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A Cost Analysis of Special Education Delivery Models: Resource, Instructional, Special Day School

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A COST ANALYSIS OF SPECIAL EDUCATION DELIVERY MODELS:
RESOURCE, INSTRUCTIONAL, SPECIAL DAY SCHOOL

by
Freda Stevenson

A Dissertation Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Doctor of Education
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Freda Stevenson

Loyola University of Chicago

A COST ANALYSIS OF SPECIAL EDUCATION DELIVERY MODELS:
RESOURCE, INSTRUCTIONAL, SPECIAL DAY SCHOOL

Net per pupil costs for resource, itinerant, instructional (self contained), and special day placement delivery models were calculated using six selected elementary school districts from the Chicago metropolitan area. Sixteen resource, seven speech and language itinerant, twenty-one instructional, and six special day school placement delivery models were investigated. Cost data were collected on the services each child actually received in 1986-87 from administrative interviews, district and joint agreement financial records, students' school records, and state and federal reimbursement claim forms. Net per pupil costs were determined for direct instruction, supplemental services, classroom space, and administration. Capital outlay and transportation costs were excluded. The costs of the resource and itinerant models were treated as an add-on cost to the regular education program. The least expensive special education placement was the least restrictive one. This held true even after applying state and federal reimbursements to the cost figures in all placements except the self contained placement. The average
net per pupil expenditure for a student receiving his special instruction in an itinerant placement was $3,848. As the placement became more restrictive, the net average increased to $6,274 for a resource placement; then decreased to $5,458 for a self contained classroom with some mainstreaming for instruction, and increased to $6,315 for all instruction in a special day school. Therefore, where a child was placed determined, in large part, the instructional resources he received. The average net per pupil cost of the six districts studied for regular education programs was $3,576. The major factors affecting the per pupil cost were the student/teacher ratios, where federal reimbursements were applied, and the intensity of services provided to handicapped pupils. The overall gross cost ratio for special education was 1.99 to 1 but dropped to 1.53 to 1 after state and federal reimbursements were considered. Recommendations for future research were made.
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Finally, a special thank you to her husband, Jack. His loving confidence and encouragement led to the successful fulfillment of this research.
VITA

The author, Freda Stevenson, is the daughter of Alton Watkins and Hattie (Riggs) Watkins and is married to Jack E. Stevenson. They have three children, Jon, Amanda and Daniel. She was born October 20, 1936, in Owensboro, Kentucky.

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She co-authored an article, "Perceptual Screening and Training at the Kindergarten Level," which appeared in the 1972 spring issue of the Illinois School Research Journal.
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CHAPTER 1

INTRODUCTION

Free public education, a right taken for granted today by all Americans, was not a right shared equally by all Americans prior to the second half of the twentieth century. Beginning with Brown v. The Board of Education (1954), which ended segregation based on the separate but equal philosophy of Plessy v. Ferguson (1896), through Robinson v. Cahill (1973) and Serrano v. Priest (1974), which directed intensive review of equity and equality among communities of unequal wealth in the distribution of state funds to support local school systems, major court decisions have commanded the extension of the individual rights guaranteed by the First, Fifth, and Fourteenth Amendments of the U. S. Constitution to include all school-age children in America.

With the enactment of the Education for all Handicapped Children Act of 1975, (Public Law 94-142), Congress officially recognized the rights of more than eight million handicapped children to receive an appropriate free education. The law mandated state and local education agencies to take steps to assure an education for all handicapped children.
Background

The first major court decision to have an impact on access to public education for handicapped children was handed down in 1971. The Pennsylvania Association of Retarded Citizens (PARC) sued the Commonwealth of Pennsylvania in an effort to win the right to a public education for severely retarded children who had been excluded from compulsory attendance and labeled "uneducable" or "untrainable".

After a single day of testimony, in which plaintiffs presented evidence tending to show that no child is uneducable, the state caved in. The resulting Consent Agreement afforded all retarded children the right to a free public education and required the state to locate and identify all previously excluded children (Pittenger & Kuriloff, 1982).

One of the most important consequences of the PARC decision was the right to due process (procedural system to protect the rights of handicapped children to a free, appropriate public education), a right which would serve as an important foundation for P.L. 94-142.

Another crucial court decision in the evolution of P.L. 94-142 was Mills v. Board of Education of the District of Columbia. This case established a precedent of requiring school systems to educate handicapped students even in periods of budgetary constraints. In his decision, the judge stated:

If sufficient funds are not available to finance all of the services and programs that are needed and desirable in the system, then the available funds must be expended equitably in such a manner that no child is excluded
from a publicly supported education (Education Commission of the States, 1979).

Although these two cases represented significant statements by the courts with respect to the rights of handicapped children, their impact was merely a local one. The lack of any federal legislation meant that between 1971 and 1975 each case had to be fought on its own merits and that the direct influence of the decisions did not extend beyond the jurisdiction of the complaint (Weiner, 1985). During this period nearly fifty cases challenging access to education in approximately thirty states were heard.

At the same time that the groundwork was being laid in the courts, the U. S. Congress passed a bill that proved to be the forerunner for P. L. 94-142. Only a year after the initial passage of the Elementary and Secondary Education Act (ESEA) in 1965, the ESEA was amended to include Title VI which established the federal commitment to the education of the handicapped by creating a Bureau of Education for the Handicapped (BEH) and providing to the states a modest grant program to help educate handicapped children. In 1971, P.L. 91-230 repealed Title VI of the ESEA and replaced it with the Education of the Handicapped Act, retaining the programs established under Title VI and adding funding programs for equipment and facilities.

Two pieces of important civil rights legislation paved the way for the acceptance of the fundamental principles
embodied in P.L. 94-142. The rights of women to have equal access to education were established in Title IX of The Education Amendments of 1972 (P.L. 92-313) creating a precedent for statutory legislation to address the civil rights need of a particular group. Simultaneously, federal legislation was passed to protect the civil rights of the handicapped in Section 504 of the Rehabilitation Act of 1973 (P.L. 93-112):

No otherwise qualified handicapped individual in United States...shall solely by reason of his handicap be excluded from participation in, be denied benefits, or be subjected to discrimination under any program or activity receiving federal assistance.

Special Education Federal Legislation

As part of The Elementary and Secondary Education Act of 1965, Public Law 89-313 was designed to provide financial assistance to supplement, expand, and improve special education and related services to handicapped children in state-operated schools and state-supported programs operated by local educational agencies. Grant funds were determined by the count of eligible children and the grants were not competitive. In Illinois, funds were awarded based upon approved applications. Applications had to be child centered and be designed to provide concentrated educational services for a limited number of eligible children.

The Education for All Handicapped Children Act (EHA) of 1975 was passed overwhelmingly by a vote of 404-7 in the House on November 18, 1975 and by a vote of 87-7 in the
Senate on the next day. President Ford publicly expressed serious reservations about the bill but signed it on November 29, 1975, saying that the law promised more than the federal government could deliver and that included was a vast array of detailed and costly administrative requirements under which tax dollars would be used to support administrative paperwork and not educational programs. Thus, even as the bill was signed into law, its cost was an issue of considerable concern (Singer & Raphael, 1988).

P.L. 94-142 carried with it a date of implementation of September 1, 1978, and required that: 1) each state receiving federal funding for education provide a free appropriate public education, including related services required for participation in school, to every handicapped child in its jurisdiction between the ages of 3 and 18 (3-21 in 1980); 2) each child be educated in the least restrictive environment (LRE) consistent with his needs; 3) each child receive an individual educational program (IEP) to be reviewed on at least an annual basis; 4) each child have the right to due process, both administrative and legal; 5) each state monitor district compliance. A great deal of attention was paid by legislators to the enforceability of these broad-sweeping provisions as was reflected by the level of specificity, ordinarily found only in regulations, included in the requirements of the IEP.
P.L. 94-142 also included parents in the evaluation of their child's needs and afforded them rights to due process when they felt their child was not being adequately served. No previous education law had gone so far to mandate parent participation in school decision making or to provide grievance procedures via both administrative hearings and the civil courts.

Growth of Special Education

Between 1977 and 1986, the total number of children receiving special education grew by sixteen percent to 4.4 million nationwide, or eleven percent of the elementary and secondary population (OSEP & RS, 1987). The percent increases in the special education population were small in the more severe handicap groups, while mildly handicapped students classified as learning disabled increased from 1.79% of the public school population in 1975-76 to 4.79% in 1985-86 (Singer and Butler, 1987). The only population of severely impaired students which increased was the students classified as emotionally disturbed.

In addition to the continued growth in the number of learning disabled students during this period, the Department of Education reported increases in the number of preschool age handicapped children being served. During this period, the preschool handicapped population increased more than 23 percent. One explanation for the growth in preschool programs was the availability of additional
federal funding to states through the Preschool Incentive Grant Program and the Handicapped Children's Early Education program. Other reasons for the growth were the multi-agency involvement in the identifying, evaluating, and serving of preschool handicapped children, and the belief that early identification and intervention would significantly decrease services and costs in the future. With the continued growth of students' being identified and requiring special education programs, school administrators will be faced with making important decisions of how to fund the delivery of these services.

Federal Funding

To offset a portion of the added burden created by P.L. 94-142, Congress appropriated funds to assist State Education Agencies (SEA's) and Local Education Agencies (LEA's) in providing for the education of all handicapped children with direct federal support. Educators generally believed that by 1982 the federal government would have reimbursed the state governments and local districts for forty percent of the excess per pupil costs for special education. In fact, the reimbursement rate was approximately twelve percent (Weiner, 1985). Thus, states and school districts became responsible for finding the monies to serve the handicapped children.

The funding provided by the law was to supplement, but not supplant, state and local funds for special
education services. These funds were to be passed through the states, with at least seventy-five percent going to local districts for educational services. The formula for distribution of the appropriate monies was based on the number of eligible children, aged 3-18, in the state receiving special education and related services. The law did not specify the type of formula to be used by the states in distributing federal monies. It was left to the individual states to determine what formula for allocating special education funds was most appropriate for their needs.

In Illinois, seventy-five percent of the annual grant was designated to flow to local school districts based upon their census of handicapped children. The remaining twenty-five percent was designated as State discretionary funds. These discretionary funds were disbursed primarily for regional resource centers, supplemental room and board fees for children placed in private facilities, and state administration. Specifically, in 1986/87 the State of Illinois was allocated $84 million for special education in federal funds through P.L. 94-142 and Chapter 1, Public Law 89-313, State Operated Programs for Handicapped Children.

Special Education State Reimbursement in Illinois

During the 1986-87 school year, $334 million in State funds were allocated to aid local school systems in meeting the cost of special education programs and to serve as an
incentive for districts to establish services (Illinois State Board of Education, 1987). The State of Illinois employed a unit form of reimbursement to supplement general state aid. Under this plan, reimbursement was granted for state-approved instructional and supportive service personnel operating within approved special education programs. These funds were based on the following annual rates of reimbursement (Illinois School Code, 1984):

1. $8,000 each for all special education professional workers (Section 14-13.01: c,d,e). "Professional worker" means trained specialist and is limited to speech correctionist, school social workers, school psychologist, psychologist intern, school nurse intern, school social worker intern, certificated school nurse, special education administrator intern, registered therapist, professional consultant, special administrator or supervisor giving full time to special education, and teacher of any class or program (Section 14-1.10).

2. $2,800 or one half of the annual salary, whichever is less, for each necessary non-certified employees. Necessary non-certified employee means workers (e.g. teacher aide, clerical personnel) to assist in any class or program for handicapped children (Section 14-13.01: h).

Other supplemental funds provided by the State at the time of this study involved compensation for special education transportation (where eighty percent of the
current operating expenditure was reimbursed), partial payment for hospital or home instruction and readers for the visually impaired. However, for the purpose of this investigation only that reimbursement provided for instructional and supportive service personnel was examined.

Need for the Study

Public demand for accountability in all aspects of education has increased dramatically in recent years. Because of the amount of augmented funding for special education from both the federal and state levels to the local school district level, accountability for special education funding ought to receive special emphasis. During periods of educational enrollment decline, budgetary cutbacks, and public scrutiny of special education expenditures, evaluation of the cost of special education assumes the significant role of ensuring that funds allocated for special education services and programs are being used in the most productive and efficient manner possible. With an increase in the number of children receiving special education and the lower-than-expected amount of federal aid, local concern over the expense of special education strengthens. Further, the principles of P.L. 94-142 and P.L. 89-313 require continued assessment of all factors related to costs. Secondarily, education for the handicapped has gained momentum from the recent regular/special education initiative (further discussed in
Chapter V) at the federal level (Will, 1986), spurring more intensive involvement of regular education in the problems of underachieving students which may be served in a special education program. Many educators and citizens have worried that scarce education dollars at the federal, state, and district levels are being directed away from other education programs in order to provide services mandated by P.L. 94-142 (Pittinger and Kuriloff, 1982).

**General Approach**

The technique used in this study to determine special education costs was a case study approach. Districts' instructional and support programs were identified and used as the focal point for identifying expenditures related to the delivery of special education services. The researcher relied on administrative budgets, student Individual Education Plans (IEPs), and state and federal reporting forms to determine the cost of educating handicapped pupils by program placements utilized within school districts. A Cost Analysis Model was developed to identify the cost related components and a price was attached to each component.

Previous efforts to identify the costs of special education have relied on a variety of approaches. The more prominent have included analyzing school district budgets to identify special education expenditures (Rossmiller et al., 1970), extrapolating costs based on exemplary programs
(Taylor, 1973), and a Rand Corporation study that focused on identifying all of the resources used to educate children with handicaps and the associated costs (Kakalik et al., 1981). The emphasis on special education placements as opposed to handicapping conditions of students distinguished this study from past efforts. Nevertheless, many of the results can be reported in terms comparable to previous studies, for example, as average per pupil expenditures or cost ratios. When relevant, the researcher aligned these findings with those reported in previous studies.

**Purpose of the Study**

The purpose of the study was to determine the costs of operating resource, itinerant, instructional (self-contained), and special day school special education delivery models within and available to six small (fewer than 1,400 students) elementary school districts served by six different joint agreement agencies during the 1986/87 school year in the Chicago metropolitan area. Although the sample was limited, it was anticipated that the information obtained would provide current and accurate data to assist policymakers and school administrators with decisions relative to fiscal support of special education programs. The variables examined included: a) types of service delivery models utilized in small elementary school districts; b) per pupil cost of providing special education services by the selected delivery models; c) total federal
and state special education reimbursements.

**Specific Research Questions**

This study addressed five major questions of interest to practitioners and policymakers of the educational system:

**Research Question 1**

What was the average net per pupil cost of educating a handicapped student in the resource delivery models?

**Research Question 2**

What was the average net per pupil cost of educating a handicapped student in the itinerant delivery models?

**Research Question 3**

What was the average net per pupil cost of educating a handicapped student in the instructional (self contained) delivery models?

**Research Question 4**

What was the average net per pupil cost of educating a handicapped student in the special day school delivery models?

**Research Question 5**

What were the average net cost differences among the resource, itinerant, instructional (self contained) and special day school delivery models?

**Limitations of the Study**

The results found in this study cannot be expected to apply equally to all school districts across the country.
The focus on small elementary school systems must be considered when drawing inferences from the results. Direct salary cost of the teachers and support staff were calculated using 1986-87 actual contracted amounts. It should be understood that length of service and advanced degrees will affect the cost of the placements. The findings may not be reflective of urban or rural school systems. It was determined that transportation costs would contribute distorting elements in this study. Transportation costs are substantially higher for special education programs than for regular education programs within a system. This is primarily the result of the specialized, low-capacity vehicles and the distance involved in transporting students to special classes. This analysis did not include tuition paid for transfer of students to other systems or to regional, private, state or residential schools. There was no attempt to evaluate the substance and the effects on special education intervention. These limiting factors should be considered when examining the findings of this study and comparing this study with the results of similar investigations.

**Definition of Terms**

Throughout this study a number of basic terms are critical to understanding the results. To facilitate readers' work, a summary of definitions used in this study was included below so that readers can refer to them.
Because the federal Education of the Handicapped Act (EHA) of 1975 embodied a goal of adapting instruction to the individual child, a large degree of difference exists between states in defining the placement categories for special education. The special education placement categories used in this study were based on the State of Illinois definitions and terminology most commonly used within the educational field.

Special Education Instructional Programs

These programs comprised the primary instructional placements in which students with disabilities receive most of their special education. These instructional programs were divided into four categories across which students could only be specified in one:

Resource Placement

A resource program is designed to provide individualized instruction to exceptional children whose educational needs can be adequately met through part time instruction by a special education teacher. Part time instruction is considered less than 49% of the child's school day.

Itinerant Placement

An itinerant program is designed to provide individualized instruction to exceptional children whose educational needs can be adequately met through part time
instruction by a special education teacher. Part time instruction is considered less than 49% of the child's school day. For this study, itinerant placements were determined to be for those students whose special education services were solely for speech and language instruction.

