4583.06 | . 13 |
| 358 | 393.0 | 19790095 | . 094 | -21283. 27 | -9.99 |
| 359 | 193.5 | 10956938 | . 294 | -32305.37 | -3.01 |
| 360 | 323.0 | 10043705 | . 004 | - 2 2490. 57 | -1. 27 |
| 351 | 1057.5 | 43973454 | . 904 | -114395.69 | -1. 38 |
| 362 | 793.7 | 104835402 | . 094 | -375875.58 | -2.65 |
| 353 | 538.5 | 124170559 | . 004 | -4E7199.36 | -15.85 |
| 364 | 891.5 | 25581470 | . 904 | -53515. 26 | -1.10 |
| 365 | 1052.0 | 31712250 | . 004 | -69252.00 | -1.20 |
| 366 | 573.0 | 27409925 | . 004 | -78257. 95 | -2.49 |
| 367 | 1952.5 | 14.541558 | . 204 | -541.86 | -0.01 |
| 368 | 1397.5 | 29057304 | . 204 | -39606. 39 | -0.52 |
| 369 | 262.0 | 1083922 | . 094 | -29012.41 | -2.02 |
| 371 | 162.5 | 10997896 | . 204 | -35094.71 | -3.94 |
| 372 | 623.5 | 3109821 | . 904 | 2625.34 | 26 |
| 373 | 2923.0 | 49955989 | . 084 | -3946.5.21 | -0.2.5 |
| 374 | 433.5 | 37259371 | . 904 | -125029.61 | -3. 21 |
| 375 | 1143.9 | 51098395 | . 204 | -141315.33 | -2. ${ }^{7}$ |
| 376 | 491.7 | 15040357 | . 204 | -33240.85 | -1. 23 |
| 377 | 908.0 | 15906185 | . 204 | -13911.74 | -0.32 |
| 378 | 501.6 | 9366776 | . 204 | -10084.50 | -0. 36 |
| 379 | 1547.5 | 33672715 | . 824 | -49855. 74 | -0. 0.5 |
| 330 | 525.5 | 16049974 | . 004 | -29353.77 | -2.87 |
| 381 | 26.5 .5 | 9469532 | . 094 | -23342.019 | -1.61 |
| 392 | 1295.0 | 43192906 | . 004 | -102417.87 | -1.46 |
| E®3 | 5293.1 | 105967623 | . 294 | -143009.77 | -0.50 |
| こ®. | 196.5 | 7820153 | . 004 | -20522. 33 | -1. 31 |
| こ®ड | 1358.0 | 21549782 | . 024 | -11843. ${ }^{3}$ | -2.1E |



| FTE 352.5 | $A_{12548099}$ | CMM <br> .004 |
| :---: | :---: | :---: |
| 352.5 | $\begin{aligned} & 12548099 \\ & 11294095 \end{aligned}$ | $.004$ |
| 457.4 | 37020651 | . 084 |
| 618.0 | 26090304 | . 004 |
| 142.5 | 9463889 | . 084 |
| 431.0 | 1 1793237 | . 094 |
| 375.5 | 10013679 | . 204 |
| 1125.5 | 12519857 | . 004 |
| 436.9 | 31109751 | . 004 |
| 561.2 | 12313143 | . 004 |
| 350.0 | 15195798 | . 094 |
| 411.7 | 13739971 | . 294 |
| 192.0 | $372 \pm 2920$ | . 004 |
| 811.8 | 23109169 | . 004 |
| 233.9 | 24136289 | . 804 |
| 1525.0 | 29591454 | . 204 |
| 327.5 | 19921773 | . 804 |
| 685.5 | 19955213 | . 294 |
| 775.3 | 25134224 | . 904 |
| 471.3 | 5404201 | . 294 |
| 1407.7 | 86902167 | . 084 |
| 531.5 | 15747478 | . 004 |
| 1590.8 | 30222900 | . 094 |
| 561.6 | 21029789 | . 204 |
| 212.5 | 6351536 | . 294 |
| 549.8 | 21364731 | . 094 |
| 2147.8 | 41792635 | . 904 |
| 1052.6 | 26837688 | . 004 |
| 381.9 | 17147941 | . 204 |
| 352.5 | 27947148 | . 994 |
| 2178.5 | 80129399 | . 004 |
| 388.6 | 21323793 | . 994 |
| 694.5 | 11895638 | . 904 |
| 341.5 | 7119252 | . 004 |
| 417.5 | 22158232 | . 004 |
| 393.0 | 17747356 | . 004 |
| 132.5 | 17471407 | . 204 |
| 305.8 | 5 539234 | . 284 |
| 260.5 | 10092859 | . 904 |
| 601.5 | 29213516 | . 904 |
| 3428.3 | 103418446 | . 904 |
| 321.3 | 4724932 | . 994 |
| 663.5 | 12614439 | . 204 |
| 737.0 | 41786734 | . 984 |
| 440.5 | 21449797 | . 80.4 |
| 231.5 | 5320569 | . 004 |
| 1134.4 | 13934101 | . 204 |
| 1384.8 | 245E5402 | . 004 |
| 836.5 | 15673482 | . 004 |
| 2535.0 | 45294195 | . 204 |
| 330.5 | 31846734 | . 094 |
| 382.0 | 5257201 | . 204 |
| 637.0 | 13123514 | . 294 |
| 923.0 | 24979738 | . 204 |
| 454.1 | 11389065 | . 004 |
| 3873.5 | 39443EE1 | . 004 |
| 324.0 | 30518950 | . 004 |
| 2990. 3 | 52308967 | . 294 |
| 2403.7 | 4E4E5E57 | . 084 |
| -93.0 | 8943640 | . 004 |
| 345.0 | 13725718 | . 024 |

SAEQ
\% SAEQ
$-30893.02$
-1.60
-1.19
-4.91
-3.08
-3.85
-1.55
-0.95
-3.69
-9.50
-2.17
-1.44
-13.16
-1.53
-5.41
-6.33
-3.24
-9.17
-1.37
-3.51
-9.98
$-0.98$
$-1.74$
$-1.18$
$-1.84$
$-0.42$
$-0.36$
-9.28
-1.14
$-1.69$
$-3.01$
$-0.52$
$-2.32$
-2.35
$-2.25$
$-1.63$
$-1.46$
-47945.34
-225974.36
$-1.20$
$-0.38$
$-3.14$
-2. 2.9
$-0.99$
$-0.30$

- 0.54
$-0.30$
$-6.04$
- 0.93
-9.97
-0.83
-6. 69
-101451.84
$-4.83$
$-4.5439 .57$
-0.38
-0.41
- 54329.10
-96018.12
$-1.91$

| USD | FTE | AV 7894853 | 0 mm | SAEQ 1509， 09 | \％SAEQ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 449 | 605.0 | 7894853 | － 0.84 | 1599．09 | 35 |
| 459 | 3155.0 | 46455492 | ． 004 | －12537．86 | －0．07 |
| 4.51 | 275.0 | 5227715 | ． 204 | －5854．61 | －0．39 |
| 452 | 482.0 | 6260374E | ． 084 | －224025．48 | －8．47 |
| 453 | 4280.0 | 55338816 | ． 094 | 2024．74 | 01 |
| 454 | 337.0 | 4949982 | ． 084 | －1343．13 | －0．07 |
| 455 | 178.0 | 7922304 | ． 004 | －-1943.32 | －2． 25 |
| 456 | 312.5 | E473694 | ． 204 | －8785．94 | －0．51 |
| 457 | 4952．0 | 1.55194542 | ． 204 | －349655．17 | －1． 23 |
| 458 | 1043.9 | 13359219 | ． 004 | 4025.40 | 07 |
| 459 | 252．0 | 16929499 | ． 094 | －50321．00 | －3．65 |
| $40^{0}$ | 742.0 | 25678760 | ． 094 | －62090．62 | －1．53 |
| $4 E 1$ | 786.0 | 15067172 | ． 004 | －17235．19 | －0．40 |
| 462 | 433.0 | 15033871 | ． 084 | －36423．73 | －1． 54 |
| 453 | 388.5 | 33E0954 | ． 204 | －12173．44 | －0． 37 |
| 464 | 1171.8 | 14156512 | ． 884 | 7485.20 | 13 |
| 465 | 2133.2 | 51497674 | ． 804 | －89193．09 | －0．75 |
| 466 | 1145.4 | 38053411 | ． 004 | －29532． 99 | －1．4．3 |
| 467 | 578.8 | 32171693 | ． 804 | －97479．37 | －3．1E |
| 45 | 112.0 | 953.5156 | ． 084 | －32008． 62 | －5． 23 |
| 469 | 11.57 .7 | 11899890 | ． 204 | 15795.83 | Es |
| 479 | 2952． 5 | 58927016 | ． 984 | －74858．69 | －2．45 |
| 471 | 152.5 | 10200010 | ． 084 | －32450．67 | －3．89 |
| 473 | 1182.3 | 29565173 | ． 904 | －53．533．77 | －0．83 |
| 474 | 161．${ }^{\text {a }}$ | 24E27701 | ． 804 | －88095．05 | －9． 39 |
| 475 | 6379.1 | 52589392 | ． 904 | 138898．16 | 40 |
| 476 | 117.5 | 10699853 | ． 004 | －36325．29 | －5．6． |
| 477 | 174.8 | 15707681 | ． 204 | －52209．22 | －4．9E |
| 473 | 273.5 | 9699413 | ． 904 | －23463． 53 | －1．57 |
| 439 | 2960.5 | 76474634 | ． 094 | －143211．1E | －0．89 |
| 481 | 404.8 | 11349470 | ． 294 | －25242．68 | －1．14 |
| 482 | 363.2 | 24640405 | ． 284 | －78676．42 | －3． 96 |
| 433 | 573.5 | 47824180 | ． 984 | －159897．60 | －5．09 |
| 434 | 381.9 | 25171009 | ． 884 | －52449．29 | －1．09 |
| 486 | 239． 3 | 7557876 | ． 2954 | －17502． 45 | －1．33 |
| 437 | 552.5 | 10045220 | ． 004 | －9607． 21 | －0．31 |
| 488 | 33.5 .5 | 19318931 | ． 204 | －22307．10 | －1． 35 |
| 489 | 3016.5 | 97711913 | ． 094 | －2E5584．78 | －1．37 |
| 496 | 2058.3 | 51515450 | ． 904 | －93373． 88 | －0．33 |
| 491 | 700.0 | 6831002 | ． 204 | 10997．79 | ． 29 |
| 492 | EES． 5 | 13615216 | ． 294 | －40961．E1 | －2． 78 |
| 493 | 1310.0 | 25643729 | ． 204 | －30853．42 | －0．43 |
| 494 | 439.0 | $4011.601 E$ | ． 094 | －13E434．81 | －5．68 |
| 495 | 1150.1 | 33311959 | ． 204 | －89732．3E | －1．41 |
| 496 | 156.5 | 14136652 | ． 904 | －47378．27 | －5．60 |
| 437 | E81E． 0 | 171400989 | ． 004 | －312427．96 | －0．34 |
| 498 | 418.5 | 10383770 | ． 024 | －126E2．${ }^{\text {a }}$ | －0．81 |
| 199 | 756.0 | 4543864 | ． 004 | 23215． 54 | 55 |
| E包 | E2317．7 | 298108こEを | ． 204 | 39460．60 | 02 |
| 501 | 14174.4 | 295989941 | ． 204 | －404311．3E | －0．5E |
| 502 | 202.5 | 1942972 E | ． 024 | －56532． 01 | －6． 01 |
| 503 | 2047.7 | 29067543 | ． 024 | －158．60 | －9．00 |
| 504 | 501.3 | 949 ee63 | ． 094 | －10．521．90 | －0． 38 |
| 505 | 319.5 | 4754835 | ． 004 | －ב3e5．72 | －0．13 |
| 506 | 1.599 .0 | 26191937 | ． 024 | －1723ล．${ }^{\text {¢ }}$ | －0．38 |
| 507 | 375.3 | 74703048 | ． 004 | －278237．14 | －13．5E |
| 508 | 898.9 | 9592921 | ． 004 | 10793.58 | こコ |
| 509 | 184．6 | 9ここ57E4 | ． 004 | － 23199.14 | －2． 39 |
| E1： | 1E3．E | 34535019 | ． 004 | －8916e．42 | －9． 36 |
| $\equiv 12$ | 29575．3 | 624598694 | ． 094 | －11125®9．${ }^{\text {a }}$ | －9．E3 |



