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A STUDY OF EDUCATIONAL PROGRAM
COSTS FOR HANDICAPPED STUDENTS -
FREDERICK COUNTY (MD) PUBLIC SCHOOLS

by

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ABSTRACT

With the passage of P.L.94-142, the Education for All Handicapped Children Act of 1975, a national statement was made regarding the rights of handicapped students to a free, appropriate education. Since passage of the law, the cost of implementing P.L.94-142 has been a topic of concern for policymakers, school administrators and taxpayers. The rising cost of special and general education has placed a greater emphasis on accountability for the quality of the programs to justify the expenditures. Thus, the need for cost analysis in education is becoming more important as the competition with other governmental agencies for available funds becomes more acute.

Previous studies of special education finance related to cost accounting have indicated the difficulties in gathering accurate data on a uniform basis. As evidenced in this study, not all expenditures were properly charged to special education. When this occurs, benefits of cost analysis are diminished by the inaccuracy. An effective cost analysis system should be accurate, comprehensive and precise, and should not be cumbersome.

The Larson Model (1985) can be used to calculate the cost of individual programs and services, and the aggregate costs by handicapping condition or environment. The purpose of this study was to test an instrument that would provide a descriptive cost analysis of the special education programs and services in Frederick County, Maryland, Public Schools during the 1984-85 school year. Per pupil costs were determined by environment or level of service as defined by the Maryland State Bylaw Continuum of Services for special education. This study provides additional testing and development of a common framework or model for descriptive cost analysis of public special education programs and services by local educational agencies.

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CHAPTER 1

INTRODUCTION

"This Nation has long embraced a philosophy that the right to a free appropriate public education is basic to equal opportunity and vital to secure the future and the prosperity of our people. It is contradictory to that philosophy when the right is not assured equally to all groups of people within the nation. Certainly the failure to provide a right to education to handicapped children cannot be allowed to continue" (94th Cong., 1st sess. (1975) U.S. Code Cong. & Ad. News 1433).

With the passage of the Education for All Handicapped Children Act of 1975, P.L.94-142, educators and administrators faced the task of providing handicapped students mandated services in states that agreed to accept federal funds authorized by the act (Bernstein, Hartman, Krist, and Marshall, 1976). Information about the cost of special education is needed for the following reasons: "to aid in determining the levels of financing required to provide an appropriate education

for handicapped children; to facilitate setting policies on service requirements and related matters by enhancing understanding of the costs of different types of services and educational placements; to allow adjustment of state and federal special education finance formulas to match local need; and to reduce fiscal incentives for inappropriate classification and placement of children" (Kakalik, Furry, Thomas & Carney, 1981, p. v.). Therefore, the need for cost analysis in special education has become more important as the competition with other governmental agencies for available funds becomes more acute.

In the past, a large portion of our handicapped citizens were removed from the public eye and consciousness (Colley, 1981). "They were often kept in the sheltered womb of the extended family, or put away in institutional settings without much thought for their social integration with the outside world" (Colley, 1981, p. 137). However, despite laws in every state mandating universal free public instruction for children entering public school, millions of students who required special education had been excluded from the very programs they needed (Goldberg, 1982). Several court cases led to a congressional study

and, eventually, to implementation of the Education for All Handicapped Children Act of 1975 (Goldberg, 1982). Congress found that although forty-eight states had laws requiring that provisions be made for the education of eight million handicapped children in the United States, less than half of the handicapped children were receiving appropriate educational services (P.L.94-142, Section 3 (b) (1) (2)). Hence, the passage of P.L.94-142 made a national statement on the rights of the handicapped to free, appropriate education (Gearheart, 1980). However, the passage of this law was greeted with widely divergent reactions from various groups (Jones, 1981). "School administrators, in particular, were concerned about the fiscal implications of the legislation. While the law held possibilities for additional funds, administrators had seen other federal programs fall behind in actual appropriations, and they envisioned a further drain on dwindling resources" (Jones, 1981, p. 4).