**Instructional Placement**

An instructional program (self-contained) is designed to provide individualized instruction to exceptional children for most (more than 50%) of the child's school day. Such programs allow for inclusion in those parts of the standard program which are appropriate. Instructional programs are generally formulated according to common exceptional characteristics.

**Special Day School Placement**

A special day school is defined as an educational setting which is established by the local school district exclusively to meet the needs of exceptional children.

**Special Education Supplemental Services**

This term comprises special education instructional programs beyond the primary programs described above as well as related services that students receive to benefit from special education. Unlike the category of special education instructional programs, students can receive more than one supplemental service. The category of supplemental services includes adaptive physical education, occupational therapy, physical therapy, speech/language pathology, psychological
services, school health, social work and counseling.

**Special Education Support Services**

These services include those performed at the level of the district or joint agreement to assist or administer the delivery of special education programs in schools or joint agreement sponsored programs. They encompass administrative functions (i.e. the director of special education, coordinator of Child Find or parent coordination efforts, a special school principal, and secretarial support staff), instructional support staff (i.e. special teaching consultants, in-service training specialist, special substitute teachers), and other support (i.e. supplies, space, maintenance, equipment) associated with these functions.

**Joint Agreement**

A joint agreement is two or more school districts cooperating to provide special education services to all eligible exceptional students residing within the joint agreement boundaries. These agencies have their own administrative structure, and financial arrangements are established between the joint agreement and participating school districts. Special day schools are sponsored by the joint agreements, and all expenditures are related to special education.

**Regular Education Instructional Programs**

Regular education instructional programs include
academic as well as supplemental instructional programs such as band, art, and physical education for students. Regular education does not include special compensatory or bilingual programs.

**Regular Education Pupil Services**

These services include guidance and counseling, health services, and other pupil services provided to students in the regular education programs.

**Regular Education Administrative Services**

This category includes all functions associated with school administration and assistance to instruction and pupil services in the schools. Boards of Education, principals, superintendents, librarians, media centers, and fiscal personnel are encompassed in this category.

**School District**

A school district refers to a local government unit created to maintain, conduct, and direct the education of children within a specifically defined geographic area.

**Elementary District**

An elementary district refers to a school district responsible for the education of children from preschool through eighth grade.

**Extraordinary Cost**

This term refers to the costs incurred by a school district for a student requiring extraordinary special education services due to the complexity of the disability.
A school district is eligible for additional state reimbursements based on a state method of computation.

**Excess Cost**

This term refers to the cost amount of educating a special education student beyond the cost of educating a regular education student.

**Gross Cost**

This term refers to the data for the direct and indirect instructional cost elements and is totaled within each special education placement model, yielding a gross cost.

**Net Cost**

This term refers to the amounts of state and federal special education reimbursements received for instructional personnel within each placement model and is deducted from the gross cost, yielding placement net cost.

To enhance understanding of the study, the terms "instructional programs" and "self contained programs" were used synonymously as well as the terms "cost" and "expenditures." Henceforth, the researcher dispensed with the technical difference between the terms.
CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

A historical review of the growth and costs of special education in the United States and in the State of Illinois showed that many changes have occurred, especially in the last thirty to forty years. Those changes were found in the provision of services, types of handicapped children identified and served, state and federal legislation, and special education costs.

The Early Years -- Pre-1950

The earliest special education programs were mainly for the severely handicapped children in need of twenty-four hour day care. These children were wards of the state and were cared for in state institutions, schools for incorrigibles, and state schools for the deaf and blind.

Wallin (1924) cited a study conducted by the United States Bureau of Education in the early 1920s which reflected the number of programs. All but seven states had state schools for the blind. There were 133 public school programs for the mentally handicapped. Providence, Rhode Island, created the first public school for the mentally retarded in 1896. In 1899 the first class for the crippled and in 1900 the first class for the blind were established.
in Chicago, Illinois, public schools.

The first programs consisted of a teacher for a small group of children with similar handicaps. There was little professional training for teaching these children; thus the best credentials of a good teacher were common sense, patience, and the ability to avoid over-empathy while working with handicapped persons.

The teacher of handicapped children was often paid a bonus in salary as an incentive to work with children whom most persons considered burdensome and difficult, if not unrewarding subjects for demonstrable teaching success. Separate salary schedules for these teachers became common in some states but were later discontinued. Small class size and some special materials resulted in a per pupil cost higher than the cost for the "normal" or "regular" pupils.

The practice of earmarking special state aid arose out of the need to assist local school districts for the extra costs entailed in operating the programs for the handicapped. During these early years, much of the state aid was "add on," e.g., the purchase of special size print books or other special equipment. These "add ons" were in recognition of the extra costs that might have imposed hardships on some districts to offer programs, either because of low local tax ability or a high prevalence of handicapped children in the district, or both. Additionally, it was the policy of the states to use state
funds as an incentive to school systems to identify all children of given handicaps and to establish special programs for them. The true costs of educating handicapped students were known to be higher than those for "regular" or nonhandicapped pupils, but methods of cost analysis were not developed to determine true costs or to estimate operational costs which might have been used as bases for distributing special state funds or to test the adequacy or equity of the special aid.

Cost Studies

Prior to the passing of P.L. 94-142, research in the costs of special education attracted little attention from policy makers, cost analysts, and educational finance researchers due to the small amount of money involved in voluntary state aid; and until the mid 1980s, literature concerning special education reported the subject of cost in general terms. Researchers were more concerned with programmatic developments than with administration or cost analysis. However, as the demand for special services increased, so too did the amount of resources required to operate those programs. Researchers were called upon by school officials to start investigating the costs related to special education.

Costs of Categorical Exceptional Programs

Most of the research into the costs of special education focused on examining expenditures by categorical
One of the most widely known cost studies in special education was the National Educational Finance project (NEFP) conducted in 1968/1969 by Rossmiller, Hale, and Frohreich (1970). Rossmiller, et al., analyzed cost data from twenty-seven school districts in five states: California, Florida, New York, Texas, and Wisconsin. Comprehensive, high quality special education programs for ten categories of handicapped students were examined. The researchers used a cost index procedure to compare the average cost per student for all categories of exceptional children to the costs of the regular education programs provided for nonhandicapped children. The results were estimated mean cost indices which ranged from 1.18 for speech impaired students to 3.64 for physically handicapped students, with an overall estimated index of approximately 2.0. The mean cost index was to be used for fiscal planning and forecasting as it would reflect the average ratio cost for a set of school districts for a particular handicapping condition. The largest single component of expenditure for special education programs was the salary of teachers and teacher aides. Transportation of some children was costly when specially equipped buses were necessary. Where extensive use of support or other specialized personnel was made, the expenditure for instructional support became an important component of expenditure. The results of the study indicated some limitations as a result of using the
cost index approach. These limitations were cited by Rossmiller and Moran (1973), Rossmiller (1974) and Hartman (1979).

One serious limitation to the NEFP study by Rossmiller, et al., was the lack of specific program data (Hartman, 1979). In obtaining the cost index for a given category in a particular district, the costs of the instructional programs (e.g., consultative services, resource room, part and full time special classes) were grouped together. The decision not to delineate the costs but simply to provide an average cost per student prevented researchers from generalizing the results to future cost estimates for programs as the costs were based upon unknown and varied program practices. Additional limitations of the NEFP study were the variations in costs of regular education programs, unique district costs, and the allocation of overhead costs (administration, operation, and maintenance) which represented a large proportion of special education costs and the possible distortion of student costs and cost indices.

Sorenson (1973) conducted a study of selected school districts in Illinois modeled in style after the Rossmiller, et al., study. Using a sample of seven single district and joint district agencies, the gross and net costs of special education by areas of exceptionalities were recorded. A special to regular education cost index was then calculated
along with several other ratios. The mean gross ratios obtained for the ten categories examined ranged from 1.51 to 3.95. The costs were divided into direct instruction, general administration, and support services for each special education program per school district. Excluded were costs of capital outlay, transportation, public or private tuition, programs for the gifted, and homebound or hospital instruction.

Per pupil expenditures varied both within a district and among similar programs in different districts. Direct instruction represented the greatest cost followed by supportive services. Salaries were the principal outlay, so a nearly perfect negative correlation existed between pupil-teacher ratios and gross per pupil expenditures. The results indicated that fifty to eighty percent of the excess costs were reimbursed by the state, approximately one-third of the gross expenditures.

Related to the issue of service delivery and intensity was a study by McLure, Burnham, and Henderson (1975) which analyzed the instructional expenditures of special education categorical programs in twenty-three school districts in Illinois. The authors suggested that wide variations in cost differentials among districts for the same program reflect in all categories, except the most extreme, the variations in severity of the handicap. Students with more severe handicaps required greater amounts of supervision
from a variety of teachers and support staff, resulting in a lower staff-student ratio and higher costs.

Hayes, Cober, and Reynolds (1976) investigated the program costs of five categories of exceptionality -- educable mentally retarded, trainable mentally retarded, socially and emotionally disturbed, brain injured, and physically handicapped -- in relation to the quality of instruction and programs and to the achievement gains of the students. The study sought answers to such questions as: a) Was there a significant relationship between costs and student progress in basic skills and social competence? b) Was there a significant relationship between costs and quality? c) What were the minimum costs for effective programs? The results suggested that the students in the five categories of exceptionality demonstrated significant progress in basic skills and social maturity, that costs of special education did not consistently correlate with the quality of instructional programs or achievement gains, that the quality of special education instruction and programs generally were good, and that it was not possible to determine the minimum costs for effective programs. One important point made by Hayes, et al., was that if there were not consistent relationship between costs and quality, then comparisons should be made between those low and high cost, good quality programs. Such a study could help administrators in their attempts to lower program costs
without sacrificing quality. Hayes, et al., investigated programs for lower prevalence disabilities in which students were served predominantly in self-contained, as opposed to resource programs. The issue, resource versus self-contained, which has been argued historically as to which is the more effective educational model, was not addressed. In light of the large discrepancy in costs between the two service delivery models, as indicated in previous studies, and the debate over which was the better service delivery mode, it would appear appropriate for future research to look at the relationship of cost and effectiveness with the type of service delivery model.

In compliance with a new state law, the State of Arizona conducted a study of special education costs through its Department of Education in 1981. A representative sample of twenty-five school districts, covering over half the special education students enrolled, was surveyed. The direct costs of instructional personnel were allocated to each primary handicap group based on personnel assignments in each district along with any other direct costs attributable to a particular handicap group. All other costs were allocated on the basis of percent of teacher full time equivalents (FTEs) assigned to each group. Expenses for transportation and capital projects were omitted. A per pupil cost, components of cost, and an index comparing regular education costs with special education
costs were reported for each district by primary classification within placement. This study found that the per pupil cost was primarily a function of pupil-staff ratio.

In 1982, Anderson conducted a study of the cost of educating handicapped students in New York City. Using a sample of three school districts, he computed direct per pupil cost by program and allocated the indirect costs on the basis of direct costs. Transportation costs, because of the wide variation across children and the fact that they were almost entirely reimbursed by the state, were omitted. Anderson found that costs varied across districts and across programs within districts. The average cost per pupil was $3,994.

The State of North Carolina commissioned a study of special education finance undertaken by Clifford, Newton, Kuligowski, Singh, and Lillie (1983). Because North Carolina distributed state aid for special education based on a flat grant formula, the State collected very little information from school districts about actual expenditures. The study conducted in a representative sample of fifteen local educational agencies (LEAs), involved a careful review of district financial records and attempted to determine an average per pupil by primary handicap. Substantial differences in per pupil expenditures for exceptional children were found among districts in North Carolina. In
addition, they reported that the structure of district financial records made it extremely difficult to properly assign expenditures to different categories of children and components of cost.

**Costs of Delivery Models**

The inclusion of delivery models, particularly resource and self contained, have been included in the reporting of the costs of special education since 1970. In some studies the relative costs of the delivery models were the primary focus.

Clemmons (1975) selected six Minnesota school districts with exemplary special education programs and, using the Rossmiller, et al., cost index approach, calculated cost indices for seven different handicapping conditions. In addition, Clemmons computed program cost by the type of delivery system. Median delivery system indices across all exceptionalities included: a) regular classroom with special consultant, 1.86; b) regular classroom with itinerant teacher, 1.50; c) regular classroom with resource room, 2.00; d) part time special education classroom, 1.66; e) self contained classroom, 1.67; and f) homebound or hospitalized instruction, 1.34.

Franklin and Sparkman (1978) examined the appropriateness of using cost effectiveness analysis to compare resource and self contained delivery systems. Thirty-four elementary learning disabled students in
resource room programs were matched by age, sex, and ability with thirty-four students in self-contained rooms of comparable age, sex, and ability. Two measures were used to determine the more cost-effective delivery system -- the per pupil academic gain, divided by the total per pupil cost. The results indicated that the resource room was more cost effective as the cost per pupil was significantly greater in the self contained classroom, and the per pupil achievement gain did not reveal a significant difference between the two delivery models. However, Franklin and Sparkman's study was not devoid of problems. Because achievement gain was a major factor in the determination of effectiveness of one model over another, the use of the Wide Range Achievement Test (WRAT) as the sole criterion severely affected the results of the study. The use of the WRAT or any other test to determine achievement gains ignores many outside factors which cannot be controlled -- teacher experience and training, amount of time spent by parents working with students at home, supportive peer group, and others affect test scores and the reliability of the information. One other factor not taken into account was that there were no controls over what the regular classroom and exceptional education teachers were teaching. The resource room students may have had two teachers (regular and resource) teaching the same material thus enhancing the chances for learning. The self contained student had one teacher with
One teaching style. The difficulty in obtaining reliable and valid information for a special population may have and may continue to confound attempts by researchers to study the relationship of cost input to achievement gain.

The United States Department of Education retained the Rand Corporation to provide accurate information on the cost of various types of special education programs in order to assist administrators in the formulation of policies and the allocation of resources for the education of the handicapped (Kakalik, Furry, Thomas, and Carney, 1981). Data were collected from a representative sample of fifty local education agencies and fifty-seven intermediate service agencies across fourteen states: California, Indiana, Michigan, Minnesota, Montana, New Jersey, Oregon, New York, Rhode Island, South Carolina, South Dakota, Oklahoma, Tennessee, and Texas. The results of the study provided information relative to special education expenditures for 1977/1978. In the study all educational expenditures on behalf of a special education student, including those associated with special and regular education instruction and support services, were calculated. Comparisons yielded an index of 2.17 for special education costs to regular education costs. The cost weighting factor by age level yielded indices ranging from 1.98 at the elementary level to 2.48 at the secondary level. By handicapping condition, the total costs per pupil ranged
from a low of $2,253 for speech impaired children to a high of $9,664 for functionally blind children. The total cost based on special education placement was lowest for students placed in an instructional program ($4,345), higher for students placed in a resource program ($4,709), and highest for students placed in a special day school ($5,352). Overall, the total per pupil expenditure for a handicapped pupil was found to be over two times greater than for a nonhandicapped pupil. This study has been widely quoted and has served as the basis for much of the current debate about special education costs, despite the fact that the data was collected over ten years ago and predated the implementation of P.L. 94-142.

In 1981, a comprehensive five-and-a-half year study called the Collaborative Study of Children with Special Needs was supported with funds from the United States Department of Education and two private foundations. The final strand of this study investigated per pupil expenditures for special education (Singer and Raphael, 1988). The researchers investigated annual per pupil expenditures of 571 special education students in three metropolitan school districts using data collected in the 1982/1983 school year. To insure that each selected district would have a sufficient number of students with the more severe but less common conditions, only school systems or consortium districts with a total elementary and
secondary school enrollment of at least 25,000 students were considered. Based on availability of financial information, three sites were selected for the expenditure study: Charlotte-Mecklenburg Schools, North Carolina; Milwaukee Public Schools, Wisconsin; and the Rochester City School District, New York.