| $\text { FTE } 4090.0$ |
| :---: |
| 22317.7 |
| 431. |
| 417. |
| 605.0 |
| 693.0 |
| 529. |
| 399. |
| 1248.9 |
| 381. |
| 1934. |
| 2941.6 |
| 563.0 |
| 1171.9 |
| 536.5 |
| 3695. |
| 1134.4 |
| 471.8 |
| 1126.5 |
| 393.0 |
| 777.8 |
| 1653.5 |
| 1157.9 |
| 849.5 |
| 1657.1 |
| 702.0 |
| 1199.9 |
| 798.3 |
| 6379.1 |
| 755.9 |
| 2947.7 |
| 382.9 |
| 519.8 |
| 1052.5 |
| 1137.3 |
| 1680.3 |
| 858.1 |
| 1097.0 |
| 3155.8 |
| 337.8 |
| 1.557 .4 |
| 2840.5 |
| 402.5 |
| 319.5 |
| 875.9 |
| 459.5 |
| 1358.0 |
| 685.5 |
| 2047.4 |
| 572.5 |
| 1599.0 |
| 9530.9 |
| 775.0 |
| 396.0 |
| 2929.0 |
| 710.5 |
| 2990.3 |
| 1759.8 |
| 581.0 |
| 908.0 |
| 1053.5 |


| AV $2=030016$ | CMM |
| :---: | :---: |
| $\begin{array}{r} 55359516 \\ 298108368 \end{array}$ | $.004$ |
| -5809247 | . 004 |
| 5541353 | . 004 |
| 7894852 | . 084 |
| 8943640 | . 204 |
| 8109821 | . 984 |
| 5135492 | . 904 |
| 13359219 | . 094 |
| 4724932 | . 204 |
| 23938930 | . 804 |
| 35841400 | . 204 |
| 6855292 | . 204 |
| 14156512 | . 204 |
| 7566330 | . 204 |
| 43417439 | . 804 |
| 13934101 | . 004 |
| 5404201 | . 004 |
| 12519857 | . 904 |
| 9592981 | . 204 |
| 8175323 | . 804 |
| 17428776 | . 294 |
| 11397800 | . 284 |
| 8591565 | . 004 |
| 15187427 | . 894 |
| 6831802 | . 204 |
| 11277932 | . 204 |
| 7439029 | . 984 |
| 52589392 | . 804 |
| 4543864 | . 904 |
| 28967543 | . 004 |
| 5257201 | . 094 |
| 7076595 | . 904 |
| 14541558 | . 004 |
| 15475583 | . 004 |
| 23735531 | . 024 |
| 12331112 | . 204 |
| 15050721 | . 204 |
| 4 4 45402 | . 004 |
| 4949982 | . 904 |
| 23018512 | . 2024 |
| 43237785 | . 094 |
| $E 161234$ | . 004 |
| 4954835 | . 094 |
| 13671341 | . 094 |
| 7229404 | . 204 |
| 31543782 | . 084 |
| 10955213 | . 904 |
| 32569004 | . 904 |
| 9339622 | . 004 |
| 26191937 | . 094 |
| 1.57922689 | . 804 |
| 12899540 | . 204 |
| s239234 | . 094 |
| 49955969 | . 294 |
| 12311312 | . 004 |
| 52308967 | . 994 |
| 30827779 | . 804 |
| 17147041 | . 004 |
| 15906185 | . 904 |
| 1854.5452 | . 064 |


| SAEQ 3024.7 | \%SAEQ |
| :---: | :---: |
| $2024 \cdot 74$ | . 81 |
| 423.64 | . 92 |
| 793.6E | 03 |
| 1599.09 | . 25 |
| 2167.19 | . 96 |
| 2025.84 | . 05 |
| 1330.65 | . 05 |
| 402E. 49 | . 07 |
| 1976.45 | . 09 |
| 10159.11 | . 10 |
| 17687.09 | 11 |
| 3403.44 | . 11 |
| 7486.20 | . 12 |
| 4.583 .95 | . 13 |
| 28713.62 | . 14 |
| 9199.59 | . 14 |
| 4214.25 | . 16 |
| 11 E96.45 | . 17 |
| 10793.58 | 22 |
| 3839.44 | . 33 |
| 20814.92 | . 23 |
| 15795.83 | . 25 |
| 11651.12 | . 25 |
| 25976.52 | . 39 |
| 19997.79 | . 39 |
| 29533.52 | . 31 |
| 1.3950 .81 | . 32 |
| 132898.15 | . 40 |
| 23215.54 | 56 |
| -158.60 | -9.09 |
| -114.39 | -0.01 |
| -383.52 | -0.01 |
| -541.85 | -0.01 |
| -374. 28 | -0.01 |
| -2913.3E | -0.93 |
| -2343.47 | -0.05 |
| -4142.13 | -0.07 |
| -12537. 36 | -0.07 |
| -1349.13 | -0.07 |
| -630. 40 | -0.08 |
| -17433.77 | -0.11 |
| - 2608.06 | -0.12 |
| -232e.72 | -6.13 |
| -5779.11 | -0.14 |
| -3723.99 | -0.15 |
| -11343.63 | -0.16 |
| -5289.73 | -0.17 |
| -18580.87 | -0.17 |
| -6014.11 | -9.19 |
| -17222. 50 | -0. 20 |
| -109873.98 | -0. 21 |
| -9157.31 | -0.22 |
| -4203.44 | -0. 25 |
| -394ES. 31 | -0. 25 |
| -10345. 37 | -0.27 |
| -45489. 57 | -9. 28 |
| -26982.07 | -0. 25 |
| -14878.41 | -9.28 |
| -13911.74 | -0. 28 |
| -15.025. 72 | -6. 29 |