Frequently, when legislation is passed, whether it is federal or state, concern is expressed regarding the ultimate cost to those responsible for implementation. Several studies of special education costs (Rossmiller, 1970; Snell, 1973; Sorenson, 1973; and Kakalik, et al., 1981) have indicated that it costs up to two or more times as much to educate a handicapped child as it does to educate a non-handicapped child (Jones, p. 45, Kakalik, et al., p. vi). Congressman Austin Murphy, in the report of the Commission on Financing of Free and Appropriate Education for Special Needs Children in March, 1983, stated

that since the passage of P.L.94-142, the federal government's role has been secondary to that of the states (Commission, 1983). During the past ten years many state and local policies have been changed to comply with federal regulations. Consequently, the cost of implementing the landmark legislation is still being felt. Additional funds have been required from all levels of government to implement these services during a time when funding for education has been more difficult to obtain, and, in some cases, has actually declined. "As a result, special education has been brought 'out of the closet' and placed under public scrutiny. P.L.94-142 became the battle cry for both those who saw good and those who saw evil in the federal government's role in education" (Ballard, 1982, p. 5).

According to a study by Larson (1985), descriptive analysis of public special education costs by local educational agencies (LEAs) is most often limited to direct expenditures by program for salaries, materials, and equipment. Furthermore, he states that, to date, formal special education cost analysis and comparison studies have been macro in nature, that is, broad studies of many school systems (Rossmiller, Hale, & Frohreich, 1970; Clemmons, 1977; Hartman, Hartman, Bernstein, & Lavine, 1978; Hartman, 1979; Kakalik et al., 1981). "The objectives of these studies were to determine expenditures for several LEAs, states or nationally, and compare costs among public special education programs or between public special education programs and public general education programs over one or more years" (Larson,

1985, p. 2). There have been relatively few micro, that is, indepth study of one system, studies of special education costs. The Jones and Salmon 1983 study, an overall evaluation of public and nonpublic Level V and VI special education programs used by the Montgomery County, Maryland, Public Schools (MCPS), developed three models in order to analyze and compare the public and nonpublic costs for educating MCPS special education pupils (Larson, 1985). "The first model was designed to obtain and analyze public day school costs by special education program" (Larson, 1985, p. 27). "The second model developed by Salmon and Larson was designed to analyze the public costs for nonpublic day school programs utilized by the LEA" (Larson, 1985, p. 31). "The third model developed by Salmon and Larson was designed to obtain and analyze nonpublic residential special education program costs to the LEA" (Larson, 1985, p. 33). These models were used "to determine whether the mix of public and nonpublic programs was cost effective and to determine whether or not alternative configurations should be explored" (Jones, 1981, p. 1).

The LEA in this study is Frederick County, Maryland, a rural/suburban school system located approximately forty-five miles northwest of Washington, D. C.. Frederick County is one of twenty-four school systems in Maryland and currently ranks seventh according to size of student population. During the 1984-85 school year, the total student enrollment was about 23,400. Approximately 2,030 students, K - 12 in forty schools, received special education services as defined by

the Maryland State Bylaw Continuum of Services in Levels I, II, III, IV and V. Three students received Level V service in a nonpublic setting and an additional twelve students receive Level VI service in public and nonpublic facilities for a portion of or for the entire school year. The total budget for special education in Frederick County during 1984-85 was \$3,996,195, representing 6.17 percent of the total budget or 10.6 percent of the total instructional budget category. Discretionary funds allocated to building principals are not included in these figures.

DEFINITIONS

Special education services for handicapped students in Maryland are identified by levels. They include:

- Level I - services are designed to assist non-special education teachers in the development and implementation of an individualized education program (I.E.P.) for youngsters who may have been identified as having educational handicaps and who may be served in the general education program by receiving supplementary services.
- Level II - services are provided to meet the special education needs of handicapped students who require a degree of educational intervention not available in the general education classroom, and who may be served by receiving services from itinerant teachers and therapists through the special education program not to exceed an average of one hour each school day.
- Level III - services are designed to provide periods of more intensive special education services on a regular basis to handicapped students who may be served through resource rooms by receiving special education services not to exceed an average of three hours each school day.
- Level IV - services are provided in a special class within a general education facility in which students receive most or all of their basic educational programs.
- Level V - services are appropriate for handicapped students who require comprehensive special educational settings for the entire school day, in a special wing, unit or day school, including appropriate nonpublic placements.
- Level VI - services are designed for handicapped students who require comprehensive special education setting on a 24-hour basis, including nonpublic placements.
(Approved 1984-85 Budget, Frederick County Public Schools, 13.01)

STATEMENT OF THE PROBLEM

The adequacy and efficiency of special education funding systems may be the most critical public policy issue facing special education in the 1980's (Ballard, 1982). Thus, it has become prudent for administrators to formally analyze the cost of providing special education programs and services. Informal procedures of cost analysis do not normally provide sufficient information to formulate and substantiate funding policy of special education. Frederick County currently lacks a formal system to analyze special education program and service costs. Therefore, this study addresses the need for additional testing of the Larson Model as a common framework for analyzing the cost of mandated instructional programs and services to handicapped students.