The researchers found that the mean total per pupil expenditure for all special education students was $8,375. This amount was approximately twice the amount for regular education students. When controlling for primary handicap, the study site, and functional status, the estimated mean total per pupil expenditure was lowest for students in all regular classes ($3,847); higher for students based in a regular class with some pullout for special instruction ($5,229); and highest for students based in a special class in a regular school, with or without pullout to a regular class ($8,649 and $8,695, respectively). Special education costs also varied with the type and severity of handicap. The mean cost ranged from $11,098 for physically/multi-handicapped students to $5,569 for students with speech impairments. Total per pupil expenditure was separated into three components: instruction, related services, and indirect services. For special education students, instruction accounted for 62 percent of estimated total per pupil expenditure, related services for 7 percent, and indirect services for the remaining 31 percent.
Using 1976-77 data, Rossmiller (1982) investigated expenditures for special education classes in small rural school districts in Idaho. As in past studies, Rossmiller arrived at a cost index for special education programs. However, where cost indices had typically been computed for a handicapping condition, this study focused on the delivery system, the level of program (elementary and secondary), and the severity of each child's handicap. An additional calculation was the full time equivalent (FTE) participation of each student in the program. Whereas average daily attendance had indicated only that a student was enrolled or attending school, FTE sorted out the portion of the day a student spent in a special education program. In situations where students divided their time between regular and special education classes, expenditures (direct and indirect costs) were allocated between and among programs. The results of the study suggested the following: 1) for smaller size districts the regular pupil program costs as a result of economies of scale, sparsity weightings in state formulas, or wealth variances between large and small districts, resulted in a higher average cost per pupil; 2) it cost about 4.8 times as much to educate special education students (FTE) than it did to educate regular students (FTE); 3) the size of the school districts had no significant effect on the average special education pupil program cost; 4) resource room costs for elementary were
greater than for secondary resource room programs; and 5) the cost indices for the self contained special education programs were lower than those for any other delivery system. This final finding contradicted results of prior cost index studies. However, prior studies had not included the amount of interaction time (FTE) in the formula for deriving a cost index. In Rossmiller's study, the lower the pupil/teacher ratio, the greater the interaction time between teacher and student, the lower the cost index.

A recent study conducted by Slobojan (1987) examined the per pupil expenditures for special education delivery systems in Frederick County, Maryland. Using data drawn from the 1984-85 school year, he found that per pupil special education excess cost varied across delivery systems from $2,044 for a consulting teacher in the regular classroom to $2,500 for one to two hours per day in a resource room to $6,964 for a full time special class.

The United States Department of Education retained the Decision Resources Corporation to study the special education costs by the different approaches used to teach children with handicaps, ranging from physical disabilities to mental disorders (Moore, Strang, Schwartz, and Braddock, 1988). Data were collected from a representative sample of sixty school districts and private schools in eighteen states using a case study approach.

The results of this recent large-scale study provided
information relative to special education expenditures for 1985/1986. The researchers found that schools spent an average of $3,555 extra for each handicapped child. The average total cost for special education was $6,335 per handicapped student or 2.3 times the $2,780 cost for regular education. The study defined resource programs as those in which handicapped students received less than fifteen weekly hours of special instruction and instructional (self-contained) programs as those in which handicapped students who received more than fifteen weekly hours of special instruction. The total average cost for resource programs was $5,243 and for handicapped students placed in instructional programs $6,913. The average cost ranged from $5,723 for preschool programs to $29,497 for residential programs.

The researchers found that special education costs increased ten percent, after accounting for inflation, between 1977 and 1985. Regular education costs, however, rose only four percent during the same period.

"Excess Costs" of Special Education

Many studies of special education finance have dealt with the excess costs associated with the education of handicapped children. Describing a two year feasibility study of public school provisions for the trainable mentally handicapped (TMH) in Illinois, Goldstein (1956) illustrates this type of study. Results indicated the average cost per
pupil in the experimental trainable mentally handicapped classes to be $765 during the school year of 1954/1955 and $900 during the school year of 1955/1956. California (Kirk, 1957) and Michigan (Guenther, 1956) also conducted studies regarding special education programs for TMH children which included cost information. Results indicated the average TMH per pupil expenditure to be $1,114 in California during school year 1953/1954 and $1,074 per child in experimental TMH classes in Michigan during 1955/1956. Regular education per capita costs during these years reported were $119 in California and $112 in Michigan.

Studies by Kirk (1962), Cruickshank and Johnson (1967), and Gearhart (1967) simply reported that special education programs and services were expensive as a result of unique spatial and material requirements, reduced pupil-teacher ratios, required supportive services, and transportation. These studies included statements that special education programs could be expected to be two or more times the per pupil cost of regular education programs.

In 1967 the California State Department of Education was directed by the state legislature to study the cost of special education in the state and to determine the portion of these expenses born by the state (California State Department of Education). A wide range of cost per pupil within the various categories of handicapped children was found to exist among the school systems examined. For
example, the expenditures in programs for the educable mentally retarded were found to vary from $711 to $2,650 per pupil in average daily attendance (ADA). The results disclosed that some districts with high ADA figures in certain programs had, in fact, received more state support than they had expended within these programs.

The Select Subcommittee on Education of the House of Representatives requested a comparative study of the costs of educating handicapped and nonhandicapped students with the specific purpose of determining the excess costs associated with educating handicapped students (Metz, Ford, and Silverman, 1975). The study was conducted in nine states (California, Indiana, Kentucky, Maryland, Minnesota, New York, North Carolina, Pennsylvania, and West Virginia) for the 1972/1973 school year.

The results were reported both with and without the inclusion of speech correction costs; the inclusion of these costs lowered cost ratios. The average cost ratio, 1.56, was based upon the information received from only eight of the states. The ratios were calculated by dividing the total instructional costs by the total number of handicapped pupils. The cost data were not comparable. One state was excluded from the study because the data were incomplete and unattributable to categories of special education. No state surveyed had all the data required for a detailed analysis of excess costs, and few states
maintained a detailed accounting system for special education. As a result, no recommended structure was made for computing excess costs.

A study was undertaken in New York City to determine the cost of educating an exceptional student (Marriner, 1977). The total cost of educating exceptional students was divided into two parts: one part shared equally by all students in the school system and a second part comprised of services provided specifically to exceptional children. The total cost of educating an exceptional child in New York City was the sum of expenditures for services managed by the Division of Special Education and Pupil Personnel Services, plus indirect expenditures for system-wide administration and support services. The average cost for an exceptional child was $5,897 with a range from $4,243 per educable mentally handicapped student to $14,000 per multi-handicapped student. The comparable expenditure for the average nonhandicapped student was $2,294. Relative cost differentials were calculated by dividing the cost per pupil in each special education program by the New York City school system's average nonhandicapped pupil cost of $2,294. The relative cost indices in New York City included 1.06 for itinerant speech services and 6.13 for multi-handicapped children.

A further aspect of the New York City study was to determine expected costs for nine special education program
categories for school year 1975/1976. The system's regular program costs were multiplied by indices developed by Rossmiller, et al., (1970) for the National Education Finance Project. In five of the nine categories of special education, New York City's actual costs were within ten percent of the projected costs. The other four categories of special education were much more expensive. Marriner (1977) offered possible explanations for the costs in the four categories being above what was expected: the cost index was not time bound; there was no allowance for the type and degree of handicap within a category; and the indices were calculated from the median cost in each category in the 1970 investigation by Rossmiller, et al.

Methodology for Determining Costs

A theme throughout the literature was the need for a definitive method for calculating the direct and indirect costs of educating handicapped students, for comparing the cost of educating nonhandicapped and handicapped students, and for accounting for all of the funding from the federal, state and local levels.

Although not specifically related to special education finance, Furno's The Cost of Education Index, (1966), provided a source of information to permit local school administrators to make total and internal breakdown comparisons of local district's budgets with a selected sample on both an expenditure and a staffing basis. The
concept of "program budgeting" as outlined by Novick (1965) provided an impetus for the development of more refined techniques in the presentation of school district budgets. 

Difficulties encountered by Sorensen (1973) in computing program costs resulted in his recommending that all Illinois districts employ program planning and budgeting systems techniques to obtain program data for comparison and evaluation. The researcher further suggested that Illinois reevaluate its funding system of straight sum reimbursement for special education staff; however, no specific funding formula or system was recommended.

Studies were conducted to determine an accounting system that would provide administrative understanding of special education costs. For example, in 1974 the State of Illinois contracted with Ernst and Ernst, Certified Public Accountants, to develop a method to determine whether a better system could be established to measure the amount of added costs incurred by local school districts in the education of the special child over those costs associated with the education of the regular pupil. A concept using Ernst and Ernst Student Education Units (EEU's), a period of ten minute modules during which the pupil was under the jurisdiction and responsibility of school authorities, was developed. This cost accounting system was demonstrated by using a hypothetical school district and tested against selected school districts in Illinois. The accounting
method proved much too detailed for routine school district implementation.

A relatively untested process for identification and estimation of costs of programs was the resource-cost model approach. Hartman (1977) introduced the Special Education planning Model (SEPM), a systematic process for estimating the needs and costs of special education for a school district or at the state level. One suggested benefit of using this type of model was that current and future cost estimate data could be obtained as the model allowed for changes, such as inflation, declining enrollments, and the addition of new programs. Another benefit was the determination of the unit cost for each program. Any variable where a price had been affixed was a program cost. However, Hartman (1979) noted some limitations to the resource-model approach. One limitation cited was the availability and validity of certain data required by the model. For example, the assessment of a cost figure to a qualitative variable was questioned as well as misleading. Also, certain specific data had not been available because of some school accounting systems. Second, the assumptions regarding future programmatic aspects and costs lacked verification as the events had not yet occurred. Third, the resource-model approach assumed that no economies of scale were involved in some special education activities (e.g., instructional programs operating in a district). The
The economies of scale hypothesis suggested that fixed cost components when spread over an increasing number of units would reduce the cost per unit. Activities such as administration, identification, and assessment were recognized as fixed cost components reflecting an economies of scale approach. Therefore, where activities or items had been identified as fixed costs, it was necessary to account for them thoroughly and carefully.

Anderson (1982) identified several factors which make cost studies difficult to conduct: lack of organized data at district level, inconsistency in records across districts, the basis for assumptions necessary for projecting costs, the means of measuring the number of students by program, the basis upon which to allocate indirect costs, and the political environment.

**Funding of Special Education**

The development of improved fiscal procedures in the 1960s greatly enhanced the quality and scope of special education cost resources available for investigation during the 1970s. A paper by Odden and McGuire (1980) discussed the trend during the 1960s and 1970s toward greater state and federal involvement both in financing and in developing programs for special populations. The federal government was called a "junior partner" in supporting services for the handicapped. In 1975, the year in which P.L. 94-142 was debated in Congress, the states were spending more than two
billion dollars on education services for nearly three million special education students. Between 1975 and 1980, the states increased their funding of services for special education by 66.6 percent, or just over $1.35 billion and expanded services to an additional 1.24 million students. The federal government, over the same period, increased funding by $479 million to a total of just $804 million for 1980. The financial role of the federal government translated to approximately one-fourth that of the financial role of the state. While both the state and federal funding levels are significant in terms of dollars, in 1980 and 1981 the federal government began to reduce its level of financial commitment as authorized by P.L. 94-142. Odden and McGuire applauded the fact that both state and federal governments made commitments in the 1970s to provide exceptional students with a free appropriate public education, adding that progress had been costly and that the combination of state and federal funds was still insufficient to fully fund that commitment.

A study conducted by Vasa and Wendel (1982) sought to determine the extent to which local districts relied on local, state, and federal revenue resources for the operation of special education programs. Usable responses were received from 243 districts in all but six states. Administrators in 86.4 percent of the districts reported that less than one-fourth of their special education funding
was received from the federal government. The state was providing 38 percent or more of their special education funding. Less than one-fourth of the funds for special education programs were reported as being provided by local sources in 52.8 percent of the districts. The researchers found that the greater the enrollment of the district, the greater the portion of funds received from state sources for special education.

**Summary**

This chapter has presented a review of selected literature relating to the past and current costs of providing special education programs and services and the factors affecting the expenditures for special education programs and services for handicapped pupils.

The research indicated that, on average, the cost of educating a special education pupil was approximately twice the amount of educating a regular education pupil. Expenditures for the severely handicapped pupils were higher than the outlays to serve students with milder handicaps. Teacher/student ratio was the component that most determined the per pupil special education cost.

Researchers cited several limitations in their attempts to establish the cost of special education relative to the cost of regular education. Significant limitations included varying accounting procedures from one local school district to another and the general absence of budgeting by
program or placement.

Although the rights of handicapped pupils have been firmly established both by statute and case law, the federal and state funding levels were insufficient to cover the additional cost of educating handicapped pupils. Additional federal or state funding was recommended to lessen the fiscal burden when special education costs of the school district were affected by external variables beyond the direct control of the school district. The cost of educating a handicapped pupil had increased more in the last decade than the cost of educating a nonhandicapped pupil.

This chapter provides a basic framework of the issues and concepts with which the current investigation deals.
CHAPTER III

RESEARCH METHODOLOGY

A case study approach was used to assess the per pupil costs incurred by six school districts to provide special education services. A considerable effort was made to design the study in a way that would depict as accurately as possible those areas of information researched. Following the opinion of Marinelli (1977), first year programs were excluded since the cost of implementation could greatly increase the annual costs. To ensure that cost data were collected uniformly and comparably, a single individual (the researcher) made value judgements when transforming the district's traditional line-item budget or program budget format to the Cost Analysis Model used in this study. The researcher understood that the manner in which costs were charged against regular and special placements would have a significant effect on the amount of special education excess cost and, subsequently, the size of the cost indices.

Selection of the Sample

Candidate sites were sought within the Chicago metropolitan area, suburban Cook County, with public resource, itinerant, and self contained classrooms available at the local district level, and special day school programs
available to elementary handicapped students through their area joint agreement agency. Elementary school districts with total district enrollment of more than 1400 students were excluded from consideration. From the joint agreements within Cook County, six Illinois school districts and six joint agreement agencies in which each district was a member were selected.

Primary instructional programs constituted the basic placement assignments for students in special education. All students receiving special education in the districts or in the joint agreement programs were served in one (and only one) of these assignments at the time of the study.

Within the six local elementary school districts and joint agreements there were sixteen resource classrooms, seven itinerant classrooms, twenty-one self contained classrooms, and six special day schools studied. The resource, itinerant, and self contained placements served more mildly handicapped students while the special day school placements served the severely and profoundly handicapped students. The supplemental services provided the students in the resource and self contained placements included: speech and language therapy, social work services, psychological services, and, based on unique individual student needs, occupational and physical therapy. Evaluation services were available from psychologists, diagnosticians, speech and language pathologists, and social
The special day schools served the severely and profoundly handicapped students; thus, this population of students required more supplemental services. In addition to classroom aides, the supplemental services included speech and language therapy, social work services, psychological services, health services, physical therapy, occupational therapy, prevocational counseling, and adaptive physical education. Evaluation services were available from psychologists, speech and language pathologists, social workers, and physical and occupational therapists. Additional services for instruction, support, and evaluation were available at regional centers specializing in evaluation or through contractual arrangements.

The joint agreement agencies used in this study sponsored more than one type (i.e. programs for mental impairments, behavior disordered students) of special day schools. This study investigated only those special day school placements in which the six selected districts had students placed. The type of disability of the students was not considered since the focus of the research was on placement costs.

Cost Analysis Model

The Cost Analysis Model used in this study called for the researcher to collect data on all the special education and related service programs within each district and joint
agreement selected for this investigation (Table 1). Each time districts altered the mix of services to provide instruction (for example, a teacher plus an aide instead of just a teacher), the cost differences were captured by identifying each arrangement as a discrete special education expenditure for that classroom in that district.

Cost data for each classroom studied in this investigation were identified by placement and included current operating expenses. Total costs obtained for the individual placements within a district were divided by the average daily enrollment (ADE) of each placement to determine per pupil costs.

The Cost Analysis Model consisted of two major steps. The first step involved identification of inputs—the costs. The second step required identification of returns—the reimbursements. The inputs consisted of quantitative pieces of information which were related to the cost of a particular special education classroom. Categories of inputs (e.g. salaries, equipment, supplies, classroom space, administration) are provided in Appendices A-1, A-11, and A-111. Once the inputs had been identified, a quantitative figure was affixed to the inputs. Financial aid received by local districts from state and federal agencies was a reimbursement determined by the number of professional and noncertified workers (ISBE 50-49) and the P.L. 94-142 child count conducted on December 1, 1985.
Table 1: Model for Special Education Per Pupil Expenditures for Education

TOTAL EXPENDITURE = INSTRUCTION + SUPPLEMENTAL SERVICES + SUPPORT SERVICES

where:

I. INSTRUCTION = TEACHER + AIDE + OTHER

II. SUPPLEMENTAL SERVICES = SOCIAL WORK + SPEECH + ECT.

III. SUPPORT SERVICES = GENERAL ADMINISTRATION + CLASS COST + CLASSROOM COST

and:

I. A. TEACHER = Cost of teacher services provided to handicapped child by a certified special education specialist

B. AIDE = Cost of services provided by instruction aides to child in his or her special education classroom

C. OTHER = Cost of instruction received by handicapped child outside the special education classroom in which child spends most of his or her day (includes specialized subjects such as math and language arts as well as music, shop, art and gym)

II. SUPPLEMENTAL = Cost of related special education services child receives in school from someone other than the teacher with whom he or she spends most of his or her day. Includes allocable portion of special education administrative services

III. A. GENERAL ADMINISTRATION = Allocable portion of the costs of administrative services at the district and school levels

B. CLASS COST = Cost of textbooks and instructional supplies

C. CLASSROOM COST = Allocable portion of building maintenance and operations
In addition to the State aid for professional and noncertified workers (ISBE 50-49), the school districts received two additional sources of offsetting revenue for severely and profoundly handicapped students: The Extraordinary Special Education (ISBE 50-52), state reimbursement, and P.L. 89-313 federal reimbursement. The amounts of these reimbursements were defined on each joint agreement's Special Education Tuition Cost Sheet (ISBE 50-66, see Appendix A-IV). The amount of reimbursement can be found under Part III -- Offsetting Revenue, Section A, B, and C. Using the tuition cost sheet and state extraordinary reimbursements, the net cost per pupil of the special day school placements at the joint agreement level was determined for comparison to the net cost of resource, itinerant, and self contained placements provided at the school district level.