AV


| SAEQ -28567.30 | \％EAEQ 0.29 |
| :---: | :---: |
| －42330．76 | －9．30 |
| －3735．02 | －0． 30 |
| －22443．81 | －9．30 |
| －7273． 58 | －0．30 |
| －13231．34 | －0．31 |
| －113592．43 | －0．31 |
| －9607． 81 | －8．31 |
| －34559．41 | －0．32 |
| －12963．72 | －9．33 |
| －29357．07 | －0．33 |
| －76704．10 | －0． 33 |
| －31745．18 | －9． 35 |
| －10904． 50 | －0． 36 |
| －10521．90 | －9．38 |
| －13857．62 | －0．38 |
| －33835．50 | －0． 39 |
| －5354．61 | －0． 39 |
| －11624．85 | －0． 39 |
| －17235．19 | －0．48 |
| －54329．10 | －0．41 |
| －49578．49 | －0．42 |
| －78142．78 | －9．43 |
| －30852． 42 | －0．43 |
| －14486．18 | －0．44 |
| －29843．19 | －0．45 |
| －74058．69 | －0．46 |
| －1．5324．57 | －9．47 |
| －16967．51 | －0．47 |
| －143090．77 | －0．50 |
| －58231．78 | －0． 51 |
| －8785．04 | －0． 51 |
| －404311．36 | －9．52 |
| －39696．59 | －0． 52 |
| －9779．${ }^{\text {a }}$ | －0．52 |
| －143851．92 | －0． 53 |
|  | －0．53 |
| －261．5． 05 | －0． $0^{4}$ |
| －43ミ75．69 | －0．5E |
| －12173．44 | －0． 37 |
| －49855．74 | －9．59 |
| －15812．11 | －9． 93 |
| －18526．87 | －9．E0 |
| －46976． 96 | －6．E3 |
| －145695．04 | －0．69 |
| －1113589． 38 | －0． 69 |
| －151．5368． 52 | －0．71 |
| －25508．81 | －0．73 |
| －54416． 32 | －0．74 |
| －5．51E24．40 | －0．75 |
| －89198．09 | －0．76 |
| －19087．79 | －9．30 |
| －18622． 21 | －0．81 |
| －ธู533． 77 | －0．83 |
| －23680． 90 | －0．83 |
| －93373．96 | －0．83 |
| －20694．29 | －9．83 |
| －33627． 26 | －0．84 |
| －312427．96 | －6．34 |
| －49720．$=0$ | －0．8E |
| －こきอรこ． 77 | －0．87 |



|  |  |
| :---: | :---: |
|  |  |
|  |  |
|  |  |

AV

|  |  |
| :---: | :---: |
| 14998362 | $.004$ |
| 76474634 | . 004 |
| 8152033 | . 004 |
| 16549941 | . 094 |
| 121338628 | . 904 |
| 10918679 | . 204 |
| 18091981 | . 204 |
| 24979736 | . 904 |
| 37279017 | . 094 |
| 15747478 | . 004 |
| 10700005 | . 094 |
| 6320569 | . 204 |
| 25171099 | . 004 |
| 25581478 | . 204 |
| 29568351 | . 094 |
| 27947148 | . 204 |
| 11840479 | . 984 |
| 34570821 | . 004 |
| 12201325 | . 204 |
| 15360383 | . 094 |
| 7990390 | . 204 |
| 6351.536 | . 204 |
| 11294995 | . 294 |
| 31712259 | . 094 |
| 103418445 | . 904 |
| 19045924 | . 204 |
| 1.5040357 | . 094 |
| 11459182 | . 904 |
| 10318931 | . 294 |
| 13979787 | . 294 |
| 10943795 | . 294 |
| 3149487 | . 004 |
| 33721249 | . 094 |
| 155194542 | . 004 |
| 25176967 | . 004 |
| 17545187 | . 004 |
| 7557876 | . 094 |
| 97711913 | . 094 |
| 25184224 | . 994 |
| 1 E857491 | . 994 |
| 5869180 | . 904 |
| 38311959 | . 094 |
| 38058411 | . 204 |
| 13730971 | . 004 |
| 17927E59 | . 004 |
| 43192905 | . 204 |
| 29219515 | . 004 |
| 281091E9 | . 204 |
| 25678780 | . 204 |
| 15033871 | . 204 |
| 16793297 | . 204 |
| 20136440 | . 004 |
| 15217279 | . 004 |
| 9609413 | . 204 |
| 15256919 | . 004 |
| 12548097 | . 204 |
| 9459532 | . 004 |
| อ225285 | . 004 |
| 21.537114 | . 004 |
| 80120399 | . 004 |

SAEQ
-27882.5
-9282.33
-9292.33
-143811.15
-155E3. 01
$-32290.91$
-236663. 59
-19515. 99
$-35237.82$
$-49110.95$
$-73523.22$
-21293. 37 $-12607.55$
$-52449.29$ $-43236.65$ $-59639.22$ $-25342.89$ - 2516 B .18 $-32977.01$ -17250.24
-13771.77 -23563.01
-24 -69252.90
-225974.36 -41581.70 $-33249.65$ -25305. 48 -22907.10
-31199.90 - 22499.57 -75672.87 -349556.17 $-56787.42$ $-39958.75$ - 2 E558. 73 -58534.47 $-15943.22$ -89732.36
-89522.99 - 32393.31 -40350.83
-102417.87 $-4794.5 .94$ -58034.43
-52090.62 $-52090.62$ -49838. 40 -48909.26
-41125.99 -41125.99
-23463.53 -39952. 13 - 30893.02 -5.5EE8.67
-201208.72
$\%$ SAED
$-9.87$
$-9.85$
-9.89
-9.92
-0.95
-0.95
-9.95
-9.95
$-9.96$
-9.97
-0.97
$-9.98$
$-9.99$
-9.99
-1.09
-1.10
-1.11
$-1.14$
$-1.14$
$-1.16$
$-1.16$
$-1.18$
$-1.19$
-1.20
$-1.29$
-1.23
$-1.25$
-1.25
-1.27
$-1.27$
-1.29
-1.29
$-1.29$
$-1.32$
$-1.37$
$-1.37$
$-1.39$
$-1.41$
$-1.43$
$-1.45$
$-1.4 E$
$-1.53$
-1.
-1. 5
$-1.5$
-1.57
-1.59
$-1.60$
$-1 . E 1$
-1. $1 . \mathrm{EE}$
$-1.6 E$
$-1.6 日$

| Us0 | FTE | A ${ }^{\prime}$ |  | CMM | SAEQ | \%SAET 70 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 212 | 209.0 |  | 7734880 | . 804 | -19496.77 | $-1.79$ |
| 410 | 551.6 |  | 21029780 | . 004 | -53371.52 | -1.74 |
| 325 | 719.5 |  | 25808512 | . 024 | -68334.17 | -1.75 |
| 213 | 163.0 |  | 6179144 | . 004 | -15792. 33 | -1.77 |
| 291 | 204.9 |  | 7749149 | . 004 | -19827.60 | -1.78 |
| 324 | 164.5 |  | 6237391 | . 204 | -16145.23 | -1.79 |
| 232 | 511.5 |  | 19700117 | . 004 | -50795.85 | -1.81 |
| 426 | 250.5 |  | 10092359 | . 004 | -26109.05 | -1.83 |
| 412 | 549.0 |  | 21364731 | . 004 | -55401.17 | -1.84 |
| 316 | 197.0 |  | 7705578 | . 204 | -2903E. 35 | -1.86 |
| 384 | 195.5 |  | 7320163 | . 204 | -29522. 28 | -1. 91 |
| 448 | 345.0 |  | 13726713 | . 004 | -36013.12 | -1. 31 |
| 295 | 207.7 |  | 3310317 | . 004 | - 21371.79 | -1.92 |
| 394 | 688.2 |  | 27036102 | . 094 | -71569.46 | -1. 95 |
| $36!$ | 1057.5 |  | 43073454 | . 804 | -114395.69 | -1. 38 |
| 379 | 197.0 |  | 8062049 | . 094 | -21.452.41 | -1.99 |
| 369 | 262.0 |  | 10839228 | . 204 | -29012.41 | -2.92 |
| 319 | 513.5 |  | 21378533 | . 904 | - 57400.01 | -2.94 |
| 389 | 618.9 |  | 25090394 | . 084 | -70525.72 | -2.88 |
| 349 | 315.5 |  | 13392347 | . 004 | -36298.16 | -2.19 |
| 296 | 540.5 |  | 23287621 | . 204 | -63558.11 | -2.15 |
| 223 | 436.5 |  | 18790787 | . 204 | -51254.77 | -2.15 |
| 241 | 345.5 |  | 14949759 | . 8084 | -49882. 91 | -2.16 |
| 364 | 855.0 |  | 36955856 | . 004 | -101012.17 | -2.16 |
| 397 | 359.9 |  | 15195798 | . 904 | -41520. 33 | -2. 17 |
| 423 | 399.0 |  | 17747356 | . 984 | -49144.17 | -2. 25 |
| 455 | 178.9 |  | 7922204 | . 904 | -21943.32 | -2.25 |
| 375 | 1143.0 |  | 51098895 | . 204 | -141816.33 | -2.27 |
| 509 | 184.5 |  | 2295784 | . 904 | -23189.14 | -2.29 |
| 194 | 251.8 |  | 11321689 | . 904 | -31544.51 | -2.39 |
| 347 | 342.2 |  | 15465142 | . 904 | -43125.12 | -2. 38 |
| 334 | 282.0 |  | 12852550 | . 204 | -35971.10 | -2.33 |
| 356 | 308.8 |  | 14647517 | . 894 | -39327.47 | -2. 33 |
| 293 | 322.9 |  | 14738929 | . 904 | -41326.13 | -2.34 |
| 245 | 370.0 |  | 17462002 | . 204 | -49590. 51 | -2. 45 |
| 365 | 573.0 |  | 27499925 | . 294 | -78257.95 | -2.49 |
| 392 | 249.5 |  | 11974885 | . 284 | -34239.42 | -2.51 |
| 432 | 440.5 |  | 21440797 | . 004 | -61645.81 | -2.5E |
| 231 | 139.0 |  | 3405776 | . 204 | -27275. 36 | -E.E4 |
| 298 | 391.0 |  | 19594619 | . 2084 | -56971. 23 | -2.E6 |
| 294 | 551.6 |  | 2791351.5 | . 904 | -81485.81 | -2.79 |
| 492 | 1625.0 |  | 29581454 | . 204 | -29357.97 | -0.33 |
| 299 | 198.5 |  | 19425446 | . 204 | -39833. 91 | -2. 84 |
| 422 | 417.5 |  | 221E8232 | . 084 | -65814.89 | -2. 38 |
| 419 | 388.6 |  | $\geq 1323703$ | . 004 | -64018. 96 | -3.91 |
| 359 | 199.5 |  | 10956998 | . 904 | -32905. 37 | -3.91 |
| 231 | 539.6 |  | 29630268 | . 084 | -89010.82 | -3.92 |
| 242 | 101.3 |  | 5587308 | . 004 | -16819.48 | -3.94 |
| 274 | 493.5 |  | 28978612 | . 204 | -84966.82 | -3.11 |
| 467 | 579.9 |  | 32161693 | . 204 | -97439.27 | -3.12 |
| 431 | 737.9 |  | 41786734 | . 204 | -125796.19 | -3.14 |
| 403 | 327.5 |  | 19021773 | . 984 | -58156.47 | -3. 24 |
| 314 | 154.0 |  | 3902311 | . 004 | -30630. 34 | -3.41 |
| 254 | 782.4 |  | 47725401 | . 004 | -147740.79 | -3.42 |
| 395 | 124.5 |  | 7653474 | . 204 | -23797. 52 | -3.49 |
| 407 | 1407.7 |  | 8590216? | . 004 | -270537.09 | -3.51 |
| 331 | 1075. 2 |  | 66463232 | . 004 | -206983.13 | -3. 52 |
| 459 | 252.0 |  | 15029497 | . 204 | -30321.09 | -3.65 |
| 395 | 486.0 |  | 31100761 | . 004 | -97734. 54 | -3.68 |
| $3 \pm 0$ | 142.5 |  | 9463890 | . 004 | -30653.65 | -3.85 |
| 317 | 86.3 |  | 5765110 | . 004 | -18335. 3 2 | -3.88 |