The primary research questions considered were:

(1) Will the Larson IPSEC Model (Identification of Public Special Education Costs, Larson, 1985) yield valid calculations that determine the per pupil cost of Levels I, II, II, IV and V of special education programs and services provided in Frederick County, Maryland, Public Schools during the 1984-85 school year?

(2) What was the per pupil cost for students receiving Level V services in a nonpublic facility during 1984-85? What factors contributed to the cost for each pupil?

(3) What was the per pupil cost for students receiving Level VI services in both public and nonpublic facilities during 1984-85? What factors contributed to the cost for each pupil?

A secondary research question was

(4) In accordance with Title 34 of the Code of Federal Regulations, Part 300 (Assistance to States for Education of Handicapped Children), what is the minimum amount of non-federal funds that Frederick County must spend for the education of handicapped children prior to the expenditure of Part B Funds?

PURPOSE OF THE STUDY

The purpose of this study was to test an instrument for a descriptive cost analysis of the Frederick County, Maryland, Public Schools special education programs and services. The Larson IPSEC Model (1985) was used as the basis of the cost analysis for the 1984-85 school year, to field-test this model and to determine its applicability for further use by the Frederick County, Maryland, Public School System, as well as, other LEAs in Maryland.

LIMITATIONS OF THE STUDY

This study field-tested a framework for descriptive and comparative cost analysis of public and nonpublic special education programs and services. The IPSEC Model (Larson, 1985) was used to complete the cost analysis of special education programs and services in Frederick County, Maryland, for the 1984-85 school year. The study was limited to cost analysis of Levels I, II, III and IV for students who attend general educational facilities in Frederick County and Level V for students who attend a special school in Frederick County for the entire day. While a discussion of the costs associated with Level V for students attending a nonpublic facility, and Level VI for students attending either a public or nonpublic facility is included, the Larson Model was not used for cost comparison of these programs and services.

The study was limited to one local educational agency (LEA) in Maryland to thoroughly analyze the costs of special education in a formal manner. Furthermore, the study provided another application and analysis of a common framework for descriptive and cost analysis of public special education programs and services. The results may assist other LEAs in Maryland to determine the costs of their special education programs and services using this formal method.

CHAPTER II

REVIEW OF THE LITERATURE

A Legal and Historical Perspective

Prior to the 1970's, handicapped children were not afforded the same legally established rights to an education as non-handicapped students. They were generally denied access to public schools by state laws that exempted them from compulsory attendance (Johnson, 1986). These state laws also eliminated any legal duty to grant them complete access to educational programs enjoyed by non-handicapped students. For example, "Virginia's compulsory attendance statute included an exemption for children physically or mentally incapacitated for school work" (Johnson, 1986, p. 1). Therefore, while state statutes have required children to attend school with a threat of criminal penalties to parents who resisted, handicapped children have historically been excused from compulsory attendance laws and public instruction where a school board determined that the student was unable to benefit from the instruction.

Two decisions in the early 1970's, Pennsylvania Association for Retarded Children v. Commonwealth (PARC, 1972) and Mills v. D.C. Board of Education (1972), helped to establish the right to equal access to programs and services for handicapped students. In the PARC case, a three judge panel gave approval of a consent decree which entitled all mentally retarded children in that state access to a free public

education, and which required the state to revamp the statute which was used to deny access (Colley, 1981). This case, which was settled sixteen years after the state had passed a comprehensive special education mandate, clearly established the right of all retarded children in Pennsylvania to education and training in either a local school or a state residential facility. In the Mills case, the court found that denial of a free public education to handicapped children violated local statutes, board of education regulations and the federal Constitution. The decision refuted the excuse that inadequate fiscal resources prevented the provision of special education programs and related services. Collectively, these two cases were precedent-setting in assuring: the right to education for all handicapped children, nondiscriminatory evaluation, least restrictive environment, timely notice and free public education for the handicapped population (Jones, 1981).