This study excluded two items of information relevant to a total accounting of special education expenditures. The costs of major capital outlay (e.g., the acquisition of property, building construction and remodeling, and the purchase of transportation equipment) and transportation were excluded. A valid measure of major capital outlay was difficult to develop for any single year as such outlays consisted of long-term expenditures generally prorated over an extended number of years. Accurate district data was not available on expenses for transportation separately by
special and regular education students. Although special transportation was regarded as a related service, it was thought that inclusion of inaccurate cost would interject a distorting factor in examining the special education per pupil cost. Transportation cost is influenced by a child's proximity to school and size of the school system. In addition, the inclusion of transportation costs would affect an assessment of the effect of state special education reimbursement because in Illinois special education transportation is funded under a separate plan whereby eighty percent of such costs may be reimbursed by the State.

To identify cost elements relating to regular education, the researcher determined that following current operating expenditures, less expenditures charged to the special education placements, would identify applicable costs to all students within a school district. Administration, instruction (less nonprogrammed charges), health, operations, maintenance, fixed charges, and other expenditures were selected as areas of applicable costs to all students. Transportation, capital improvements, rent, working cash, site and construction, and athletics were excluded. Data related to the functional accounts above were sought from four separate funds: Fund 1 - Educational, Fund 2 - Operations, Building & Maintenance, Fund 3 - Bond & Interest, and Fund 5 - Municipal Retirement.

By referring to each school district's Annual
Financial Report, 1986-87 (ISBE Form 50-35), the researcher extracted required data and posted to the data collection form. The total expenditures related to the resource, itinerant, self contained, and special day school delivery models were subtracted from the total cost of regular education. The regular education per pupil cost was obtained by dividing the remaining sum by each district's regular education enrollment (ADE). The data collection form used for this procedure can be found in Appendix A-V. Students receiving speech only (itinerant) and students in resource placements were included in the regular education enrollments because the amount of time these special students spend out of the regular classroom for special instruction would not affect the total cost of the class.

The ratio system employed in this study to relate the per pupil costs of special education placements with those of regular programs were generated by dividing the per pupil cost of individual special education placements by the per pupil cost determined for the regular program in a given district. The quotients derived represented the differential ratios between the special education and the regular programs. This appeared to be a reasonable and useful technique for reporting cost differentials, particularly when comparing placement data with other studies.
Federal Funding

Federal allocations for P.L. 89-313 and P.L. 94-142 were determined by verified child counts, and the dollar amount allocated per handicapped student was provided by the Office of Special Education, United States Department of Education. After State reduction for administrative costs, the P.L. 89-313 amount received for each qualifying student for fiscal year 1987 was $566.95. Most joint agreement agencies in this study kept the P.L. 89-313 allocation for their sponsored programs (special day schools) and adjusted the tuition costs to each participating district for students served in these placements.

The P.L. 94-142 amount awarded to Illinois for fiscal year 1987 was $278.51 per handicapped child. The State flowed $208.88 for each qualifying student to the local school districts through the joint agreements for all school districts in this investigation. With the approval of the member districts, one joint agreement in this study retained the P.L. 94-142 monies at the joint agreement level while the remaining five joint agreements flowed the appropriate dollars to each school district based on the approved subgrants. All joint agreement agencies applied an administrative cost for managing the P.L. 94-142 Grant because the joint agreements were responsible for writing and monitoring the federal grant and for dispensing the funds to the school districts according to the approved
grant. According to the Illinois State Board policy, five percent of the seventy-five percent allocated to the school districts must be set aside for staff development within each district.

**Data Collection**

Permission to access Illinois Funding and Child Tracking Systems--Facts (ISBE 30-34), personnel and student reimbursement claims, tuition billings, federal grants, and enrollment documents for the 1986-87 school year was obtained from the director of each participating special education joint agreement. Permission to access Annual Financial Reports (ISBE 50-35), Statement of Expenditure Accounts, special education enrollments, Individual Education Plans (IEPs), staff salaries, and fringe benefits was obtained from the superintendent of each participating elementary school district. Visitations to the director's office of each special education joint agreement and central office of each elementary school district were conducted. At each site, interviews were held with the director, the superintendent or their designees (business managers, office staff, and special education program supervisors). The information was gathered on a formal basis using an interview guide, which aided in developing an understanding of how each system functioned, particularly with respect to the financial procedures utilized and the special education programs and services provided. (See Appendix B).
The major portion of time spent at each site was devoted to extracting required cost data from the organization's financial records. In most cases, copies of financial records, state reimbursement forms, student enrollments, and various other verifying documents were obtained for further study during the calculations of costs for each of the placements studied. Data for 1986-87 were used because at the time of the investigation this school year represented the most recent period in which financial transactions had been completed and data were available. When expenditures from the sources conflicted, this study relied first on printouts of actual costs, next of published budgets, and finally on figures provided by the districts and joint agreement agencies without supporting detail. All salary information included fringe benefits particular to each site.

Information was recorded from the students' Individual Educational Plans (IEPs) to determine the amount of related services costs to apply to each placement category and the amount of time that was spent in special education or in regular education classrooms for each handicapped student in this study.

Using program placements as the basis for gathering special education costs was advantageous because these placements were readily understandable by school officials who plan and budget for staff, supplies, and space. The
officials usually wanted to know how modifications in various placements, for example more students per teacher, would influence budgets for the districts. Both special and regular instructional program information was gathered to allow for comparisons as well as to permit estimates of total educational expenditures for students in different placements. Regular education information included the expenditures for all basic academic, as well as any supplemental instruction such as art, music or physical education and pupil services such as guidance and health. In addition, information regarding support services (a category that included administration) was collected in each district.

**Treatment of Cost Data**

Cost data related to the operation of special education placement delivery models provided in the six elementary school systems studied were identified by special education program placement and the related expenditures, as well as applicable state and federal special education reimbursements, and processed to determine net costs for the individual components. Teacher salaries of nine and ten months were treated identically.

Direct class costs included instructional supplies and materials purchased for each class. Classroom cost was determined by dividing the square footage of each special education room by the district's total square footage
resulting in a percentage of utilized space. This percentage was applied to the total expenditures of Fund 2, operations, Building and Maintenance, of the district's June 30, 1987, Annual Financial Report (ISBE 50-35). In all participating sites, the custodial salaries were included in Fund 2.

**Resource Calculations**

Resource costs were processed within the context of the following cost components:

1. Instruction:
   
   **Direct Salary Costs**
   
   **Teacher**
   - Gross salary
   - Less state reimbursement
   - Less federal reimbursement
   - Insurance (medical)
   - Workers' compensation
   - Unemployment
   - Liability insurance
   
   **Aide**
   - Gross salary
   - Less state reimbursement
   - Less federal reimbursement
   - Insurance (medical)
   - Workers' compensation
   - Unemployment
   - Liability insurance
   - IMRF & FICA
   
   **Substitute teacher salaries**

2. Reimbursable Supplemental Costs:

   **Specialist: (social worker, etc.)**
   - Gross salary
   - Less state reimbursement
   - Less federal reimbursement
   - Insurance (medical)
   - Workers' compensation
   - Unemployment
   - Liability insurance
   
   **Special education administration & other**
3. Support Service Costs:
   Direct class costs
   New equipment
   Educational supplies
   Classroom costs
   Full day (space)
   Half day (space)

Reimbursable supplemental service costs included expenditures for those special education services directly supplemental to the resource placements. For this study, these could include the services of the school speech therapists, school social workers, and school psychologists. Costs were calculated using the applicable salary multiplied by the percentage of time (extracted from the students' IEPs) spent with the class. Where school systems employed special education secretaries, coordinators, and administrators, costs were calculated based on the percentage of time allocated to the specific classroom. The percentage of allocated time was determined by dividing the total class enrollment by the district's total special education enrollment times the total salary of each special education supplemental person, resulting in a per pupil cost for each classroom. The total average per pupil cost for each resource room was calculated by dividing the sum of all components by the classroom enrollment, resulting in a per pupil cost for each resource classroom.

All resource classroom per pupil costs within each district were added and then divided by the number of classrooms within that district to yield an average per
pupil resource cost per district. To determine the average per pupil cost for the six districts, the districts per pupil costs were added and the sum divided by six, resulting in a total average per pupil cost for the resource placement.

Itinerant Calculations

The students served in itinerant placements were classified solely as speech and language impaired and received no other special education services. The cost components for this placement included:

1. Instruction:
   Direct Salary Costs
   Teacher
   Gross salary
   Less state reimbursement
   Less federal reimbursement
   Insurance (medical)
   Workers' compensation
   Unemployment
   Liability insurance

2. Reimbursable Supplemental Costs:
   Special education administration & other

3. Support Services Costs:
   Direct class costs
   New equipment
   Educational supplies
   Classroom costs
   Full day (space)
   Half day (space)

The calculations reflected the percentage cost of each component incurred for speech and language students only. In other words, the cost amounts of speech and language as a reimbursable supplemental service to the other special education placements were deducted. The average per pupil
cost for each classroom was determined by dividing the total cost of all components by the special education classroom enrollment. The district average cost was obtained by dividing the sum of the district per pupil costs by the number of classrooms within each district. To determine the total average per pupil cost for the six districts, the districts per pupil costs were added and the sum divided by six, resulting in a total average per pupil cost for the itinerant placement.

**Self Contained Calculations**

Self contained placement components and calculations were the same as the resource placement except two additional components, nonreimbursable regular education services and general administration, were added to the costs. The following cost components were used to determine self contained costs:

1. **Instruction:**
   Direct Salary Costs:
   Teacher
   - Gross salary
   - Less state reimbursement
   - Less federal reimbursement
   - Insurance (medical)
   - Workers' compensation
   - Unemployment
   - Liability insurance
   Aide
   - Gross salary
   - Less state reimbursement
   - Less federal reimbursement
   - Insurance (medical)
   - Workers' compensation
   - Unemployment
   - Liability insurance
   - IMRF & FICA
   Substitute teacher salaries
2. Reimbursable Supplemental Costs:
   Specialist: (social worker, etc.)
   Gross salary
   Less state reimbursement
   Less federal reimbursement
   Insurance (medical)
   Workers' compensation
   Unemployment
   Liability insurance
   Special education administration & other

3. Nonreimbursable Supplemental Costs:
   Teacher
   Salary (art, music, & other)
   Fringe benefits

4. Support Service Costs:
   Direct class costs
   New equipment
   Educational supplies
   Class costs
   Full day (space)
   General administration costs

Nonreimbursable regular education services (e.g. music, art, physical education) were referred to as regular education services where handicapped students received some instruction with nonhandicapped students. Based on information extracted from the IEPs of the students receiving instruction in self contained placements, all of these students were receiving some instruction with regular education students. Total cost for these services was determined by dividing the sum of the services by the district's general enrollment times the number of students in the special education class. General administration support service costs included total expenditures for the Board of Education, executive administration, school administration, improvement of instruction, media center,
and school business. Cost to the self contained models was determined by dividing the total general administration cost by the district's total enrollment (regular and special) times the number of students in the special education class.

All self contained per pupil costs within each district were added and then divided by the number of classrooms within that district to yield an average per pupil self contained cost per district. To determine the average per pupil cost for the six districts, the districts per pupil costs were added and the sum divided by six, resulting in a total average per pupil cost for the self contained placement.

Special Day School Calculations

Cost data related to the operation of special day school placements provided by the six joint agreement agencies studied were procured from copies of the Special Education Tuition Cost Sheet (ISBE 50-66) at each site. The following cost components were used to determine special day school costs:

1. Educational Expenditures
   Salaries
      Certified professionals
      Noncertified workers
      Administrative personnel
   Educational supplies
   Employee insurance
   IMRF & FICA
   Equipment
   Administration
   Operations & maintenance of facility
2. Offsetting Revenues
   Salaries (state reimbursements)
   Certified professionals
   Noncertified workers
   Administrative personnel
   Federal reimbursements

The cost sheet was designed by the State to determine a net per pupil cost for each type (i.e. programs for the mentally impaired, the behavior disordered) of special education day school placements and calculations were based on enrollment. The cost sheet was submitted to the State with the assumption that Offsetting Revenues, Part III, A-Salaries, would be reimbursed by the State of Illinois at 100 percent of $8,000.00 for each certified professional and 100 percent of $2,800.00 for each noncertified worker. The actual 1986-87 State reimbursement rate was 82.949962 percent of the $8,000 and $2,800 per certified and noncertified worker. The cost sheet was refigured by applying the actual reimbursement rate to Part III - Salaries and to Part IV, Computation of Net Allowable Educational Expenditures. Part V, Net Transportation Expenditures, was omitted from the calculations. Special Education Pupil Reimbursement (ISBE 50-52) and actual State extraordinary per pupil reimbursement rate (86.67573) were also applied to the cost sheet and refigured, resulting in a per pupil cost for each special day school placement.

To determine the total average per pupil cost for the special day school placements, all the average per pupil costs for the six placements administered by joint
agreement agencies were added. The sum was then divided by six.

Excess Cost

A major interest of policymakers centers on the relationship between special and regular education expenditures and, in particular, identifying the incremental expenditures for students with disabilities that exceed expenditures for students in regular education. Over the years policymakers have come to call this relationship excess cost.

Excess cost provisions are found in the federal EHA funding formula and form the basis for special education funding in several states. In states with excess cost funding formulae, such as Illinois, extraordinary reimbursement state funds are distributed to each district based on a percentage of the districts' excess costs, subject to ceilings and other adjustments.

Excess cost, as applied to special education, is often interchangeable with the terms supplemental, additive, or replacement cost. The researcher in this study defined excess cost as the total costs required to educate a special education student minus the costs to educate a regular education student. Almost all excess cost computations are complicated by the fact that a large majority of special education students receive a portion of their instruction from the regular education program, while a small fraction
of the total number spend all their time in a special education setting. Consequently, because regular education constitutes a significant component of the education of most children with handicapping conditions, inclusion of this time spent with nonhandicapped students must be taken into account when computing educational expense.

The researcher's conceptualization of excess costs required two steps: first, calculating the total average per pupil cost of education for all students placed in special education classes and, second, calculating the total average per pupil cost (minus the applied special education expenditures) of educating students who were not placed in special education classes. The excess cost for the resource and itinerant placements was the amount beyond the average per pupil cost of educating a regular education student. The replacement cost for students in self contained placements was the actual amount calculated for those placements because all regular education charges were included in the Cost Analysis System. Simply to add the per pupil regular education cost to the per pupil special education cost would be to ignore the fact that some children with handicapping conditions receive only a part of the full average per pupil regular education cost. The full regular education cost would include more than that portion of regular education expenditures that students with handicaps use. To avoid this outcome, necessary adjustments
were made in the amount of regular education expense for children with handicaps based on the proportion of time these students spent in regular education as well as the special education pro rata share of regular education supplemental and support expenditures. The replacement cost for students in special day school placements was the actual amount calculated for those placements. There were no regular education costs included because the students were not participants in any regular education instruction.

Comparability of Information

A potential source of non-comparability of information with other study results existed because of the different treatment applied to special education for children with speech and language impairments. Some studies classify all such services as related services, others as speech/language pathology programs, and some as both a special education program and a related service. The Cost Analysis Model standardized this information across districts by viewing related services as supplemental to the primary special education programs in which students were served. Therefore, speech and language pathology was treated as a special education program when a student's sole disability was in speech. Speech and language pathology was designated a related service when students participated in any other special education program (for example, a resource program for learning disabilities).
Another potential source of non-comparability of information was the treatment of cost for the special day school placements and making comparisons with the resource, itinerant, and self contained placement costs. Because the special day schools were established exclusively for handicapped students, the students received their educational instruction in these separate facilities (without regular education students), and since none of the students in this study were returning to their local district for regular education instruction, all expenditures (less transportation) associated with the special day school were included as a special education cost. There were no district supplemental or support costs added to the special day school expenditures because the placements included administrative and supplemental staff hired specifically for these placements. The small amount of time that district personnel spend with assessing and placing students, attending conferences, and processing the paperwork for students in the special day school placements was unlikely to alter the results reported in a significant way; but it was important that the omission of these costs from the results be cited.