FTE

HV

|  | CMM |
| :---: | :---: |
| $\begin{aligned} & 10209010 \\ & 24670037 \end{aligned}$ | $.904$ |
| 10997896 | . 094 |
| 24640405 | . 204 |
| 5797404 | 004 |
| 15362684 | . 204 |
| 30618950 | 004 |
| 10843705 | 94 |
| 37020651 | . 004 |
| 1.5707681 | . 004 |
| 15437442 | . 004 |
| 27386260 | . 004 |
| 47824180 | 004 |
| 37259371 | 004 |
| 9535155 | 004 |
| 21373530 | . 024 |
| 17039017 | . 204 |
| 14136652 | 004 |
| 10689853 | . 094 |
| 40115016 | . 004 |
| 53177704 | . 094 |
| 18893393 | . 024 |
| 50331202 | . 004 |
| 23973809 | . 004 |
| 42525935 | . 004 |
| 19429722 | . 004 |
| 31846734 | . 024 |
| 24138289 | . 064 |
| 15153317 | . 004 |
| 1545394E1 | . 004 |
| 58211295 | . 204 |
| 11989464 | . 204 |
| 15457117 | . 004 |
| 38064206 | 004 |
| 52468909 | . 004 |
| 51922897 | . 004 |
| 34288813 | . 204 |
| E2693745 | . 004 |
| 17471487 | . 024 |
| 104335402 | . 004 |
| 13652009 | . 004 |
| 34349479 | . 004 |
| 41711761 | . 094 |
| 40441532 | . 004 |
| 24535010 | . 004 |
| 24227701 | . 004 |
| 44103833 | . 004 |
| 3796091E | . 004 |
| 135343433 | . 024 |
| 372 22929 | . 204 |
| 37392000 | . 094 |
| 168394593 | . 004 |
| 74793048 | . 004 |
| 124375670 | . 004 |
| 43457130 | 0004 |
| 22336972 | . 004 |
| 124179559 | . 004 |
| 254458100 | . 004 |
| 70524751 | . 024 |
| 58219270 | . 6.4 |

SAEQ

\%SAEQ
$-3.39$
-3. 89
-3. 94
$-3.76$
-4.04
-4.40
-4.89
-4.83
$-1.27$
-4.91
-4.92
$-4.92$
-5.05
$-5.89$
$-5.21$
-5.32
-5.35
-5.58
-5.59
-5.59
-5.65

- 5.68
$-5.74$
$-5.87$
-5.87
-5.87
$-5.95$
-5.01
-5.04
-E. 41
-6.35
-5.96
$-7.09$
$-7.10$
7.59
-7.92
$-8.14$
-3.17
-8.38
$-8.49$
$-8.63$
-3.65
-3.93
$-9.31$
$-9.5$
9.75
-9.95
$-9.92$
$-10.61$
$-10.84$
-12.44
-13.15
$-13.19$
$-13.3$
13.90

14. 26
-1...85
-22. 39
$-7.7$

## APPENDIX E

## FLAT PERCENTAGE GRANT AND FLAT PERCENTAGE

ALTERNATIVES DATA

| 1 |  |  | 94 | RAFML | GRAN／LDAN |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & 101 \\ & 102 \\ & 102 \end{aligned}$ | $\begin{array}{r} 198.5 \\ 5880 \end{array}$ | 23855255 | $\begin{array}{r} .004 \\ .004 \end{array}$ | 65617． 88 $31 E 45.50$ | $8202 z 34.38$ $3955 E 7.59$ |
| 103 | 221.5 | 1ES52584 | 804 | 12127.13 | 1515c90．cs |
| 194 | 251.9 | 11321589 | ． 094 | 13742．25 | 71771.25 |
| 209 | 311.8 | 38964206 | ． 894 | 17071.05 | 2133831.25 |
| 292 | 3636.5 | 43417439 | ． 994 | 292383． 38 | 25E97921． 83 |
| 203 | 840.5 | 3591565 | ． 864 | 46917.38 | 5752171．88 |
| 304 | 1334.7 |  | ． 594 | 195924.39 | 3240603． 13 |
| 235 | 埕 | 19045924 | ． 904 | 34692.80 |  |
| 385 | 540.5 | 23287621 | ． 004 | 29592． 3 | 5999045． 36 |
| 298 | 398.8 | 4345189 | ． 204 | 11388.09 | 1423500.68 |
|  | 143.5 | 58915278 | ， 204 | 7355.63 | 782976． 13 |
| 310 | 358.7 | 1583345 | ． 694 | 47924.73 | 72036．88 |
| 311 | 764.5 | 1569 E | ． 604 | 41856.36 | 5EEE045． 98 |
|  | 299 | 77 | ． 804 | 11442.75 | 143 |
| 213 | 163.8 | 6179144 | ．694 | 9924． 25 | 1115531.25 |
| 214 | 1418.0 | 154530451 | ． 094 | 77635.50 | 9704437．59 |
|  | 506.5 | 124375670 | ． 684 | 33295．${ }^{8}$ | 4159734.38 |
| 216 | 234．9 | 37969916 | ． 6 ce | 12311.59 | 1601437.50 |
| 217 | 126.8 | 78524751 | ． 694 | 19183．59 | 1277937.50 |
| 218 | 55.1 | 5317794 | ． 804 | 31541.48 | 3942584.98 |
| 819 | 201.2 | 18898533 | ． 904 | 11904.75 | 1375533.75 |
|  | 274.5 | 49441632 | ． 894 | 15gze． 38 |  |
| $\cdots$ | 189.9 | 949577 | ． 984 | 1034.75 | 12954149.65 |
|  | 43.5 | 18790787 | ． 964 | 29898． 38 | 296725.68 |
| 234 | 189.9 | 17996017 | ． 694 | 19347.75 | 75 |
|  | 719.5 | 12311312 | ． 294 | 39699.38 | 38 |
| 225 | 413.5 | S19eza | ． 694 | 2e59． 13 | \％e9899．63 |
| 227 | 255.1 | 2997889 | ． 204 | 13965.73 | 745840.65 |
|  | 131.5 | 1545119 | 294 | 7199.63 |  |
| 229 | 3692.1 | 88441718 | ． 604 | 202142.48 | 2525\％e99．38 |
|  | 1199.9 | 12071932 | dea | S554．25 |  |
|  | 1557. | 23018512 | ． 984 | 35267.65 | 19E88456．${ }^{\text {a }}$ |
| $\underline{3} 2$ | 1 1653．5 | 17428176 | ． 694 | 96529． 13 | 11316140.63 |
|  |  | 15 Peese | 604 | S181 |  |
|  | 1965 | 35535799 | ，994 | 10 | 134478．75 |
|  | 521 | 1133 | 904 |  |  |
| 23 | 84.9 | 5797404 | ． 804 | 4593.60 | 5.4535 .00 |
|  | ¢es． 5 | 14998 ber | 094 | Sel1e | 401389． 8 |
| 298 | 219.9 | 5269139 | ． 094 | 11497，50 | 1437 |
|  | 588.0 | 21537114 | ． 094 | 32193.00 | 4924125.90 |
|  | 451 | 13970787 | ． 294 | 24692 |  |
|  | 345.5 | 14949759 | ，694 | 18916.13 | 2364515．93 |
| 342 | 191.8 | 55875 | 604 | 595 | ¢91315．75 |
|  | 546.5 | 19304309 | 边 | cuseer |  |
|  | 79.0 | 254488129 | ． 694 | 435 | 344071．25 |
| 245 | 370.0 | $1745 \mathrm{Eg92}$ | 004 | 2xes | Ess |
| E46 | 563.0 | G855Ege | \％ | 38884.85 | ¢E53911． 25 |
|  | 71.5 | 13 Ecgec 40 | ， 04 | 422 | SETe953．13 |
| E43 | 1997.6 | 16050721 | \％04 | Seve | 7 O |
| 24. | 431.5 | 5696247 | 894 | 23624 | 8953078．13 |
|  | 2340.5 | 43237165 | 094 | 155517 | 19439671.88 |
|  | 571.5 | 1－90919］ | 204 | 367 | 53 |
|  | 519.9 | 5s | ，64 | ¢ | 395S6es． 63 |
| 河 | 4197.3 | $7 \mathrm{Ecs4731}$ | 904 | 2egess．09 | ¢97cerib 13 |
|  | 78 | 4765401 | 964 | 31 | 535612． |
| 址 | צE8．5 | E4ET0037 | 904 | 20175． $0^{\circ}$ | Ese13E1． 38 |
| 汭 | SE6． 8 | 14047617 | ， | 1 ¢ees． 00 | E197859．60 |
| 比 |  | Sceisio | 604 | 0 | －4565．09 |
|  |  | －5413\％ | ． 04 | gocee | 37770000 |