During the 1970's, the courts, particularly the federal courts, initiated the rapidly changing position of the legal system. "The resulting judicial overthrow of well-established legal doctrine on the exclusion of handicapped children from public schools had its antecedents in the United States Supreme Court's landmark decision in 1954 in the school desegregation case, Brown v. Board of Education" (Johnson, 1986, p. 2). In its decision, the Supreme Court stated ...

Today education is perhaps the most important function of the state and local government...(and) where states have undertaken to

provide it, (it) is a right which must be available to all on equal terms... (Johnson, 1986, p. 2).

This decision provided the impetus for other groups who suffered discrimination, and gave them a posture from which to seek redress. Consequently, during the 1960's, representatives of exceptional children began to review the Equal Protection Clause of the Fourteenth Amendment as an instrument for reform of special education (Pittinger and Kuriloff, 1982).

Throughout the 1950's and 1960's state legislatures passed mandates to help severely retarded children. Between 1949 and 1972, at least fourteen states amended their statutes to provide increased or full programs for handicapped children. To illustrate the magnitude of these changes, Massachusetts serves as a good example. A state-wide coalition of advocates influenced legislators to introduce a bill in 1972 creating changes that applied to all children with special needs, not just handicapped children. Because the act was comprehensive, and far-reaching, Massachusetts was ahead of many states shortly after the federal statute took effect. By July 1, 1975, all but two states, Ohio and Mississippi, were under mandates by statute or court order to provide full programs and services for the handicapped (Abeson and Ballard, 1976; Jones, 1981).

Encouraged by court decisions and legislative action, advocates anticipated immediate change. However, the passage of mandates

directed at improving programs and services for students with special needs did not guarantee the implementation of these programs. Reasons generally cited by local school systems for not developing programs included a lack of trained personnel, a lack of proper facilities, and a lack of financial resources (Jones, 1981). Frustrated by the failure of local school systems to implement state mandates, as well as the failure of state officials to enforce the regulations, parents and advocacy groups turned to the federal courts and the federal government for help (Jones, 1981).

Cognizant of the activities occurring in the states and in the courts, and aware of its legislative jurisdiction established with the passage of Public Law 19-8 in 1827 (Weintraub and Ramirez, 1985), Congress held additional hearings on the needs of handicapped citizens. From the first law in 1827, which established a school for the deaf in Kentucky and a seminary for learning in the territory of Florida, to 1975, Congress passed 71 acts on behalf of handicapped citizens. Most significantly, 54 of the 71 acts were passed between 1970 and 1975, highlighting the dramatic congressional attention given to the needs of handicapped citizens during this period. While traditionally the constitutional responsibility of providing public education belongs to the states, the federal government established its prominent role in education through many programs including vocational education, The Elementary and Secondary Education Act (ESEA), the National Defense Education Act, as well as, other programs. Congress,

therefore, felt justified in assuming some of the fiscal responsibility for implementing programs for handicapped students, since state and local agencies lacked appropriate funds.

One of the first federal statutory sources of a right to a public education for handicapped children was established with P.L.93-112, the Rehabilitation Act of 1973 (29 U.S.C. 706). The Act stated...

"No otherwise qualified handicapped individual in the United States, as defined in section 7 (6), shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving Federal financial assistance"
(Section 504).

Next, the Educational Amendments of 1974 (P.L.93-380) had increased the levels of funding for the basic state administered programs for handicapped children. In addition, P.L.93-380 included assurances of due process procedures and education in the least restrictive environment (LRE), thus strengthening the rights of handicapped students and their parents. Each state was required to develop a plan for full educational opportunities for all handicapped children and a timetable to complete the plan.

Finally, the convergence of advocacy groups, court findings and congressional action resulted in the passage of P.L.94-142, The Education for All Handicapped Children Act of 1975. With this Act, Congress required states, as conditions of receiving funds, to provide

a free appropriate public education for all handicapped children between the ages of three and twenty-one regardless of the severity of the handicapping condition (Section 612). The law amended Part B of the Education of the Handicapped Act (EHA), which was passed as an amendment to the Elementary and Secondary Education Act of 1966. The original purpose of Part B, EHA was to create a state grant program to fund programs and activities to address specific needs of handicapped children.