Regular Education Services and Primary Placement

Most special education students spend a portion of their school day participating in regular education programs within regular schools. For example, this involvement in
regular education was the norm for speech and language impaired students whose only special education instruction was a few minutes a week with a speech and language pathologist or for learning disabled students who received special instruction in a resource program. Alternatively, participation in the regular program for the child with a more severe handicapping condition may take the form of only periodic involvement, such as participating in assemblies, lunch periods, physical education, or music.

In practice the cost of regular services received by a special education student depended on whether inclusion of the student in regular classes actually increased the cost of providing the regular program. This conception of cost was important to the interpretation of individual student expenditures. For example, when a single speech impaired student left the regular program to receive the services of a speech and language pathologist, the cost of that regular program would probably not change because class sizes and the number of teachers required would not be affected. In other words, it would cost as much to educate the speech impaired student in regular education as it would cost to educate a student who did not leave the regular classroom at all for special education services. Similarly, the presence of a handful of special students who received most of their education in a self contained program and who participated occasionally in a regular class probably would not generate
an increase in the cost of the regular program. The involvement of numerous special students in regular education programs on a part time basis, however, could affect a district's expenditures for the regular instructional program because the added numbers could trigger requirements to hire additional teaching staff and to purchase more supplies.

**Summary**

This chapter has presented a description of the methodology used to select the school districts and joint agreement agencies; to calculate the average gross and net costs of educating handicapped pupils who receive their education in resource, itinerant, self contained, and special day school placements; to measure the effects of state and federal reimbursements on special education per pupil cost; and to determine the differences in per pupil cost of educating special education and regular education pupils. Excess special education costs and comparability of information were also discussed.
CHAPTER IV

RESULTS AND IMPLICATIONS

Introduction

P.L. 94-142 specifies 1) that each child be placed in the least restrictive environment consistent with his needs, 2) that handicapped children are to be educated with children who are not handicapped, and 3) that special classes, separate schooling, or other removal of handicapped children from the regular education environment occurs only when the nature or severity of the handicap is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. As a result of these requirements, the placements of many handicapped children have changed. Students who previously were educated in special schools or at home have been moved into special education placements in regular schools, often with some interaction with students in regular classrooms.

With the movement to place handicapped students in regular schools, the question of how much does it cost to educate a student with disabilities needs to be answered. To determine an answer to this question, the researcher focused on the following research questions:
Research Question 1
What was the average net per pupil cost of educating a handicapped student in the resource delivery models?

Research Question 2
What was the average net per pupil cost of educating a handicapped student in the itinerant delivery models?

Research Question 3
What was the average net per pupil cost of educating a handicapped student in the instructional (self contained) delivery models?

Research Question 4
What was the average net per pupil cost of educating a handicapped student in the special day school delivery models?

Research Question 5
What were the average net cost differences among the resource, itinerant, instructional (self contained), and special day delivery models?

Special education delivery models provided by six selected public school systems and six joint agreements agencies in the Chicago metropolitan area were examined. Cost data were collected for the 1986-87 school year and analyzed for sixteen resource classrooms, seven itinerant classrooms, twenty-one self contained classrooms, and six special day schools. Table 2 presents a breakdown of the number of the different placement models studied within each district.
### Table 2
Number of Placements Studied by Delivery Model and District

<table>
<thead>
<tr>
<th>District</th>
<th>Resource</th>
<th>Itinerant</th>
<th>Self Contained</th>
<th>Special Day School</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>District B</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>District C</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>District D</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>District E</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>District F</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>All Districts</td>
<td>16</td>
<td>7</td>
<td>21</td>
<td>6</td>
</tr>
</tbody>
</table>
The purpose of this chapter is to present the results obtained. The first section of this chapter presents a description of the six selected school districts' student population, the special education classrooms available in each district and personnel assigned to the classrooms. The second section provides the gross and net per pupil costs of educating handicapped students in the resource, itinerant, self contained, and special day school placement delivery models and includes the net per pupil cost differences among the four placement models. The final section offers policy implications based on the results obtained and compares the results with previous studies.

**Student Population**

The total population of the six participating school districts for the 1986-87 school year was 4,472. Of this enrollment, there were 666 (14.9 percent) students classified as handicapped. Special education students who attended other district programs, regional programs, state schools, out-of-state schools, private and residential schools were omitted. Within the sample, 206 (30.9 percent) of the total special education enrollment received their special education instruction in a resource placement delivery model. Of the total special education enrollment, 110 (16.5 percent) received their instruction in self contained placements and 20 (3.0 percent) received their
special education instruction in a special day school sponsored by their respective joint agreement agency. The remaining 330 (49.5 percent) handicapped students were classified as only speech and language impaired and received their special instruction on an itinerant basis. There were wide variations in the percentage of identified and served handicapped pupils among the districts studied. Table 3 presents a breakdown of the total special education population in the six participating school districts to the total school population.

Placement Description

Children with handicapping conditions were spread disproportionately across special education placements. This resulted from the uneven prevalence of various handicapping conditions, variations in the level of severity of different handicaps, and the arrangements districts used to serve students with various types of disabilities. Enrollments in different special education placements were a major contributor to district expenditures because they dictated the number of units of a placement that the individual district had to provide.

Districts operated under policies that establish minimum and maximum class sizes for the various placements. These limits were derived from state requirements and the assessment of student needs. When maximum levels for a placement were reached but were less than the minimum
Table 3

Special Education Population and Total Student Population in Sample Districts

<table>
<thead>
<tr>
<th>District</th>
<th>Total Population</th>
<th>Special Education Population</th>
<th>Special Education Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>650</td>
<td>69</td>
<td>10.6%</td>
</tr>
<tr>
<td>District B</td>
<td>999</td>
<td>190</td>
<td>19.0%</td>
</tr>
<tr>
<td>District C</td>
<td>533</td>
<td>73</td>
<td>13.7%</td>
</tr>
<tr>
<td>District D</td>
<td>277</td>
<td>25</td>
<td>9.0%</td>
</tr>
<tr>
<td>District E</td>
<td>644</td>
<td>119</td>
<td>18.4%</td>
</tr>
<tr>
<td>District F</td>
<td>1,369</td>
<td>190</td>
<td>13.8%</td>
</tr>
<tr>
<td>All Districts</td>
<td>4,472</td>
<td>666</td>
<td>14.9%</td>
</tr>
</tbody>
</table>

Special education students placed in other district programs, regional programs, state schools, out-of-state schools, private and residential schools were excluded from the special education population.
necessary to form a new class, districts commonly added an aide to assist in the full class. When the number of students fell below the minimum for a placement not previously provided in a district, administrators usually relied on an external agency such as an interdistrict placement; or, as a second solution, they assigned the student to an alternative placement within the district.

Pupil/teacher ratios were an indication of the intensity of professional staff resources used in special education programs. Overall, the ratios of pupils to teachers in self-contained and special day schools were noticeably smaller than the 25 pupils per teacher characteristic of regular education. Table 4 displays the average caseload for specific placements. Caseloads across specific placements ranged between 47.1 and 7.1 students per teacher.

Special education placements differed from each other in important ways other than number of students enrolled. Time spent in the special or regular classes and whether the staff were based in the school or traveled to several schools were dimensions of service delivery that varied across types of placements. These variations had an important influence on expenditures across placements studied. As an example, the more time a self-contained placed special student spent in a special education class, the lower the added cost of the regular education component.
### Table 4

**Per Teacher Average Classload by Placement Models**

<table>
<thead>
<tr>
<th>Placement Model</th>
<th>Average Caseload Per Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>14.7</td>
</tr>
<tr>
<td>Itinerant (Speech and Language)</td>
<td>47.1</td>
</tr>
<tr>
<td>Self contained</td>
<td>7.7</td>
</tr>
<tr>
<td>Special Day School</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Caseload was computed using a full time equivalent (FTE) estimate of personnel time.
The special education placements housed within the local districts were mostly for the mildly and moderately handicapped students. The severely handicapped students were served in separate facilities (special day schools).

Resource placement services were provided by a certified special education specialist, and during the school day the students were removed from the regular education classroom for special education instruction. The average amount of time reported on the students' IEPs for resource instruction was 120 minutes per week. Most frequently, students were instructed in small groups on common areas of academic weaknesses. Students assigned to the resource placement models usually had a special education teacher as the sole provider of special education instruction. Only five of the sixteen resource placement models employed a full-time or part-time teacher aide to assist in the special education instruction.

Itinerant

Placements differ according to whether staff worked as itinerant teachers whereby they traveled between schools or whether they were based in one school. All students classified as only speech and language impaired in this study received their special instruction from speech pathologists that traveled from building to building within
the district or that were contracted by the district on a part-time basis. Because of these service arrangements, students classified as only speech and language impaired were considered as receiving their special instruction in an itinerant placement and excluded from the other placements. Students classified as only speech and language impaired spent the least amount of time out of the regular education classrooms. The average amount of time spent with the specialist was sixty minutes per week.

Table 5 shows the average minutes per week spent by handicapped students in special education instruction for the resource and itinerant placements studied. These figures fail to portray adequately the extent of variation within specific placements. Students in the same specific placement rarely received the same amount of time. Rather, special education teachers determined the amount of special instruction needed by individual students and arranged schedules accordingly.

**Self Contained**

Moderately handicapped students were served in self contained placement models. These handicapped students spent the majority of their school day time with a certified special education teacher in a separate classroom within a school district building. The class sizes varied from four to fourteen students. When appropriate these handicapped students were mainstreamed with regular education students.
Table 5
Average Minutes Per Week Identified Handicapped Students Spend in Resource and Itinerant Placements

<table>
<thead>
<tr>
<th>Placement</th>
<th>Average Minutes/Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>120</td>
</tr>
<tr>
<td>Itinerant</td>
<td>60</td>
</tr>
</tbody>
</table>
The IEPs showed that art, music, and physical education were the most frequently mainstreamed classes and that the average weekly amount of time spent in these classes was 100 minutes per week. Thirteen (62 percent) of the twenty-one self contained placement models were provided full-time teacher aide assistance.

**Special Day School**

Severely and profoundly handicapped students were usually served in special day school placement models. The location of these facilities was usually in a centralized area within the member districts, and the students were transported to the facility. None of the students placed in special day schools were mainstreamed back to the local district for inclusion in regular education instruction. Pupil/teacher ratios (7.1:1) were an indication of the intensity of professional staff used in this placement. All of the special day school placement models employed teacher aides to assist in the special education instruction.

**Placement Cost Analysis**

There were two ways used for reporting the results of per pupil placements costs. First was the average gross per pupil cost for each placement model studied. Gross per pupil cost included all costs of special instruction without state and federal reimbursements being deducted. Net pupil costs were reported next and reflected the average per pupil
cost after state and federal reimbursements were considered.

**Students in Resource Placements**

The total average gross per pupil educational expenditure for resource placements was $6,991. Of this amount, $3,415 was directly attributable to special education. Not included under special education expenditures for resource programs were the costs of special transportation or the costs of speech and language classified students served on an itinerant basis. The full cost of regular education, $3,576, was assigned to the resource special student because the amount of time a resource placed student was not in a regular class was too small to marginally affect the fixed costs of the regular class. Staff, space, supplies, and equipment must be available for resource placed students regardless of whether they leave the regular classroom for special assistance for approximately twenty-five minutes each day. Thus, the cost of resource placed special students was treated as supplemental to the regular education cost.

**Students in Itinerant Placements**

For speech and language itinerant placements, the total average gross expenditures amounted to $3,961. The average special education cost accounted for $385 of this amount. The full cost of regular education, $3,576, was assigned to the speech and language special student. As in the case of the resource placed student, the amount of the
regular education cost would not be affected by the small amount of time a speech and language special education student was out of the regular education classroom. Thus, the cost of speech and language special students was treated as supplemental to regular education cost.

**Students in Self Contained Placements**

Gross expenditures were allocated differently for self contained placements, resulting in the average total per pupil cost of $6,778. Of this amount special education services were $4,679 with regular education contributing $2,099. All special education components were included as well as applicable regular education costs. Regular education cost contribution included district level support (administration, space, and maintenance) services and regular education instructional (mainstreamed) program cost. These amounts were obtained by adjusting for the percentage of time self contained students participated in regular education and the appropriate percentage of district level support costs based on the number of students served in self contained placements. More specifically, the instructional component of regular education was calculated by applying the actual amount to time spent in regular education based on information recorded from the students' IEPs. The average per pupil cost for regular education instruction (e.g. art, music, physical education) amounted to $174. While this amount is not a large expense on a per pupil
basis, when total expenditures were calculated, the cost represented a significant amount ($19,140) for the small school districts. The cost of special students placed in self contained classrooms was treated as replacement of regular education costs.

**students in Special Day School Placements**

It was not necessary to assign specific supplemental services or a differential share of total support services expenditures to this placement model because all staff were employed specifically to work with and on the behalf of all handicapped pupils placed at each site. Consequently, the cost calculations included the basic service unit cost of total service expenditures divided by the unduplicated special education enrollment at each site. No regular education costs were allocated to these students. On the special education side, expenditures included special instruction, special supplemental, and special support services provided by the joint agreement agencies. The total average gross cost for the special day school placements was $10,717. The total cost of special students placed in special day schools was treated as replacement of regular education cost.
Combined Educational Expenditures for Special Education Students

The regular education expenditures applicable to special education students, as well as the total costs of educating children with disabilities, are presented in Table 6. The special education and regular education expenditures allocated to special education totals were calculated for each placement based on the related information reported for each of the four different placements.

Across all types of placements, the total average combined gross per pupil expenditure was $7,112. Of this amount special education services were $4,799 with regular education contributing $2,313. The most costly placement was for students receiving their special instruction in a special day school with the itinerant placement being the least costly. The gross cost ($10,717) of the special day school was over two and one half times the average gross cost of educating handicapped students in the itinerant placement ($3,961).

The excess special education costs for the four investigated placement models ranged from $385 (itinerant) to $7,141 (special day school) per pupil. The special day school excess cost was over two times the excess costs of the resource and self contained placements.
Table 6
Average Total Gross Per Pupil Educational Expenditures for special Education Pupils by Placement Model(a)

<table>
<thead>
<tr>
<th>Placement Model</th>
<th>Gross Special Education</th>
<th>Regular Education(b)</th>
<th>Combined Special and Regular Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>$3,415</td>
<td>$3,576</td>
<td>$6,991</td>
</tr>
<tr>
<td>Itinerant</td>
<td>385</td>
<td>3,576</td>
<td>3,961</td>
</tr>
<tr>
<td>Self Contained</td>
<td>4,679</td>
<td>2,099</td>
<td>6,778</td>
</tr>
<tr>
<td>Special Day School</td>
<td>10,717</td>
<td>0</td>
<td>10,717</td>
</tr>
<tr>
<td>All Placements</td>
<td>4,799</td>
<td>2,313</td>
<td>7,112</td>
</tr>
</tbody>
</table>

(a) Costs were calculated according to the explanations contained in pages 59-66.

(b) Portion of regular education expenditures provided to special education students while they are being served within the regular education placement.
Table 7 illustrates the average gross excess cost obtained for all special education placements used in this study. These excess amounts were obtained from the application of the cost definition used in this study whereby excess cost was defined as the additional expenditures for pupils with disabilities that exceed expenditures for students in regular education.

**Effect of Special Education Reimbursement**

Districts have available state and federal funds to help support the cost of special education services. Whenever the term federal reimbursement appears, the term refers only to P.L. 94-142 and P.L. 89-313 funds. The term state reimbursement refers to Illinois personnel revenues and extraordinary pupil revenues received for special education services.

**Resource Placement**

The average state reimbursement received for the resource placement was $603 per pupil, representing 17.6 percent of the average gross excess per pupil expenditure for the placement operations. When the average federal reimbursement of $113 (3.3 percent) for each pupil was included, the combined reimbursement ($716) was 20.9 percent of the excess special education per pupil cost. This combined reimbursement rate represented 10.2 percent of the total gross per pupil cost for pupils placed in the resource placement.
Table 7
Total Excess Cost of Special Education Students by Placement

<table>
<thead>
<tr>
<th>Student Placement</th>
<th>Per Pupil Excess Cost(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>$3,415</td>
</tr>
<tr>
<td>Itinerant</td>
<td>385</td>
</tr>
<tr>
<td>Self Contained</td>
<td>3,202</td>
</tr>
<tr>
<td>Special Day School</td>
<td>7,141</td>
</tr>
<tr>
<td>All Placements</td>
<td>3,536</td>
</tr>
</tbody>
</table>

\(a\) Total costs of educating a special education student (regular plus special) minus average cost of educating a regular education student ($3,576). For example, the calculation for resource placements is $6,991 - $3,576 = $3,415.
Itinerant Placement

The average state reimbursement received for the speech and language itinerant placement was $106 per pupil. This amount represented 27.5 percent of the gross excess average per pupil cost. An average of $7 (1.8 percent) was recovered from applied federal funds, resulting in a combined rate of $113 per pupil paid by state and federal reimbursements. This combined reimbursement rate represented 29.3 percent of the excess special education per pupil costs and 2.9 percent of the total gross per pupil costs.