| 0 | TE | H ${ }^{\text {a }}$ | OM | RAFMSL | grant／Ian |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 359 | 41590.4 | 974004490 | ． 804 | 2282549．44 | 225315675.00 |
| 369 | 4542.3 | 121336 Ec | ． 094 | 243690.73 | 316e6365．63 |
| 351 | e941． 5 | 3581400 | ． 004 | 161052． 08 | 2813155.00 |
| 362 | 1 EP 0.3 | 23735531 | ． 094 | 72923.80 | 11502975.90 |
| 353 | 1657.1 | 16187427 | ． 004 | 90725.23 | 11345778.13 |
| 354 | 355．6 | 36955856 | ． 204 | $4 E 811.25$ | 5851405.35 |
| 355 | 1643.9 | 30437175 | ． 904 | 30003.53 | 11250440.53 |
| 356 | 1187.8 | 16476.583 | ． 004 | E5032．0．5 | 6129006． 35 |
| 25？ | 1355.6 | 30290015 | ． 604 | 74219.10 | 9277387.50 |
| 358 | 531．1 | 13052780 | ． 004 | 28539．23 | 3seez7a． 13 |
| 2¢9 | 343.5 | 34349479 | ． 004 | 13831.53 | 16E5453． 13 |
| E12 | 535.5 | 50331202 | ． 204 | 29318．53 | 3664932． 13 |
| 371 | 446.6 | 42525935 | ． 204 | 24452.30 | 305787.30 |
| 272 | 521.0 | 16.549341 | ． 904 | 33999.75 | 424996.75 |
| 373 | 892.2 | 25176957 | ． 964 | 43900.45 | 549005.25 |
| 374 | 499.5 | 28078612 | ． 694 | 27347.53 | 3418453.13 |
| ES | 100.9 | 11009454 | ． 004 | 5475.00 | 684375．90 |
| 278 | 309.5 | 8152933 | ． 004 | 16945.13 | 2118140．63 |
| 279 | 197.0 | 9062949 | ． 024 | 10785.75 | 134821.75 |
| 330 | 141.5 | 15153317 | ． 004 | 719.75 | 354958.75 |
| 331 | 539.0 | こ263025 | ． 904 | 29510．35 | 3503781.25 |
| $\geq \geq 2$ | 511.5 | 19700119 | ． 204 | 20004．63 | 350057.13 |
| 283 | 191.8 | 4945846 | ． 204 | 10501.05 | 1312531.25 |
| 234 | 551.0 | 2713515 | ． 204 | 30157． 35 | $3779006 . こ 5$ |
| 235 | 207.7 | 8310819 | ． 504 | 11571.58 | 1421445.38 |
| 336 | 507.9 | 17027269 | ． 294 | E7759． 35 | 3469781.25 |
| 237 | 709.5 | 12952211 | ． 884 | 30845.13 | 4355640.63 |
| 288 | 525.8 | 7369692 | ． 004 | 28743.75 | 3592956.75 |
| 289 | 531.2 | 12381427 | ． 904 | 34558.29 | 4313775.80 |
| 298 | 2947.4 | 32669594 | ． 994 | 112985.15 | 14011893.75 |
| $\because \square$ | 294.0 | 7749149 | ． 904 | 11169.00 | 1396125.00 |
| 292 | 249.5 | 11974585 | ． 204 | 13650.13 | 1707515．65 |
| 293 | 322.0 | 14738980 | ． 994 | 17629.50 | 2300637．50 |
| 234 | EE8．2 | 27936152 | ． 694 | 35583． 35 | 4572993.75 |
| 395 | 124.5 | 7553474 | ． 804 | E815．38 | 852045．88 |
| 297 | 458.8 | 15256917 | ． 204 | 25875．50 | 3134437.50 |
| 298 | 391.5 | 17594617 | ． 904 | 21407.25 | 3675906.25 |
| 399 | 158.5 | 19425446 | ． 204 | 18067．86 | 1359484． 38 |
| 390 | 417.5 | 5246e99 | ． 204 | ミ9957．E3 | 2870953．13 |
| 304 | 100.1 | 328969Te | ． 0804 | E4E0．43 | 68559．38 |
| 302 | 199.5 | 15437442 | ． 004 | 10375.13 | 129599.63 |
| 393 | 337.0 | E7836260 | ． 064 | 18450.75 | 2306343．75 |
| 304 | 109.5 | 13652909 | ． 804 | 582， 38 | E87735．e2 |
| 395 | EsE8．4 | 118713767 | ． 0.04 | EE12E2．49 | 4515800.00 |
| 385 | －09．0 | zeaseese | ． 0.4 | 38342.75 | 4167843.75 |
| 307 | 3 E8． 7 | 7390890 | ． 004 | 14711.33 | 1630915．63 |
| 306 | 493.0 | 10380605 | ． 804 | 271341．00 | 39917625.60 |
| 309 | 1404.5 | 90943915 | ． 904 | 76896． 38 | gele94e． 98 |
| 310 | 513.5 | 21378533 | ． 604 | 38114.13 | 3514355.63 |
| 311 | 394.5 | 9149487 | ． 204 | 16133.68 | 2015434.38 |
| 312 | 1081.5 | 33721249 | ． 004 | 59212.13 | 7401515.63 |
| 313 | 2102.5 | 43335314 | ． 604 | 115111.88 | 14383984． 36 |
| 314 | 1E4． 2 | 930E311 | ． 604 | 8973．60 | 1123375.60 |
| 315 | 1171．${ }^{\text {a }}$ | $34676 E 1$ | ． 004 | E4129． 63 | 9017453.13 |
| 315 | 197.0 | 70558 | ． 004 | 10785.75 | 1348212．75 |
| 317 | 36.3 | 565119 | ． 004 | 4724．93 | 59015．63 |
| 315 | 477.5 | 15817279 | ． 804 | 25143.13 | 3067690．5］ |
| 320 | 1053.5 | 18545452 | ． 004 | 5767.13 | 720909．Es |
| 321 | 1061.3 | 135843438 | ． 604 | E9139．68 | 7257376.13 |
| 3 E | 375.6 | 1149182 | ． 004 | 20531． 35 | ajerue． 25 |
| ミこ | Јi． 3 | geencez | ． 604 | 31344.32 | 3910046.88 |



| $E_{1 \in 1=}$ | AN 200001 |
| :---: | :---: |
| $\begin{array}{r} 164.5 \\ 710.5 \end{array}$ | $\begin{array}{r} \text { E287001 } \\ \text { asegesin } \end{array}$ |
| 246.6 | 31373530 |
| 713.8 | 20568351 |
| 5e5．4 | 58211209 |
| 515.3 | 15667491 |
| 597.1 | 12003949 |
| 1975.2 | e6463sea |
| 288.5 | 41711761 |
| 1344.5 | 22606921 |
| 232．8 | 12852650 |
| 510.5 | 7076505 |
| 875.0 | 1.3671341 |
| 738.3 | 7439988 |
| 417.7 | 5541353 |
| 402.5 | 6161234 |
| 77.0 | 3175329 |
| 445.5 | 739864 |
| 459.5 | 7200404 |
| 775.0 | 12693540 |
| 399.5 | 5135432 |
| 3330.0 | 6.5115970 |
| 512.5 | 13053788 |
| 342.2 | 154ES142 |
| 858.1 | 12331112 |
| 315.5 | 13392947 |
| 385.5 | 31097899 |
| E71．5 | 44109683 |
| 1389.5 | 37279917 |
| 1759.8 | 30627179 |
| 257.9 | 34288813 |
| 192.0 | 37392009 |
| 413.5 | 13201625 |
| 635.5 | 7568339 |
| 393.0 | 10700905 |
| 199.5 | 19 Ecgeg |
| 323.0 | 10043705 |
| 1057．5 | 43073454 |
| 730.9 | 104835492 |
| 538.5 | 124170.559 |
| 891.5 | 25581470 |
| 1552.0 | 31712250 |
| 53.9 | 27469925 |
| 105.5 | 14541558 |
| 1399.5 | 3905004 |
| 2EE． 0 | 1059 ez8 |
| 16 E .5 | 10997696 |
| 629.3 | E10get |
| 29e9．0 | 4995659 |
| 438.5 | 37259371 |
| 1143.9 | 5109895 |
| 431.7 | 15040357 |
| \％8．0 | 1590135 |
| 501.6 | 986776 |
| 1549.5 | 39672115 |
| E25．5 | 1004974 |
| E 5.5 | 3459532 |
| 12e5． 0 | 4319800 |
| Eeos． 1 | 10696623 |
| 175.5 | 7200163 |
| 13E． 0 | E15497e2 |



| PAFSL05．30 |
| :---: |
| 3 ceg .8 c |
| 13458.50 |
| 3906.75 |
| 287E5．6 |
| 38257.4 |
| 32691． 33 |
| 5867.30 |
| 15795．39 |
| 78611.39 |
| 15439．50 |
| 27932．50 |
| 47906.35 |
| 43766.93 |
| 22969．${ }^{\text {a }}$ |
| 229 Ec .38 |
| 42540.75 |
| 24445.80 |
| 25157.63 |
| 42431.35 |
| 218TE．E3 |
| 182317．50 |
| 28387.08 |
| 13735.4 |
| 46986.96 |
| 17273.63 |
| 21160.80 |
| 15193.13 |
| 75587.8 |
| 76349.05 |
| 14516.25 |
| 10512．00 |
| 29539． 1 |
| 34848．36 |
| E1516．75 |
| 10922．63 |
| 17EE4．35 |
| 57398.13 |
| 43465.03 |
| ®9482．${ }^{\text {¢ }}$ |
| 48909.63 |
| 5759．00 |
| 31371.75 |
| ETE24．3e |
| 76 ez .63 |
| 14344． 0 |
| 9896． 86 |
| 34465.13 |
| 1500EE．75 |
| 24607.88 |
| E259． 3 |
| atsea． 58 |
| 49713.90 |
| 274E2．60 |
| 24885．13 |
| 34245.13 |
| 14E6． 13 |
| 76359.75 |
| 394869．73 |
| 10758.38 |
| 435.50 |

[^7]

| 352.5 | 1254009 |
| :---: | :---: |
| 376.5 | 11294695 |
| 457.4 | 37620651 |
| 518.9 | E600304 |
| 142.5 | 74Es889 |
| 431.2 | 16793887 |
| 375.5 | 10018679 |
| 1136.5 | 12519857 |
| 4 EE .6 | 31100761 |
| 5E1.3 | 12313143 |
| 350.0 | 1519508 |
| 411.7 | 13730971 |
| 172.8 | 37293920 |
| 811.0 | E8109159 |
| z38.0 | 2413939 |
| 1625.0 | 29581454 |
| 327.5 | 17921773 |
| 685.5 | 10955213 |
| 76.3 | 25184E24 |
| 471.8 | 5404001 |
| 1407.7 | 86902157 |
| 581.5 | 15747478 |
| 1590.0 | 302 Pag 9 |
| 561.6 | 21029730 |
| 212.5 | 635153E |
| 549.0 | 21364731 |
| 2147.8 | 41792535 |
| 1052.5 | 25837528 |
| 981.0 | 17147941 |
| 352.5 | 27347148 |
| 2178.5 | 80120939 |
| 388.6 | 21323703 |
| 604.5 | 11895638 |
| 341.5 | 7117952 |
| 417.5 | 2E168232 |
| 399.6 | 1774755 |
| 152.5 | 17471407 |
| EE. ${ }^{\text {E }}$ | 5239234 |
| EEO. 5 | 10098359 |
| 901.5 | 30219516 |
| 94Ee. 3 | 10841844E |
| 381.3 | 4724932 |
| 6E8.5 | 12514499 |
| 737.0 | 41786784 |
| 440.5 | 21449797 |
| 231.3 | 63005E9 |
| 1184.4 | 13934101 |
| 1384.3 | 24EEE402 |
| 886.5 | 12675482 |
| 2536.0 | 45294195 |
| 350.5 | 31846734 |
| 382.0 | 5257601 |
| E39.0 | 1512 S14 |
| 323.0 | 24979738 |
| 454.1 | 1130965 |
| 3873.5 | 89443651 |
| 384.6 | 3051930 |
| 39095 | 52309657 |
| 248.3 | 4E4EEE7 |
| E93.9 | 8833040 |




| $\mathrm{PR} \mathrm{ANT}_{=11} \mathrm{C}_{\mathrm{A}}$ |
| :---: |
| 35EEV1.80 |
| 3130631 |
| 4239437.50 |
| 975334.39 |
| 3291943 |
| 256ece3. 13 |
| 709484.38 |
| 330508 |
| 3840712 |
| 2395312.50 |
| 881751.88 |
| 1314000.00 |
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| 1528812.50 |
| 11121693.75 |
| 3241323 |
| 4 E 9139 c . 6 |
| 3312903 |
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| $9 \mathrm{ESP45}$ |
| $3 ¢ 78640$ |
| 19 ec 1.62 |
| 3843450.29 |
| 1454296 |
| 3757 |
| 1459006 |
| 7203731 |
| 6713718. |
| 6518671 |
| 14998189. |
| EES |
| 4137046. |
| 2337140 |
| 2857265.E3 |
| 2700656 |
| getie. |
| 2994187.50 |
| 17327 |
| 4116.15 .63 |
| 224E24こe.13 |
| 2099321. |
| 457094E. 8 |
| Evisels. |
| 3014571 |
| 15843es |
| 8105737.50 |
| 947 E |
| E06Ese4. |
| 1735550.00 |
| 3251859 |
| 2614312 |
| 457315 |
| E351900.00 |
| 3107745. |
| 65009950.00 |
| eeaedob |
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| 1-451600. |
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| TEOE | - ${ }^{\text {repenees }}$ |
| :---: | :---: |
| 3185.0 | 45455402 |
| 275.0 | 50371.5 |
| 482.0 | E2693746 |
| 4080.0 | 5539316 |
| 337.0 | 4949892 |
| 178.0 | 7925004 |
| 312. 5 | 6473604 |
| 4952.2 | 155194.542 |
| 1048.7 | 13350219 |
| 252. 6 | 16089499 |
| 748.2 | 25678780 |
| 7EE. ${ }^{\text {a }}$ | 15667172 |
| 433.0 | 15083871 |
| 385.5 | 806e954 |
| 1171.0 | 141.58 .513 |
| 2133.2 | 51497674 |
| 1145.4 | 20058411 |
| 59.0 | 32171693 |
| 112.0 | 9535155 |
| 1157.9 | 1189980 |
| 2958. 5 | 58927016 |
| 152.5 | 10294010 |
| 118. 3 | 295E6173 |
| 161.0 | 24227701 |
| E379.1 | 5 Sc 3892 |
| 117.5 | 1068985 |
| 134.0 | 1.570761 |
| 373.5 | 7699413 |
| 2950.5 | 75474534 |
| 404.0 | 11340470 |
| 353.2 | 24640405 |
| 53.5 | 47824180 |
| 331.8 | 25171909 |
| 239.8 | TESTE7E |
| 588.5 | 1004E2E |
| 335.5 | 10813931 |
| 2018.5 | T11913 |
| 205e. 3 | E151E45 |
| 70.0 | 583185 |
| 203.0 | 1361 E1E |
| 1310.0 | 25643729 |
| 439.0 | 40115016 |
| 1150.1 | 38311955 |
| 15E.5 | 1413562 |
| E815.0 | 171400989 |
| 413.5 | 1938376 |
| 756.9 | 4548E64 |
| E3317.7 | 398108362 |
| 14174.4 | 2950egel |
| 202. 5 | 194297E2 |
| 2047.7 | 2006-543 |
| 501.8 | 3498863 |
| 317.5 | 4954E85 |
| 1593.0 | 26131937 |
| 375.8 | 74760043 |
| 898.0 | 9598981 |
| 184.6 | 209574 |
| 16. ${ }^{\text {a }}$ | 3453519 |
| 20676.3 | 5E458084 |


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[^8]| U30 | FTE 34.0 | Av 5797404 | $\text { RAFULL } 4599.00$ | $\begin{aligned} & \text { GRANT/LDAN } \\ & 574875.09 \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: |
| 317 | 86. 3 | 5765110 | 4724. 33 | 590615.63 |
| 275 | 100.0 | 11089464 | 5475.09 | 684375.90 |
| 301 | 100.1 | 22836972 | 5480.43 | 625059.38 |
| 304 | 100.5 | 13652009 | 5502. 38 | 687796.88 |
| 342 | 101.0 | 5537308 | 5529.75 | 691218.75 |
| 468 | 112.0 | 7535156 | 6132.90 | 756590.90 |
| 476 | 117.5 | 10689853 | 6433.13 | 304140.63 |
| 295 | 124.5 | 7653474 | 6816.38 | 852046.88 |
| 223 | 131.5 | 15457119 | 7139.63 | 899953.13 |
| 424 | 132.5 | 17471407 | 7254.38 | 305736.86 |
| 280 | 141.0 | 15153317 | 7719.75 | 964968.75 |
| 390 | 142.5 | 9463880 | 7801.38 | 975234.36 |
| 299 | 143.5 | 58319270 | 7856.63 | 982978.13 |
| 471 | 152.5 | 10209018 | 8349.38 | 1043671.88 |
| 496 | 156.5 | 11136652 | 2558.38 | 1071046.88 |
| 474 | 151.9 | 24227701 | 8814.75 | 1101843.75 |
| 371 | 152.5 | 19997896 | 8896.88 | 1112109.38 |
| 313 | 153.9 | 5179144 | 8924. 35 | 1115531.35 |
| 511 | 163.5 | 24535910 | 8951.63 | 1118953.13 |
| 314 | 164.0 | 9902311 | 8979.09 | 1122375.89 |
| 324 | 154.5 | 6237391 | 3005.38 | 1125796.88 |
| 455 | 178.0 | 7922204 | 9745.59 | 1313187.50 |
| 509 | 134.9 | 8295784 | 19074.20 | 1259250.09 |
| 317 | 136.9 | 79524751 | 19133.50 | 1272937.58 |
| 224 | 189.8 | 17939817 | 19347.75 | 1293468.75 |
| 221 | 189.0 | 3425778 | 18347.75 | 1293468.75 |
| 392 | 139.5 | 15437442 | 10375.13 | 1296890.63 |
| 283 | 191.8 | 4945846 | 18501.05 | 1312631. 25 |
| 399 | 192.9 | 37222929 | 10512.90 | 1314090.09 |
| 355 | 192.0 | 37302008 | 10512.99 | 1314090.00 |
| 477 | 194.9 | 15707631 | 10621.59 | 1327587.58 |
| 384 | 196.5 | 7320163 | 10753.38 | 1344796.88 |
| 316 | 137.0 | 7705578 | 19785.75 | 1348213.75 |
| 279 | 197.0 | 8052049 | 10785.75 | 1348213.75 |
| E99 | 178.5 | 10425446 | 10867.82 | 1358424.38 |
| 359 | 199.5 | 10956998 | 10922.63 | 136.5323 .13 |
| 219 | 201.0 | 18893393 | 11094.75 | 1375593.75 |
| 502 | 202.5 | 19429723 | 11085.83 | 1385859.38 |
| E91 | 204.0 | 7743149 | 11169.20 | 1396125.00 |
| 39.5 | 207.7 | 8310919 | 11371.58 | 1421446.88 |
| 208 | 288.0 | 434.57190 | 11388.80 | 1423500.69 |
| 212 | 299.0 | 7734239 | 11442.75 | 1430343.75 |
| 238 | 210.0 | 5860120 | 11497.50 | 1437187.59 |
| 411 | 312.5 | 63.51535 | 11634.38 | 1454296.88 |
| 103 | 221.5 | 16362584 | 12127.13 | 1515890.63 |
| 433 | 331.5 | 5320569 | 12574.63 | 158432 E .13 |
| 216 | 234.0 | 37960916 | 12311.50 | 1601437.50 |
| 401 | 238.0 | 24138289 | 13030.50 | 1528812.59 |
| 486 | 239.3 | 7657876 | 13129.05 | 1541131.25 |
| 269 | 243.5 | 34349479 | 13331.63 | 1666453.13 |
| 325 | 346.0 | 21373530 | 13468.50 | 1683552.50 |
| 292 | 249.5 | 11974685 | 13660.13 | 1707515.63 |
| 10.4 | 251.0 | 11321639 | 13742.25 | 1717781.35 |
| 459 | 252.0 | 15029499 | 13797.00 | 1724625.00 |
| 227 | 255.1 | 23975209 | 13966.73 | 1745840.63 |
| 42 E | 260.5 | 10992959 | 14252.38 | 1782796.88 |
| 369 | 262.0 | 1083922 2 | 14344.50 | 1793058.50 |
| 492 | 353.0 | 13615215 | 14399.25 | 179999E.E5 |
| 381 | 255. 5 | 94E9532 | 14536.13 | 1817015.63 |
| 354 | $3 E 7.0$ | 34289812 | 14518.25 | 1327231: E |