Self Contained Placement

The average state reimbursement received for the self contained placement was $1,202 per pupil, representing 25.7 percent of the average gross excess per pupil special education expenditure. When applying the average federal per pupil amount of $118, the combined per pupil rate ($1,320) was 28.2 percent of the excess per pupil special education costs. The combined state and federal rate represented 19.5 percent of the total gross per pupil costs for the self contained placement.

Special Day School Placement

The average state reimbursement received for the special day school placement was $3,638 (personnel $1,912, extraordinary $1,726) per pupil, representing 33.9 percent of the average gross per pupil expenditure for the placement
operations. Calculation of federal funds showed an average of $764 (7.1 percent) of the per pupil gross cost. The combined per pupil rate of $4,402 or 41.0 percent of the total gross costs was paid by state and federal funds.

The combined state and federal special education reimbursement received for all the placements averaged $1,638 per pupil. This amount represented 34.1 percent of the average gross special education portion of per pupil cost. Table 8 displays the average distribution in dollar amounts of state and federal funds for each placement model.

State and federal combined reimbursements covered 23.0 percent of the average total gross per pupil cost (special and regular) of all placements studied. This means that approximately 77 percent of the total costs of educating handicapped students in the four placements investigated was funded from local dollars. Staff to student ratios and approval of personnel for reimbursements were crucial factors in determining the level of reimbursement received per pupil in the four placements. As a result of this state and federal supplemental aid, the average per pupil excess special education cost in net terms was $3,160 for all the placements examined. There was a net special education cost range of $272 for speech and language itinerant placements to $6,315 for special day placements. A
Table 8

Distribution of State and Federal Per Pupil Reimbursements by Placement Model

<table>
<thead>
<tr>
<th>Placement</th>
<th>Per Pupil Reimbursements</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State</td>
<td>Federal</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Resource</td>
<td>$ 603</td>
<td>$113</td>
<td>$ 716</td>
<td></td>
</tr>
<tr>
<td>Itinerant</td>
<td>106</td>
<td>7</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>Self Contained</td>
<td>1,202</td>
<td>118</td>
<td>1,320</td>
<td></td>
</tr>
<tr>
<td>Special Day School</td>
<td>3,638</td>
<td>764</td>
<td>4,402</td>
<td></td>
</tr>
<tr>
<td>All Placements</td>
<td>1,387</td>
<td>251</td>
<td>1,638</td>
<td></td>
</tr>
</tbody>
</table>
percentage breakdown of state and federal funds when applied to the total average gross cost (special and regular) for each placement studied is presented in Table 9.

Placement Findings

Many findings were derived from the cost analysis of the special education placements examined in this study. This section of the results relates to the five research questions which focused on net, rather than gross, costs of the resource, itinerant, self contained, and special day school delivery models. When studying the results reported, the reader should remember that the total net per pupil averages reflect the cost of the placements after state and federal reimbursements were deducted. Thus, the total average per pupil cost would be the amount paid from local funds to educate the handicapped pupils in the various placement models.

Research Question 1

What was the net per pupil cost of educating a handicapped student in the resource delivery models? Handicapped students receiving special education instruction in a resource delivery model must, according to regulations, spend at least 51 percent of their school day in the regular education program. The cost of resource placements was treated as a supplemental (add on) expense to the regular education costs. The special education
### Table 9

State and Federal Percentage of All Expenditures for Special Education Services by Placement

<table>
<thead>
<tr>
<th>Placement</th>
<th>Percent of State and Federal Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>10.2%</td>
</tr>
<tr>
<td>Itinerant</td>
<td>2.9%</td>
</tr>
<tr>
<td>Self Contained</td>
<td>19.5%</td>
</tr>
<tr>
<td>Special Day School</td>
<td>41.0%</td>
</tr>
<tr>
<td>All Placements</td>
<td>23.0%</td>
</tr>
</tbody>
</table>

Percentage of total (special and regular) per pupil cost supported by state and federal funds.
average net excess cost for the resource placement models in the six public schools ranged from $1,657 to $4,902. The total average excess cost for the special education portion of the resource placement models was $2,698. The average per pupil regular education for the six districts ranged from $2,679 to $5,255 with the average for the six districts being $3,576. When adding the per pupil special education costs to the per pupil regular education expenses for the 1986-87 school year, the net per pupil resource placement model costs ranged from $4,432 to $10,157 among the school districts. The effects of teacher aides, student/teacher ratios, and differences in districts' per pupil regular education expenses caused the cost variations. The total average net per pupil cost of the resource placement models was $6,274 for the six elementary school districts investigated. Table 10 contains cost comparisons among the districts for the resource placement delivery models.

Research Question 2

What was the net per pupil cost of educating a handicapped student in the itinerant delivery model?

The cost of itinerant placed speech and language students was also treated as a supplemental (add on) expense to the regular education cost. The special education per pupil net excess cost for the six districts ranged from $75 to $646. The total average net excess cost for the special education portion of the itinerant placements was $272.
Table 10

Average Net Per Pupil Cost Comparisons Among the Districts for Resource Placement Model(a)

<table>
<thead>
<tr>
<th>District</th>
<th>Special Education Cost(b)</th>
<th>Regular Education Cost</th>
<th>Net Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>$3,137</td>
<td>$2,679</td>
<td>$5,816</td>
</tr>
<tr>
<td>District B</td>
<td>1,657</td>
<td>2,775</td>
<td>4,432</td>
</tr>
<tr>
<td>District C</td>
<td>4,902</td>
<td>5,255</td>
<td>10,157</td>
</tr>
<tr>
<td>District D</td>
<td>2,196</td>
<td>3,483</td>
<td>5,679</td>
</tr>
<tr>
<td>District E</td>
<td>2,219</td>
<td>4,207</td>
<td>6,426</td>
</tr>
<tr>
<td>District F</td>
<td>2,080</td>
<td>3,059</td>
<td>5,139</td>
</tr>
<tr>
<td>All Districts</td>
<td>2,698</td>
<td>3,576</td>
<td>6,274</td>
</tr>
</tbody>
</table>

(a) Costs were calculated according to the explanations contained in pages 59-66.

(b) Net per pupil cost after state and federal reimbursements were considered.
When adding the per pupil special education cost to the average regular education expense of $3,576, the total average net per pupil cost for the itinerant placements was $3,848 for the six elementary school districts. Table 11 represents comparisons among the districts for the itinerant placement delivery model.

Research Question 3

What was the net per pupil cost of educating a handicapped student in the self contained delivery models?

Handicapped students receiving special education services in a self contained placement model spend more than 50 percent of their school day in a separate classroom within the school district. The net special education per pupil cost of self contained placement models ranged from $2,088 to $5,998. The total average net per pupil cost for the special education portion of the self contained placement models was $3,359. The average per pupil regular education expense (time spent in regular education and general regular education support services) for the six districts ranged from $948 to $3,799 with the average for the six districts being $2,099. When adding the average per pupil special education cost to the average per pupil regular education expense, the net per pupil self contained placement cost ranged from $3,036 to $8,676. The total
### Table 11
**Average Net Per Pupil Cost Comparisons Among the Districts for Itinerant Placement Model**

<table>
<thead>
<tr>
<th>District</th>
<th>Special Education Cost (b)</th>
<th>Regular Education Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>$232</td>
<td>$2,679</td>
<td>$2,911</td>
</tr>
<tr>
<td>District B</td>
<td>150</td>
<td>2,775</td>
<td>2,925</td>
</tr>
<tr>
<td>District C</td>
<td>646</td>
<td>5,255</td>
<td>5,901</td>
</tr>
<tr>
<td>District D</td>
<td>398</td>
<td>3,483</td>
<td>3,881</td>
</tr>
<tr>
<td>District E</td>
<td>75</td>
<td>4,207</td>
<td>4,282</td>
</tr>
<tr>
<td>District F</td>
<td>134</td>
<td>3,059</td>
<td>3,193</td>
</tr>
<tr>
<td>All Districts</td>
<td>272</td>
<td>3,576</td>
<td>3,848</td>
</tr>
</tbody>
</table>

(a) Costs were calculated according to the explanations contained in pages 59-66.

(b) Net per pupil cost after state and federal reimbursements were deducted.
average net per pupil cost of the self contained placement model was $5,458. Table 12 represents a per pupil cost comparison among the districts for self contained placement delivery models.

Research Question 4

What was the net per pupil cost of educating a handicapped student in the special day school delivery models?

A special day school is an educational setting which is established by the local school districts exclusively to meet the needs of special education students. Students placed in special day schools are severely and profoundly handicapped. All of the students in this study spent their entire day at the special day school and received no educational instruction with nonhandicapped students. The average net per pupil cost of the six joint agreement sponsored special day schools ranged from $3,975 to $10,302. The average net per pupil cost for the six placements was $6,315. Table 13 contains information comparing the special day school placement delivery models among the districts.
<table>
<thead>
<tr>
<th>District</th>
<th>Special Education Cost</th>
<th>Regular Education Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>$2,088</td>
<td>$ 948</td>
<td>$3,036</td>
</tr>
<tr>
<td>District B</td>
<td>2,620</td>
<td>1,069</td>
<td>3,689</td>
</tr>
<tr>
<td>District C</td>
<td>5,998</td>
<td>2,678</td>
<td>8,676</td>
</tr>
<tr>
<td>District D</td>
<td>3,432</td>
<td>2,657</td>
<td>6,089</td>
</tr>
<tr>
<td>District E</td>
<td>2,455</td>
<td>3,799</td>
<td>6,254</td>
</tr>
<tr>
<td>District F</td>
<td>3,562</td>
<td>1,443</td>
<td>5,005</td>
</tr>
<tr>
<td>All Districts</td>
<td>3,359</td>
<td>2,099</td>
<td>5,458</td>
</tr>
</tbody>
</table>

(a) Costs were calculated according to the explanations contained in pages 59-66.
Table 13
Average Net Per Pupil Cost Comparisons Among the Districts for Special Day School Placements(a)

<table>
<thead>
<tr>
<th>District</th>
<th>Special Education Cost (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>$3,975</td>
</tr>
<tr>
<td>District B</td>
<td>4,871</td>
</tr>
<tr>
<td>District C</td>
<td>10,302</td>
</tr>
<tr>
<td>District D</td>
<td>6,035</td>
</tr>
<tr>
<td>District E</td>
<td>4,791</td>
</tr>
<tr>
<td>District F</td>
<td>7,913</td>
</tr>
<tr>
<td>All Districts</td>
<td>6,315</td>
</tr>
</tbody>
</table>

(a) Costs were calculated according to the explanations contained in pages 59-66.

(b) These amounts represent only expenditures for the special education programs. Student placements did not include any regular education instruction.
Research Question 5

What were the net cost differences among the resource, itinerant, self contained, and special day school delivery models?

The total average net per pupil cost was lowest for students placed in the itinerant placements ($3,848), higher for self contained placements ($5,458), still higher for students placed in the resource placements ($6,274), and highest for students placed in a special day school placement ($6,315). There was a big difference between the net per pupil cost of the itinerant placements and the other three placements. The special day school placement cost was $2,467 more per pupil; the resource placement cost was $2,426 more per pupil; and the self contained placement cost was $1,610 more than the itinerant placement. The number of students (a range of 11 to 80) served by one professional caused the wide cost difference when comparing the itinerant placement to the other three placement average costs.

During the 1986-87 school year the average net per pupil cost of the resource placement model in this sample was $816 more than the self contained placement model and only $41 less than the special day school. The average net per pupil cost for the special day school model was $857 more than the self contained placement model.
Table 14 compares among the districts the net per pupil cost of all investigated placement delivery models. In general, placements provided by districts have a lower average per pupil expenditure than placements provided by joint agreement agencies because the district-placed pupils are usually considered mildly to moderately handicapped, thus requiring fewer supplemental services. For example, supplementary services such as physical therapy and adaptive physical education are rarely provided within district placements.

The average net per pupil expenditure for all special education students from this sample was $5,473. This amount reflected a 23 percent decrease in the total per pupil cost because of state and federal reimbursements. Even with these reimbursements, the average net per pupil cost was $1,897 (53 percent) higher than the average cost of $3,576 for regular education students. The net per pupil total costs for the four placements studied, as well as the regular education expenditures applicable to special students, are presented in Table 15.

Across all types of special education placements, salaries and fringe benefits for teachers constituted the largest portion (62 percent) of the net per pupil cost. Overall, factors affecting the net per pupil costs for the placement delivery models investigated were the number of students among whom the costs were divided, the intensity of
<table>
<thead>
<tr>
<th>District</th>
<th>Resource</th>
<th>Itinerant</th>
<th>Self Contained</th>
<th>Special Day School</th>
</tr>
</thead>
<tbody>
<tr>
<td>District A</td>
<td>$ 5,816</td>
<td>$2,911</td>
<td>$3,036</td>
<td>$ 3,975</td>
</tr>
<tr>
<td>District B</td>
<td>4,432</td>
<td>2,925</td>
<td>3,689</td>
<td>4,871</td>
</tr>
<tr>
<td>District C</td>
<td>10,157</td>
<td>5,901</td>
<td>8,676</td>
<td>10,302</td>
</tr>
<tr>
<td>District D</td>
<td>5,679</td>
<td>3,881</td>
<td>6,089</td>
<td>6,035</td>
</tr>
<tr>
<td>District E</td>
<td>6,426</td>
<td>4,282</td>
<td>6,254</td>
<td>4,791</td>
</tr>
<tr>
<td>District F</td>
<td>5,139</td>
<td>3,193</td>
<td>5,005</td>
<td>7,913</td>
</tr>
<tr>
<td>All Districts</td>
<td>6,274</td>
<td>3,848</td>
<td>5,458</td>
<td>6,315</td>
</tr>
</tbody>
</table>

(a) Costs were calculated according to the explanations contained in pages 59-66.
Table 15
Average Total Net Per Pupil Educational Expenditures for Special Education Pupils by Placement Model(a)

<table>
<thead>
<tr>
<th>Placement Model</th>
<th>Net Special Education</th>
<th>Regular Education(b)</th>
<th>Combined Special and Regular Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>$2,698</td>
<td>$3,576</td>
<td>$6,274</td>
</tr>
<tr>
<td>Itinerant</td>
<td>272</td>
<td>3,576</td>
<td>3,848</td>
</tr>
<tr>
<td>Self Contained</td>
<td>3,359</td>
<td>2,099</td>
<td>5,458</td>
</tr>
<tr>
<td>Special Day School</td>
<td>6,315</td>
<td>0</td>
<td>6,315</td>
</tr>
<tr>
<td>All Placements</td>
<td>3,160</td>
<td>2,313</td>
<td>5,473</td>
</tr>
</tbody>
</table>

(a) Costs were calculated according to the explanations contained in pages 59-66.

(b) Portion of regular education expenditures provided to special education students while they are being served within the regular education placement.
services provided within a placement delivery model, and where federal reimbursements were applied.

**Ratios of Special Education to Regular Education Expenditures**

Related to the concept of excess costs are ratios that compare total expenditures (special plus regular education) for a special education student to expenditures for a regular education student. These types of ratios have been reported since at least 1970 and have served as a yardstick for school districts to assess themselves and for states to construct funding formulas and estimate budget outlays. Ratios are useful because they depict relationships among expenditures that can be used in subsequent years regardless of changes in actual dollar amounts.

The average gross cost of educating a pupil with handicaps in this study was 1.99 times the cost of educating a nonhandicapped student (Table 16). This ratio shows considerable durability across the years. In 1977-78, the cost ratio calculated across all programs was 2.17 to 1 (Kakalik et al., 1981). An even earlier study by Rossmiller et al. (1970) reported a ratio of around 2 to 1. The special education programs studied by Rossmiller et al., however, were primarily self contained programs, reflecting the dominant service delivery approach used for pupils with handicapping conditions at that time. A more appropriate
Table 16
Ratio of Gross Expenditures Per Handicapped Pupil to Total Expenditures Per Nonhandicapped Pupil

<table>
<thead>
<tr>
<th>Student Placement</th>
<th>Ratio to Regular Education Expenditure Per Pupil (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>1.95</td>
</tr>
<tr>
<td>Itinerant</td>
<td>1.10</td>
</tr>
<tr>
<td>Self Contained</td>
<td>1.89</td>
</tr>
<tr>
<td>Special Day School</td>
<td>2.99</td>
</tr>
<tr>
<td>All Placements</td>
<td>1.99</td>
</tr>
</tbody>
</table>

(a) Total average education cost for a special education student (special and regular), divided by the average cost for a regular education student ($3,576).
comparison value from the Cost Analysis System data may be
the 2.99 to 1 ratio applicable to special day school
placement programs. However, students receiving services in
special day school placements today probably are somewhat
more severely impaired than those in Rossmiller's 1970
sample of programs. Thus, such comparisons must be viewed
cautiously.