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14711.33 14974.13 1.5028 .88 1.50 .56 .25 15193.13 15439.50 15795.38 16123.82 16753. 50 15863.95 15945.13 17071.05 17109.38 17273.63 17492.63 17629.59 17684.25 17930.63 18994.38 18368.63 18450.75
18450.75 18450.75
18597.13 13735.45 12828.75 13916.13 19152.50 13299. 38 13885.20 29175.38 29257.50 20531.25 20558.63 20613. 38 20876.13 20914.50 21024.00 21150.88 21270.32 21275.85 21497.25 21515.75 21845. 25 21872.53 22936. 32 22117.69 22540. 58 22639. 13 22639. 13 22853.13 22869.08 22912. 88 2.967.63 23706.75 23 2398. 38 239.53.13 24007. 82 24035.25

| GRANT/LDAN $1838916 . \Xi$ |
| :---: |
| 1871766.35 |
| 1378610.09 |
| 1882031.25 |
| 1393141.25 |
| 192933.59 |
| 1974422. 50 |
| 2015485.00 |
| 2994187.59 |
| 2107875.90 |
| 2118141.25 |
| 2133881. 25 |
| 2138672.50 |
| 2159203 |
| 2186578. |
| 2203687. |
| 2219531 |
| 2241328. |
| 2361860.00 |
| 2296078. |
| 2306343 |
| 2306343. |
| 2337141. 35 |
| 2341931.25 |
| 2361033 |
| こ364516. 25 |
| 3395312.50 |
| 2412422.50 |
| 2485650.00 |
| 2521922.50 |
| 2532187.50 |
| 2566496. 35 |
| 2569823.75 |
| 2571881.25 |
| 2576672.50 |
| 260952e. 50 |
| 2514312.50 |
| 2623090.00 |
| 2645110.00 |
| 2653737.50 |
| 2659481. 25 |
| 2575906 |
| 2589593. |
| 2730656. |
| 2734076 |
| 2754610.00 |
| 27E4875.06 |
| 2317572. 50 |
| 292989! |
| 2399931. 25 |
| 235726E.25 |
| 2858635.00 |
| 28E4110.00 |
| 2270953. |
| 2953076. |
| 296334 |
| 298729 |
| 94141 |
| 3600955.00 |
| 3004406 |
| $4 E$ |

1838916. 1871766.25 1378610.02 1882931.25 1929937.50 1974422. 50 201.5485 .00
2994187.50 2107875. 90 2113141.25
2133881.25 2138672.50 2159293.75
2136578.75 2203687.50 2219531. 25 2261850. 20 2396078. 75 2306343.75 2337141. 25 2341931. 25 2361093.75
2364516.35 339.5312 .50 248.5650. 00 2521922. 50 2532187.50 2565496.35
2569823.75 2571881. 25 2575672.50 250752. 50 2525090.00 2645110.00 2558797.50 2575966.25
258959.75 2730655.25 2734076.75
2754610.00 27E4875.06 2อ29891. 25 2399891. 25 $23572 E 6.25$ 23E4110.00 2370953.75 2963343.75 2987297.50 3000985.00 3004465.25

| YS0 | FTE ${ }_{446.5}$ | AV 7929864 | $\begin{aligned} \text { RAFULL } \\ 2445.38 \end{aligned}$ | GRANT/LDAN 3055735.00 |
| :---: | :---: | :---: | :---: | :---: |
| 341 | 446.5 | 7929864 | 24445.88 | 3055735.00 |
| 240 | 451.9 | 13970737 | 24692. 25 | 3986531.25 |
| 442 | 454.1 | 11389065 | 24861.98 | 3107747.50 |
| 388 | 457.4 | 37020651 | 25042.65 | 3130331.25 |
| 237 | 458.0 | 16256917 | 25075.50 | 3134437.50 |
| 342 | 459.5 | 7220404 | 25157.63 | 3144793.75 |
| 406 | 471.8 | 5484201 | 25831.05 | 3228881. 25 |
| 313 | 477.5 | 15817279 | 26143.13 | 3267391.25 |
| 392 | 481.0 | 15793287 | 26334.75 | 3291343.75 |
| 452 | 482.0 | 52503746 | 26389.50 | 3298687.50 |
| 395 | 486.9 | 31100751 | 26508.50 | 3326062.50 |
| 375 | 491.7 | 15040357 | 26920.50 | 3355072.50 |
| 274 | 499.5 | 28978612 | 27347.63 | 3418453.75 |
| 378 | 501.6 | 9366775 | 274E2.69 | 3432325.09 |
| 504 | 501.8 | 3478863 | 27473.55 | 3434193.75 |
| 285 | 507.0 | 17927269 | 27758.25 | 3469781.25 |
| 335 | 510.0 | 7076505 | 27922.50 | 3499312.50 |
| 282 | 511.5 | 19790117 | 23004.63 | 3509576.75 |
| 310 | 513.5 | 21378533 | 23114.13 | 3514256.35 |
| 323 | 516.3 | 15867491 | 28267.43 | 3533428.75 |
| 346 | 518.5 | 13053786 | 28387.38 | 3.543485 .00 |
| 252 | 517.9 | 15360383 | 28464.53 | 3558065.25 |
| 335 | 521.8 | 11334216 | 23524.75 | 3565593.75 |
| 258 | 521.1 | 13052789 | 28530.23 | 3556278.75 |
| 238 | 525.0 | 9369692 | 28743.75 | 3592968.75 |
| 328 | 525.4 | 53211209 | 28755.65 | 3595796.25 |
| 270 | 535.5 | 59331202 | 29318.63 | 3664228.75 |
| 363 | 53 B .5 | 124170553 | 29482.88 | 3685350.09 |
| 281 | 539.9 | 29639268 | 23510.25 | 3683781.25 |
| 296 | 540.5 | 23287521 | 29592.38 | 3693947.59 |
| 243 | 540.5 | 10304305 | 29592. 38 | 3699047.59 |
| 412 | 549.9 | 21364731 | 30057.75 | 3757218.75 |
| 284 | 551.0 | 27913515 | 30167.25 | 3779909.25 |
| 258 | 552.0 | 17545137 | 39222.90 | 3777750.00 |
| 487 | 553.5 | 10046229 | 30577.28 | 3822235.00 |
| 395 | 551.2 | 12313143 | 39725.70 | 3840712.50 |
| 410 | 551.6 | 21029780 | 30747.60 | 3843459.69 |
| $\Xi 45$ | 563.0 | 50.55202 | 30824.25 | 3253031. 25 |
| 467 | 570.0 | 32171693 | 31207.50 | 3900937.50 |
| 323 | 572.5 | 9339622 | 31344.38 | 3918047.50 |
| 365 | 573.9 | 27409925 | 31371.75 | 3921468.75 |
| 423 | 573.5 | 47924189 | 31399.13 | 3924891.25 |
| $\Xi 18$ | 576.1 | 53177704 | 31541.48 | 3943685.00 |
| 102 | 578.6 | 20136440 | 31545.30 | 3955637.50 |
| 408 | 531.5 | 15747478 | 31337.13 | 3979641.25 |
| 237 | 536.5 | 14998362 | 32110.88 | 4013850.00 |
| 239 | 588.0 | 21537114 | 32193.09 | 4824125.09 |
| 330 | 597.1 | 12003948 | 32691.23 | 4036403.75 |
| 427 | 691.5 | 29219515 | 3こ932.13 | 4116516.25 |
| 420 | 684.5 | 11995638 | 33096.32 | 4137047.50 |
| 449 | 606.9 | 7894852 | 33178.50 | 4147312.50 |
| 3.5 | E06.5 | 124375679 | 33205.82 | 4150735.00 |
| 306 | 609.2 | 2e252355 | 33342.75 | 4157843.75 |
| 389 | 618.0 | 26030304 | 33835. 50 | 4229437.50 |
| 272 | 621.0 | 16.549341 | 33999.75 | 4249768.75 |
| 389 | 625.5 | 16049974 | 34246.13 | 4290756.25 |
| 372 | 629.5 | 8109821 | 34465.13 | 4308141.25 |
| 267 | 531.2 | 12381427 | 34558.20 | 4319775.60 |
| 20.5 | 632.0 | 13045924 | 34ESE. 00 | 4325250.60 |
| $\geq 57$ | E3E. 5 | 7566330 | 34248.38 | 4356047.50 |