The gross ratios presented in this study are composed
of averages across six small districts. The ratio
applicable at the national level (usually derived from large
school systems) may differ noticeably from the ratios of
small districts or to a particular district. For example,
the district in the sample with the highest average per
pupil expenditures for all special education placements
outspent the district with the lowest by 2 to 1. When the
amounts of special education and regular education
expenditures per pupil are combined, the ratio of total
average per pupil expenditures for special education
students to expenditures for regular education students
varies from about 1.1 to 1 to almost 3.0 to 1.

In this study the average net cost (after
reimbursements were netted out) of educating a pupil with
handicaps was 1.53 times the cost of educating a
nonhandicapped student (Table 17). The effects of state and
federal reimbursements available to the more severely
handicapped students does greatly reduce the per pupil cost
Table 17

Ratio of Net Expenditures Per Handicapped Pupil to Total Expenditures Per Nonhandicapped Pupil

<table>
<thead>
<tr>
<th>Student Placement</th>
<th>Ratio to Regular Education Expenditure Per Pupil (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource</td>
<td>1.75</td>
</tr>
<tr>
<td>Itinerant</td>
<td>1.07</td>
</tr>
<tr>
<td>Self Contained</td>
<td>1.52</td>
</tr>
<tr>
<td>Special Day School</td>
<td>1.77</td>
</tr>
<tr>
<td>All Placements</td>
<td>1.53</td>
</tr>
</tbody>
</table>

(a) = The average net education cost for a special education student (special-minus deduction of state and federal reimbursements- and regular), divided by the average cost for a regular education student ($3,576).
of students placed in a special day school setting.

The placement net ratio was determined by dividing the net per pupil expenditure of a placement by the related school district average. A review of the findings, over all placements, showed that the range of individual district net ratios extended from 1.0 to 2.6. The average ratios for the various placements ranged from 1.07 (itinerant) to 1.77 (special day school). Both of these sets of figures demonstrate the extensive variation which existed within and between placements. Of the placement averages obtained, none fell below the 1.0 mark, indicating that, on the average, special education reimbursements received did not completely cover the margin of cost between gross and district average per pupil expenditures in the four placements.

**Policy Implications**

Several special education policy issues emerged during the course of this investigation. These policy implications are discussed in the following paragraphs.

As the special education population has grown while federal and state funding has not, school districts have experienced considerable stress on their limited resources. The administrators in the visited school districts and joint agreement agencies were adept at finding ways of delivering services in a cost-effective manner. The addition of teacher aides was found to be a relative inexpensive
strategy for improving services and meeting student needs, especially when more severely handicapped students were identified. However, it is likely that there is a limit to the extent that current strategies can fully cope with this apparent trend. Both policymakers and special education administrators need to be prepared for even greater demands on the special and regular education budgets.

The growing demand placed upon special education to provide a wider range of educational and related services to an increasingly diverse student population (e.g., preschool children, children with more severe impairments, and students with greater vocational needs) suggests that administrators should develop linkages with all available service agencies in the community to broaden the spectrum of services. Such cooperative agreements (formal and informal) appear to hold the most promise for expanding the service delivery system in a cost-effective manner.

A suspicion exists that higher concentrations of handicapped students are found in some wealthy districts simply because such districts have the local wealth to pick up the local district portion of the special education costs. Other districts which are poorer in district wealth do not identify the handicapped students and, thus, avoid paying the local district portion of the program costs. If
this situation be true, administrators and Boards of Education should argue for the state to assume a greater portion of the necessary costs of educating handicapped students.

In order to accomplish equality of educational opportunity and provide quality education, state reforms in educational finance are needed. State formulas for distributing school funds should recognize the differences in the educational needs of children, variations in placement costs, and the school district organization (economies of scale). For example, the inability of small school districts to generate enough special education students to develop their own programs, thus, causes such districts to pay tuition and special education transportation costs to outside district placements.

Sources of human and material waste and inefficiency should be examined by teachers and administrators so as to devise means to increase educational productivity. (In an economic sense, expenditures for education are an investment which requires the greatest possible return). Maximization of class sizes to decrease per pupil cost without sacrificing appropriate education for handicapped pupils, a possible source of waste or inefficiency, may need to be considered. Upgrading staff competencies by requiring higher qualifications (dual certification) of newly hired or currently employed teachers could be a strategy used by a
school district to increase service delivery at little cost. These changes could enable districts to keep class sizes near capacity for mildly handicapped students.

The growth in the mildly handicapped groups (most notably pupils placed in resource programs and classified as learning disabled) has prompted many educators to question if the resource delivery structure is more effective than similar services delivered in the regular classroom. Many educators and policymakers are calling for a departure from current special education practice and are promoting options within the regular education continuum prior to referral for special education. The results of this study strengthens the arguments of people who support the merger of special education and regular education.

Comparisons with Other Literature

In an analysis of special education expenditures, placement is an important variable to examine. Many of the past studies of the costs of special education identify student/teacher ratio, which is closely related to placement, as one of the most significant factors associated with cost. Typically, special placements include much smaller classes (an average of eight students versus twenty-five students) and additional instructional personnel (usually aides). Both of these factors would be expected to produce higher expenditures for more restrictive placements, and, in general, they do.
Many of the cost studies in special education have focused on categorical cost indexes. With cost index studies the difficulty has been the large amount of cost variability existing for the same categorical programs within a district or between districts. This study was not concerned with obtaining a cost index for each exceptionality, but with calculating per pupil cost by placement. For studies which have provided a per pupil or class cost, the cost components were different. As an example, some included transportation and capital outlay where others did not. Equally important when comparing previous study results to this study is the different ways the costs were calculated for the placements. For example, the 1988 study by Moore et al. combined the costs of local self contained placements and placements at the joint agreement (special day schools) levels when determining self contained costs. Another recent study by Singer & Raphael (1988) calculated special education cost as regular education with pullout, special education with pullout, and all special education. Because of these factors, comparisons to earlier research studies should only be made with total average costs for all special education students with the reader realizing that the above factors may have influenced the results that are being compared.

Rossmiller et al. 1970 found special education costs to average about twice as high as regular education costs
Cost indices were generated by dividing the per pupil cost of special education categorical programs by the per pupil cost calculated for the regular education programs in any one system.

The Kakalik et al. (1981) study reported that the total cost of educating a handicapped pupil was 2.17 times (compared to 1.99 found in this study) the cost of educating a regular education pupil. Kakalik et al. found that the cost was lowest for students placed in a self contained placement, higher for students placed in resource placements, and highest for students placed in a special day school.

Singer & Raphael (1988) found that the total average cost for all special education students was approximately 2.0 times the cost for regular education students. The researchers found that the cost was lowest for students in all regular classes, higher for students based in a regular class with some pullout for special instruction, and highest for students based in a special class in a regular school, with or without pullout to a regular class.

Moore et al. (1988) reported that the total average cost of all students with disabilities was 2.3 times the cost of educating a regular education pupil. The total average cost for educating a handicapped pupil served in a self contained placement (combined self contained and special day school costs) was about 2.5 times the cost of
educating a regular education pupil. The total cost of educating a pupil in resource programs (including speech and language itinerant costs) was about 1.9 times the cost of educating a regular education pupil.

The gross cost ratio of 1.99 found in this study was approximately the same as the ratios (2.0) reported by Rossmiller et al., (1970) and Singer & Raphael (1988). Kakalik et al., (1981) was higher (2.17) with Moore et al., (1988) reporting the highest cost ratio of 2.3. Table 18 presents gross cost ratio comparison information of this study with previous studies.
Table 18
Gross Cost Ratio Comparisons for All Placements with Other Studies

<table>
<thead>
<tr>
<th>Study by</th>
<th>Year Published</th>
<th>Year Conducted</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rossmiller</td>
<td>1970</td>
<td>1968-69</td>
<td>2.0</td>
</tr>
<tr>
<td>Kakalik</td>
<td>1981</td>
<td>1977-78</td>
<td>2.17</td>
</tr>
<tr>
<td>Singer</td>
<td>1988</td>
<td>1982-83</td>
<td>2.0</td>
</tr>
<tr>
<td>Moore</td>
<td>1988</td>
<td>1985-86</td>
<td>2.3</td>
</tr>
<tr>
<td>Stevenson</td>
<td>NA*</td>
<td>1986-87</td>
<td>1.99</td>
</tr>
</tbody>
</table>

* Not applicable
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Significant gains have been made in special education since the passage of the Education for All Handicapped Children Act of 1975 commonly referred to as P.L. 94-142. Because of this federal law, special education programs in the United States have experienced rapid growth and development as continued efforts have been made to provide handicapped students with a free and appropriate public education. Among the factors stimulating this development have been the active support for handicapped students by legislators, the courts, advocacy groups, and financial incentives furnished by federal and state governments.

With this expansion of special education programs, there has been a growing concern regarding the financial outlay required to operate such programs with scarce education dollars possibly being directed away from other education programs to provide services mandated by federal and state laws. Local education agencies seldom compile cost data separately for a particular special education classroom. Hence, research was needed to collect and analyze data from local education agencies to learn the costs of providing various types of special education services. A major factor hindering a realistic examination of this issue is
the lack of accurate, current information relating to the cost of providing special education programs. Such cost information is necessary if sound decisions regarding the operation and funding of special education services are to be made.

Summary

This study addressed the need for cost information regarding special education resource, itinerant, instructional (self contained) and special day school placement delivery models, attempting to provide data relative to the provision of such placement models in selected small elementary school districts. The investigation was designed to fulfill five objectives, after state and federal reimbursements were deducted from total expenditures for special education students: 1) what was the net per pupil cost of special education services provided in the resource placement delivery models; 2) what was the net per pupil cost of special education services provided in the itinerant placement delivery models; 3) what was the net per pupil cost of special education services provided in the self contained placement delivery models; 4) what was the net per pupil cost of special education services provided in the special day school delivery models; and 5) what were the net per pupil cost differences among the resource, itinerant, self contained, and special day school delivery models?
To obtain information relative to the issues examined, six elementary public school districts and their respective joint agreement agencies in the Chicago metropolitan area were selected for investigation. Site visits to each of the participating systems were made by the investigator to gain needed information. Information about the organizations was acquired from the special education directors, superintendents or their designees. Cost data for the 1986-87 school year were collected from administrative interviews, financial records, student's school records, and state and federal reimbursement claim forms.

Cost data were processed by delivery model in accordance with the Cost Analysis System designed for the study. In examining the costs involved in provision of the resource, itinerant, self contained, and special day school delivery models, four to six areas of expenditures contributing to the net per pupil costs were identified. These included: 1) expenditures relating to the direct salary costs, 2) the cost of providing reimbursable supplemental services, 3) expenditures for nonreimbursable supplemental services, 4) expenditures applied to class costs, 5) the costs of classroom space, and 6) a general component of expense entailing administrative costs assumed applicable to all children in the organization. The costs of capital outlay and transportation were omitted in the investigation. For each delivery model examined, classroom
costs were identified and divided by unduplicated classroom enrollment resulting in a per pupil classroom cost. Average district costs for each delivery model were then obtained by dividing the sum of each model by the number of classrooms. These district averages were then summed and divided by six to yield an average per pupil cost for each special education delivery model. As a comparative measure, these figures were used to relate the average cost differences among the four delivery models. Applicable computations for the amount of state and federal special education reimbursements were deducted from the gross costs within the cost analysis design.

The resource and itinerant placements were treated as excess cost (add-on) to the average regular education instruction cost in each district. The amount of time a resource and itinerant placed student was not in a regular class was too small to marginally affect the fixed costs of the regular education class. The self contained and special day school placements were treated as a replacement of regular education since students in these two placements spent the majority of the school day with a special education specialist, and the applicable regular education cost amounts were included in the cost analysis design.

Conclusions

This section reviews the findings of the study and offers some conclusions into the financing of special
education placement delivery models.

1. There was a wide variation in the average net per pupil costs among the placements. The total net per pupil costs ranged from $3,848 for itinerant placements to $6,315 for special day school placements. In examining such cost variations, higher costs were found in the special day school because of the intensity of professional staff resources and the low student/teacher ratios required for the more severely handicapped students.

2. The most expensive placement was for students who received their instruction in the special day school. The average total net per pupil cost for this placement was $6,315. The major elements influencing costs in this placement were the types of students served, additional support services needed to educate these students, and the student/teacher ratios. Thus, when examining the placement costs, the more complex the disability, the more costly the placement was on a per pupil basis.

When only special education placement is considered in determining the average total net per pupil cost, the average will not indicate the dollar variation in cost per pupil within the placements and, therefore, will not differentiate among school districts whose need depart sharply from the average. If one district has a disproportionate number of severely handicapped students who need high cost placements, for example, that district would
need higher than average funding per pupil.

3. Students in regular class who received resource special education services were in the second most expensive placement. The average total net per pupil expenditure was $6,274, which included the average regular education cost of $3,576, and entailed costs just slightly less than those students in special day schools. The reasons for the high cost of the resource placements were the expensive small teacher/student ratios and the size of classrooms used for instruction. Even though state regulations allow class enrollments to go as high as 20 students per specialist, less than one-third of the investigated resource enrollments reached that level.

4. The lowest net cost placement was for pupils in regular education and receiving speech and language itinerant special education services. The average total net per pupil cost was $3,848 which included the average regular education cost of $3,576. This low per pupil cost was attributed to the number of students, a variance of 11 to 80 students, served by one specialist; in addition, these placements did not generally require extensive materials.

5. The self contained placement which included part-time regular class was not as expensive as the resource placement where students spend most of their day in regular education classes. The average total net per pupil cost for the self contained placement was $5,458 compared to $6,274
for the resource placement, a difference of $816 more for each resource student. An examination of the two placement costs revealed a tendency for school districts to apply federal funds to the self contained classrooms.

6. Mainstreaming should not be looked upon as a way to reduce costs. The addition of mainstreaming (e.g., the cost of the time spent by regular education teachers who teach handicapped pupils in the regular education classroom) was found to be a relatively expensive per pupil cost ($174 added) for small school districts.

7. The average total net per pupil expenditures for all special education students was $5,473. This amount included the combined regular and special costs. Of this amount, special education services averaged $3,160 with regular education contributing an average of $2,313.

8. The average reimbursement amounts increased as student placement became more restrictive. The average per pupil reimbursement rates were determined to be: 1) itinerant: 2.9 percent, 2) resource: 10.2 percent, 3) self contained: 19.5 percent, and 4) special day school: 41.0 percent of the total gross per pupil costs. The combined state and federal special education reimbursements received for all the placements averaged 23.0 percent of the total gross per pupil costs. Approval of personnel for reimbursements were crucial factors in determining the levels of reimbursement received per pupil in the four
placements.

9. Net ratios were found to be useful indicators of the relationship of special education and regular education costs. When examining the cost ratios to regular education expenditures after special education reimbursements were considered, the net cost ratios derived were 1.75 for resource, 1.07 for itinerant, 1.52 for self contained, and 1.77 for special day school with an overall cost ratio of 1.53.

10. Placement was found to have a high relationship to the per pupil expenditures for instruction. This was due largely to the differing class sizes in the various placements and intensity of services provided. As the review of prior studies revealed, teacher/student ratio was identified as a major factor in expenditure variations.

11. Higher regular education costs correspond with higher special education expenditures. An examination of the relationship between a district's per pupil expenditures for special education programs and its average per pupil regular education outlay revealed a tendency for districts with higher systems averages to have corresponding higher per pupil outlays for special education placements. Therefore, where a student lives determines, in part, the level of resources provided to him.
Recommendations

On the basis of observations made during the course of the investigation and of the study findings, the following recommendations are made. These recommendations include general considerations regarding local fiscal operations and special education practices relative to special education costs and suggestions for further research.

1. It is suggested that school districts and special education organizations consider the possibility of employing better fiscal management of costs related to special education program placement models. When attempting to identify cost data related to specific placement delivery models in this study, considerable difficulties were encountered as few record systems examined were designed to yield data in this form. This sentiment is best expressed by Arnold et al., (1989):

Without extensive sorting and calculations of financial data, policymakers within the State cannot gain access to accurate total cost data for special education. There is not one, required, uniform method of reporting accounting transactions, and there is latitude within the account classification system for differing interpretations about where transactions should be recorded.

Special education costs should be visible in the budget decision process at state and local levels so that the realities of financing programs and services for exceptional children are maximal in the political process as well as enabling school administrators to evaluate the relative efficiencies of varying types of placement operations.
2. It is recommended that State funding mechanisms recognize that some districts may encounter potential problems with educating severely and profoundly handicapped students due to severe district financial problems. Adjustment in State funding levels based on the size and resources available warrants investigation by legislatures and administrators.

3. Boards of Education should require that administrators continuously review the number of students in the various placements and strive to keep the class size for these placements as near the State maximum caseload as possible. Teacher assistants should be hired for the mildly handicapped programs only when the caseload exceeds the State maximum caseload.

4. In this study many special education classrooms used for district placements were of standard or larger size. Since the enrollment of these placements is much smaller than the regular education classroom enrollments, consideration should be given to revamping this space so that more than one special education classroom could be housed in a standard classroom.

5. It is recommended that the state initiate a gradual phasing out of local revenues to be supplanted by increases in state revenues to offset the excess cost of special education services. This movement would begin the process toward full state funding for handicapped students.
6. State and local educational agencies should initiate interagency coordination at both the state and local levels in order to spread the financial burdens associated with severely handicapped pupils and unusually expensive related services among cooperating agencies.

7. The findings of this study and the process in which it was conducted are factors for consideration in view of the current special education topic of reform known as the Regular Education Initiative. The proposed reform is the result of a document written by Will, 1986, which calls for the merger of regular and special education for several reasons. The two major issues seem to revolve around two points: first, that educators have over-identified large numbers of students as mildly handicapped resulting in the diminishing role of regular education programs, and secondly, that little evidence exists suggesting that the current delivery structure particularly in resource placements is more effective than similar services delivered in the regular classroom. The findings of this study indicate that students who receive their instruction in the resource (pullout) placement model do receive a larger share of instructional resources, thus offers strength to those who support this movement.

**Recommendations for Future Study**

1. With the high cost of the resource placement delivery model when considered as an add-on to regular
education costs, extensive research is warranted in relationship to the current special education topic of reform, Regular Education Initiative.

2. Cost of special education transportation, often a component of related services expenditures, will vary considerably by school placement, size of the district, and the distance a child lives from school. Detailed investigation regarding the cost, quality, and efficiency of varying modes of special education transportation services would be useful.

3. With the continued growth and development of special education, research is needed to determine when handicapped students should be returned to regular education and what regular education curriculum options should be in place to ensure success for the students returned.

4. Since the enactment of P.L. 94-142 the number of students identified as handicapped has increased. Research is needed to determine why the majority of all handicapped students are considered mildly handicapped and labeled Learning Disabled (LD).

5. In summary, this study has focused on the actual resources used in providing special education services; however, to determine the effect of such an investment, studies should be conducted to evaluate the benefits derived from special education.
REFERENCES


California State Department of Education. A study of special education programs, 1966-67. (A report submitted pursuant to Assembly Concurrent Resolution No. 7, for the Assembly Education Committee), n.d.


*Plessy v. Ferguson*, 163 U.S. 537, 16 S.Ct. 1138 (1896)


APPENDIX A

DATA COLLECTION FORMS
### Worksheet For Determining The District Net Per Pupil Cost For Resource Classroom

**I. INSTRUCTION**

**A. Direct Salary Costs**

1. **Teacher**

<table>
<thead>
<tr>
<th>Name</th>
<th>Gross Salary</th>
<th>Less State Reimbursement</th>
<th>Less Federal Reimbursement</th>
<th>Total Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$__________</td>
<td>$__________</td>
<td>$__________</td>
<td>$__________</td>
</tr>
</tbody>
</table>

   | | Insurance (Medical) | Workers' Compensation | Unemployment | Liability Insurance |
   | Name | $__________ | $__________ | $__________ | $__________ |

   | | Total Insurance |
   | Name | $__________ |

2. **Aide**

<table>
<thead>
<tr>
<th>Name</th>
<th>Gross Salary</th>
<th>Less State Reimbursement</th>
<th>Less Federal Reimbursement</th>
<th>Total Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$__________</td>
<td>$__________</td>
<td>$__________</td>
<td>$__________</td>
</tr>
</tbody>
</table>

   | | Insurance (Medical) | Workers' Compensation | Unemployment | Liability Insurance |
   | Name | $__________ | $__________ | $__________ | $__________ |

   | | Total Insurance |
   | Name | $__________ |
IMRF and FICA $\underline{\phantom{0}}$
Total Insurance and IMRF $\underline{\phantom{0}}$

3. Substitute Teacher Salaries $\underline{\phantom{0}}$
TOTAL DIRECT SALARY COSTS $\underline{\phantom{0}}$

II. SUPPLEMENTAL
A. Reimbursable Service Salaries

1. Speech Therapist

<table>
<thead>
<tr>
<th>Name</th>
<th>Gross Salary</th>
<th>Less State Reimbursement</th>
<th>Less Federal Reimbursement</th>
<th>Total Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\underline{\phantom{0}}$</td>
<td>$\underline{\phantom{0}}$</td>
<td>$\underline{\phantom{0}}$</td>
<td>$\underline{\phantom{0}}$</td>
</tr>
</tbody>
</table>

| Insurance (Medical) | $\underline{\phantom{0}}$ |
| Workers' Compensation | $\underline{\phantom{0}}$ |
| Unemployment | $\underline{\phantom{0}}$ |
| Liability Insurance | $\underline{\phantom{0}}$ |

Total Insurance $\underline{\phantom{0}}$
Applicable Salary $\underline{\phantom{0}}$
Percent of time spent with class $\underline{\phantom{0}}$
times applicable salary $\underline{\phantom{0}}$
Cost to Class $\underline{\phantom{0}}$

2. Social Worker

<table>
<thead>
<tr>
<th>Name</th>
<th>Gross Salary</th>
<th>Less State Reimbursement</th>
<th>Less Federal Reimbursement</th>
<th>Total Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\underline{\phantom{0}}$</td>
<td>$\underline{\phantom{0}}$</td>
<td>$\underline{\phantom{0}}$</td>
<td>$\underline{\phantom{0}}$</td>
</tr>
</tbody>
</table>
Insurance (Medical) $________
Workers' Compensation $________
Unemployment $________
Liability Insurance $________
Total Insurance $________
Applicable Salary $________
Percent of time spent with class $________ times applicable salary $________
Cost to Class $________

3. Other $________
(May include psychologist, special education secretary; special education administrator)

TOTAL REIMBURSABLE SUPPLEMENTAL COSTS $________

III. SUPPORT SERVICES
A. Direct Class Costs

New Equipment (Total Cost) $________
Educational Supplies $________
TOTAL DIRECT CLASS COSTS $________

B. Classroom Cost

Full Day $________
Half Day $________
TOTAL CLASSROOM COST $________
IV. Total Cost

Total Direct Salary Costs $__________

Total Reimbursable Supplemental Salaries $__________

Direct Class Costs $__________

Classroom Costs $__________

TOTAL COST RESOURCE CLASS $__________

EXCESS PER PUPIL COST $__________

(Total cost divided by special education class enrollment)
Worksheet For Determining The District Net Per Pupil Cost For Instructional Classroom (Self contained)

I. INSTRUCTION

A. Direct Salary Costs

<table>
<thead>
<tr>
<th>Name</th>
<th>Gross Salary</th>
<th>Less State Reimbursement</th>
<th>Less Federal Reimbursement</th>
<th>Total Salary</th>
<th>Insurance (Medical)</th>
<th>Workers' Compensation</th>
<th>Unemployment</th>
<th>Liability Insurance</th>
<th>Total Insurance</th>
</tr>
</thead>
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<tr>
<td>Teacher</td>
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</tbody>
</table>

District ________
IMRF and FICA $________
Total Insurance and IMRF $________

3. Substitute Teacher Salaries $________
TOTAL DIRECT SALARY COSTS $________

II. SUPPLEMENTAL SERVICES
A. Reimbursable Salaries

1. Speech Therapist
   Name ____________________________
   Gross Salary $________
   Less State Reimbursement $________
   Less Federal Reimbursement $________
   Total Salary $________
   Insurance (Medical) $________
   Workers' Compensation $________
   Unemployment $________
   Liability Insurance $________
   Total Insurance $________
   Applicable Salary $________
   Percent of time spent with class ________ times Applicable Salary $________
   Cost to Class $________

2. Social Worker
   Name ____________________________
   Gross Salary $________
   Less State Reimbursement $________
   Less Federal Reimbursement $________
   Total Salary $________
Insurance (Medical) $__________
Workers' Compensation $__________
Unemployment $__________
Liability Insurance $__________
Total Insurance $__________
Applicable Salary $__________

Percent of time spent with class 
__________ times Applicable Salary 
$__________ =

Cost to Class $__________

3. Other
(May include psychologist, special 
education secretary; special 
education administrator) $__________

TOTAL REIMBURSABLE SUPPLEMENTAL 
COSTS $__________

B. Nonreimbursable Salaries

*1. Music
Salary $__________
Fringe Benefits $__________

*2. Physical Education
Salary $__________
Fringe Benefits $__________

*3. Art
Salary $__________
Fringe Benefits $__________

*4. Other $__________

Applicable Salaries $__________
*Compute cost to class by calculating the percentage of time spent in regular education classes ___ times the Applicable Salaries $_________

TOTAL NONREIMBURSABLE SUPPLEMENTAL COST $_________

III. SUPPORT SERVICES
A. Direct Class Costs

New Equipment (Total Cost) $_________

Educational Supplies $_________

TOTAL DIRECT CLASS COSTS $_________

B. Classroom Cost

Full Day $_________

Half Day $_________

TOTAL CLASSROOM COST $_________

C. General Administration Cost

(Total cost divided by district enrollment times number of students in Self Contained Special Education class.) $_________

IV. Total Cost

Total Direct Salary Costs $_________

Total Reimbursable Supplemental Salaries $_________

Total Nonreimbursable Supplemental Salaries $_________

Direct Class Costs $_________

Classroom Costs $_________

Administration Cost $_________
TOTAL COST SELF CONTAINED CLASS

NET PER PUPIL COST
(Total cost divided by class enrollment)
Worksheet For Determining The District Net Per Pupil Cost For Itinerant Classroom

I. INSTRUCTION
   A. Direct Salary Costs

      1. Teacher
         Name
         Gross Salary $________
         Less State Reimbursement $________
         Less Federal Reimbursement $________
         Total Salary $________
         Insurance (Medical) $________
         Workers' Compensation $________
         Unemployment $________
         Liability Insurance $________
         Total Insurance $________

      2. Other $________

II. SUPPORT SERVICES
   A. Direct Class Cost

      New Equipment $________
      Educational Supplies $________
      TOTAL DIRECT CLASS COSTS $________

   B. Classroom Cost

      Half Day $________
      Full Day $________
      TOTAL CLASSROOM COST $________
III. Total Cost

<table>
<thead>
<tr>
<th>Cost Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Salary Cost</td>
<td>$______</td>
</tr>
<tr>
<td>Direct Class Cost</td>
<td>$______</td>
</tr>
<tr>
<td>Classroom Cost</td>
<td>$______</td>
</tr>
</tbody>
</table>

**TOTAL COST ITINERANT CLASS** $______

**EXCESS PER PUPIL COST** $______

(Total cost divided by special education class enrollment)
### INSTRUCTIONS: Complete all parts of the Cost Sheet.

Indicate the number of pupils for whom this Cost Sheet is prepared:

<table>
<thead>
<tr>
<th>DISTRICT OF RESIDENCE</th>
<th>DISTRICT PREPARING COST SHEET</th>
</tr>
</thead>
</table>

**PART I — TUITION BILLING OR REGULAR EDUCATION PARTICIPATION COST**

**PART II — ALLOWABLE EDUCATIONAL EXPENDITURES**

A. Salaries
   1. Certified Professionals (Schedule A, Column 7, Code 1) $_________
   2. Noncertified Workers (Schedule A, Column 7, Code 2) $_________
   3. Administrative Personnel (Schedule A, Column 7, Code 3) $_________

B. Educational Supplies

C. Fixed Charges
   1. Employee Insurance
   2. Illinois Municipal Retirement Fund, Social Security
   3. District Share of Teacher Retirement for Federal Employees
   4. Prorated Interest Paid on Warrants, Notes, and Bonds

D. Depreciation
   1. Equipment
   2. Facilities

E. Administration

F. Operation and Maintenance of Facilities

G. Total Allowable Educational Expenditures $_________

**PART III — OFFSETTING REVENUE**

A. Salaries
   1. Certified Professionals (Schedule A, Column 9, Code 1) $_________
   2. Noncertified Workers (Schedule A, Column 9, Code 2) $_________
   3. Administrative Personnel (Schedule A, Column 9, Code 3) $_________

B. Federal (Provide detail)

C. Other (Provide detail)

D. Total Offsetting Revenue $_________

**PART IV — COMPUTATION OF NET EDUCATIONAL EXPENDITURES**

A. Total Allowable Expenditures (Line G, Part II and/or Part I, if applicable) $_________

B. Total Offsetting Revenue (Line D, Part III) $_________

C. Net Allowable Expenditures (Line A minus Line B, Part IV) $_________

D. Average Daily Enrollment (ADE) (Total from Schedule B, Column 5) $_________

E. Net Allowable Educational Expenditures Per ADE (Line C ÷ Line D, Part IV) $_________

**PART V — NET TRANSPORTATION EXPENDITURES**

A. Net Transportation Expenditures (Not to Exceed 20% of Allowable Expenditures) $_________
Worksheet To Determine The Regular Education Per Pupil Cost For Each District

To determine the per pupil regular education cost, the following formula was used and the information was extracted from each District's Annual Financial Report (ISBE 50-53) form.

<table>
<thead>
<tr>
<th>Step 1</th>
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</thead>
<tbody>
<tr>
<td><strong>Fund 1 - Educational</strong></td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Minus:</td>
</tr>
<tr>
<td>Special Programs</td>
</tr>
<tr>
<td>Vocational Services</td>
</tr>
<tr>
<td>Nonprogrammed Charges</td>
</tr>
<tr>
<td>Cost amounts charged to Resource, Itinerant and Self Contained Placements for:</td>
</tr>
<tr>
<td>Administration</td>
</tr>
<tr>
<td>Mainstreaming</td>
</tr>
<tr>
<td><strong>FUND 1 TOTAL</strong></td>
</tr>
</tbody>
</table>

| Fund 2 - Operations, Building and Maintenance |
| Total | $________ |
| Minus: |
| Cost amounts charged to Resource, Itinerant and Self Contained Placements | $________ |
| **FUND 2 TOTAL** | $________ |
Fund 3 - Bond and Interest

Total $_________  

Minus:
Cost amounts charged to
Self Contained Placements $_________  

FUND 3 TOTAL $_________  

Fund 5 - Municipal Retirement

Total $_________  

Minus:
Cost amounts charged to
Resource, Itinerant and
Self Contained Placements $_________  

FUND 5 TOTAL $_________  

REGULAR EDUCATION GRAND TOTAL $_________  

Step 2

Divide regular education grand total by the total district enrollment. Total district enrollment does not include those special education pupils placed in self contained, special day school, other district, residential, hospital/homebound, or private placements.

$_________ ---:-- $_________  = $_________  
REGULAR EDUCATION GRAND TOTAL  DISTRICT ENROLLMENT  REGULAR EDUCATION PER PUPIL COST  

Note: Transportation, site and construction, working cash, rent fund and capital improvement costs were excluded in the regular education cost calculations.
APPENDIX B

INTERVIEW GUIDE
INTERVIEW GUIDE

Background information concerning each site should be obtained from the director of the joint agreement, superintendent of the school district or their designees. This guide should be followed to assure the procurement of consistent data from each organization.

I. Enrollment information

A. Total regular education enrollment for the 1986-87 school year.

B. Total special education enrollment of students who receive their special education instruction within the local district for the 1986-87 school year.

C. Total number of district students who attend a Special Day School and location of the program.

II. Programs and Services

A. Number and types of special education programs and supportive services provided by the school district.

B. Pupil identification and placement procedures.

III. Financial Procedures of the Organization

A. Routine accounting procedures.

B. Tuition and billing procedures.

C. Responsibility for providing the supplies and equipment for special education classes.

D. Financial arrangements for federal grant funds.


F. Special assessments for special education facility.

G. Classrooms and space (square footage) provided for special education classes.

H. Total district space (square footage).
IV. Personnel

A. Responsibility for recruitment and employment.

B. Salary schedule employed--differential and additional benefits.

C. Number and type of special education personnel employed in the school.
The dissertation submitted by Freda Stevenson has been read and approved by the following committee:

Dr. Max Bailey, Director  
Assistant Professor, Educational Leadership and  
Policy Studies, Loyola

Dr. Howard Smucker  
Director of Teacher Education, Curriculum and  
Human Resources Development, Loyola

Dr. Larry Wyllie  
Adjunct Professor, Educational Leadership and  
Policy Studies, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with references to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Education.

November 9, 1989  
Director's Signature