| $1 E 0$ | FTE |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & 440 \\ & 394 \end{aligned}$ | $\begin{array}{r} 699.8 \\ 658.2 \end{array}$ | 15123514 <br> 37035102 | 34985.35 36583.95 | 4373156.25 |
| 439 | 658.5 | 12614499 | 36609.36 | 4575047. |
| ES1 | 671.6 | 13091381 | 36770.19 | 4596252.59 |
| 494 | 685.5 | 19955213 | 37531.13 | 4691391.25 |
| 447 | 693.9 | 8943649 | 37941.75 | 4742718.75 |
| 491 | 709.8 | 6831892 | 38325.09 | 4790625.90 |
| 287 | 799.5 | 12952211 | 38845.13 | 4855641.25 |
| 325 | 710.5 | 26896512 | 38899.88 | : 862485.09 |
| 325 | 710.5 | 12311312 | 38899.38 | 4862485.00 |
| 327 | 713.8 | 29558351 | 39936.75 | 4873593.75 |
| 431 | 737.0 | 41736734 | 40350.75 | 9043843.75 |
| 459 | 742.8 | 25578789 | 49624.59 | 5973052.50 |
| 497 | 756.0 | 4543854 | 41391.00 | 5173875.00 |
| 211 | 754.5 | 15092905 | 41355.33 | 5232047.50 |
| 347 | 771.5 | 13889248 | 42239.63 | 5279953.75 |
| 343 | 775.9 | 13899549 | 43431.35 | 5393906. 25 |
| 405 | 776.3 | 25134224 | 42592.43 | 5312893.75 |
| 349 | 777.9 | 8175328 | 42549.75 | 5317593.75 |
| 461 | 786.0 | 15067172 | 43933.59 | 5379187.59 |
| E54 | 788.4 | 47725491 | 43164.98 | 5395612 |
| 362 | 793.9 | 104835402 | 43466.03 | 5433253.75 |
| 244 | 735.9 | 254458189 | 43525.25 | 5440781.25 |
| 337 | 738.3 | 7439923 | 43796.93 | 5463365.25 |
| 273 | 892.3 | 25176967 | 43929.45 | 5490955.25 |
| 409 | 311.0 | 23109159 | 44492.35 | 5559231.25 |
|  | 3 | 8591 | 4691.38 | 559172.50 |
| 354 | 855.9 | 369556 | 46811.25 | 5851406.25 |
| 348 | 858.1 | 12331112 | 46989.38 |  |
| 335 | 398. ${ }^{\text {a }}$ | 1-639493 | 47924.78 | 578097.59 |
| -336 | 375.8 | 13671341 | 47996.35 | 883e81. 35 |
| 484 436 | 881.9 | 25171009 | 48234.75 | 6929343.75 |
| ${ }_{364}$ | 891.5 | 25531478 | 48899.63 | 6961293 75 |
| 598 | 898.9 | 9592981 | 49155.59 | 5145637.58 |
| 377 | P08.9 | 15966185 | 49713.99 | 6214125.90 |
|  | EES.0 | 2497936 | 50e98.09 | 5351000.0 |
| 7 | 552.5 | 2794748 | 52149.35 | E513672.50 |
|  | 9810 | 1714781 | 53.92 .75 | 13313.75 |
| 365 | 1952.9 | 31712259 | 57597.09 | 7199625.09 |
| 367 | 1052.5 | 14541558 | 57524.38 | 7203947.58 |
| 415 | 1052.6 | 25837588 | 57629.85 | 7203731.35 |
|  | 1053.5 | 19545462 | 57679.13 | 72938 |
| 361 | 1057.5 | 43073454 | 57898.13 | 7237265.35 |
|  | 107.9 | 195343488 |  |  |
| 1 | 1975 | 65453832 | 58867.29 | $7353490 \cdot 0$ |
| 312 | 1831.5 | 33721249 | 59312.13 | 7401515.25 |
|  | 115.5 | $17510{ }^{\text {c }}$ | 9150.6 | 75008 \% |
| 5 | 1143.0 | 51092895 | E2579.25 | 7822406.25 |
| - | 1145.4 | 38953411 | 62710.65 | 7336831.25 |
|  | 1157.9 | 11399800 | 63395.93 | 7924373.75 |
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| , | 1171.8 | 1415 E5: | 64112.25 | 8014831.35 |
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| 434 | 1184.4 | 栭 | 54845.39 | -10573.E9 |
| 26e | 1137.3 | 16476583 | 65032.05 | 3139005. 25 |
| 101 | 1198.5 | 33865265 | 65617.35 | 3202335.00 |
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| FTE 1395.0 | A 4318300 |
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| 1285.9 | $43: 92905$ |
| 1310.0 | 25643729 |
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| 1407.7 | 36902167 |
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| 1．549．5 | 33672715 |
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| 1 E43．9 | 30937175 |
| 1653.5 | 17423776 |
| 15.57 .1 | 15187427 |
| 1 E80． 3 | 23735531 |
| 1759．8 | 30827779 |
| 1820．0 | 32053075 |
| 1934.7 | 23938930 |
| 1965.0 | 35535789 |
| 2047.4 | 32669094 |
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| 20.58 .3 | 51516450 |
| 2102.5 | 43335914 |
| 2133.2 | 51497574 |
| 2147.8 | 41792635 |
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| 2483.9 | 46485657 |
| 2536．9 | 45294195 |
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| 2929．0 | 49956989 |
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| 2352．5 | 58927015 |
| 3960.5 | 76474634 |
| 2996． 3 | 52308967 |
| 3018.3 | 97711913 |
| 3165.2 | 464.55402 |
| 3330.6 | 6511509 |
| 3422.3 | 103413446 |
| こยョコ．1 | 28441718 |
| 3696．5 | 43417439 |
| 3873.5 | 89443661 |
| 4030.0 | 55333816 |
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| 6816．0 | 171409389 |
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| 90523.13 |
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| 155517.38 |
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## VITA 2

David Charles Thompson
Candidate for the Degree of
Doctor of Education

## Thesis: AN EXAMINATION OF EQUITY IN CAPITAL OUTLAY FUNDING IN KANSAS SCHOOL DISTRICTS: CURRENT METHODS, ALTERNATIVES, AND SIMULATIONS UNDER THREE SELECTED EQUITY PRINCIPLES

## Major Field: Educational Administration

Biographical:
Personal Data: Born in Wichita, Kansas, December 12, 1951, the son of Charles E. and Irene Thompson. Married to Diane L. Thompson on December 17, 1971. Son Kevin born November 21, 1983.

Education: Graduated from Wichita High School North, Wichita, Kansas, in May, 1969; received Bachelor of Arts degree in Modern Language and Language Arts Education from Friends University in August, 1974; received Master of Education degree in Curriculum and Instruction from Wichita State University in July, 1978; received Education Specialist degree in Educational Administration and Supervision from Wichita State University in December, 1983; completed requirements for the Doctor of Education degree at Oklahoma State University in May, 1985.

Professional Experience: Instructional Assistant, Department of Modern Language, Friends University, August, 1973 to May, 1974; Instructor of English, Spanish, and German in Unified School District 206, Whitewater, Kansas, August, 1974 to May, 1980; Senior High School Principal, Unified School District 286, Sedan, Kansas, August, 1980, to July, 1985; concurrently Adjunct Instructor of German, Independence Community College, Independence, Kansas, August, 1983 to August, 1984; Superintendent-Elect, Unified School District 381, Spearville, Kansas, beginning July, 1985.


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[^1]:    ER
    
    

[^2]:    

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[^4]:    9010 ges . 9016 . $\operatorname{goge}$ .047 . 60 g 0 .6907 .000 E .2012 . 9604 .081 . 686 . 29040 .0901 .0084 .0980 . 9201 . 96 .6015 .60 g .6917 .60 E 200 0 O $\operatorname{seg}$
    

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    E5S17．88 $31 E 45.50$ 12127.12 13742.25 17971．05
    202383． 38 45017． 38 95924．83 34E92． 00 29592． 3 3 11388.09 7355.63 47924．78 41356．3E 11442.75 3924．25 77535.50 33205.38 12311． 50 19133.59 31541.48 11904．75 15029.88 10347.75 23953． 13 23898． 38 19347.75 38899． 8 こコ639． 13
    13956.73 13956.73
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    $78 \geq 246.25$
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    6214125.00
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[^8]:    GRTM/LAN 4147312. $=$ 21E004E8.75 1982031. 35 3298607.50
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