While P.L.94-142 reinforces many previously passed educational acts, it contains the following unique features.

- * It is permanent legislation and does not require annual or periodic authorization.
- * It is based primarily on existing state and federal statutes and case law.
- * It has a funding formula which permits every state, Congressional district, and school district to qualify for funds (Jones, 1981).

According to Ballard and Zettel (1977) a summary of the major purposes of P.L.94-142 are

- * To guarantee the availability of special education programming to handicapped children and youth who require it.
- * To assure fairness and appropriateness in decision making about providing education to handicapped youth and children.

* To establish clear management and auditing requirements and procedures regarding special education at all levels of government.

* To financially assist the efforts of state and local government through the use of federal funds.

Most importantly, P.L.94-142 provided a definition for "free appropriate public education" as:

...special education and related services which (A) have been provided at public expense, under public supervision and direction, and without charge, (B) meet the standards of the State educational agency, (C) include an appropriate preschool, elementary, or secondary school education in the State involved, and (D) are provided in conformity with the individualized education program required under section 614 (a)(5) (Section 602 (b)(18)).

In addition to a free appropriate public education, the Act emphasizes related services designed to meet the unique needs of handicapped children. Related services, according to the law means

...transportation, and such developmental, corrective, and other supportive services (including speech pathology and audiology, psychological services, physical and occupational therapy, recreation, and medical and counseling services, except that such medical services shall be for diagnostic and evaluation purposes only) as may be required to assist a handicapped child to benefit

from special education, and includes the early identification and assessment of handicapping conditions in children (Section 602 (b)(17)).

To underscore the concept that each handicapped student is unique, the state plan for implementation of P.L.94-142 procedures must include assurances that handicapped students are educated in the "least restrictive environment" in either a public or private institution. Removal of handicapped students from the regular educational environment and placement in a special class, separate school or institution should only occur when the nature or severity of the handicap is such that education in regular classes cannot be achieved satisfactorily even with the use of supplementary aids and services. (Section 612 (5)(B)). P.L.94-142 assures that "handicapped children in private schools and facilities will be provided special education and related services at no cost to their parents or guardians, if such children are placed in or referred to such schools or facilities by the state or appropriate local educational agency as the means of carrying (Act's) requirements" (Section 613 (4)(B)). It is the responsibility of the state to monitor these private institutions and to determine if they meet standards that apply to state and local educational agencies.

Specifically in the state of Maryland, the state and county share the responsibility of making free educational programs available to each handicapped child, including a child who is severely handicapped; additionally the special educational programs and services are to begin

as soon as the child can benefit from them...whether or not the child is of school age (Annotated Code of Maryland, S 8-402 (a) (b)). The special education services are those services necessary to assure that all children with handicaps that impede their ability to learn receive the opportunity to reach...their potential...whether services are provided as part of or in addition to regular classroom placement or in separate public or private classes or facilities (Annotated Code of Maryland, S 8-401 (a)).

Although the responsibility rests with the state and county agencies to provide appropriate educational programs and services, the parent or guardian can disagree with the recommendations of the public agencies. In such disputes, the financial responsibilities of public or private placement are governed by due process procedures (CFR, 1981). Larson (1985) reported that between 1977 and 1981, 45 percent of all special education litigation involved the issue of private placement. The issue in most of this litigation revolves around whether the public agency or the parent is responsible for payment. Where a student has been provided a free appropriate public education (FAPE) in the least restrictive environment (LRE), but the parents have chosen to place the student in a private institution, courts have determined that the parents, not the public agency, are responsible to pay for the private placement (Chatterton v. Lincoln County School District, 1979; Hessler v. State Board of Education of Maryland, 1981). Conversely, if the school system does not have available the

programs and/or related services required to meet the needs of the handicapped student, courts have determined that the local school system is responsible for the cost of a private placement (Town of Dartmouth v. Massachusetts Department of Education, 1980).

In summary, the passage of P.L.94-142 represented the culmination of various forces striving to improve educational conditions for handicapped children. First, parents and advocacy groups organized during the late 1940's and 1950's to influence change in local communities, as well as in the states. Their efforts continued throughout the 1960's and early 1970's, influencing the passage of new and amended state statutes that mandated full programs for handicapped children. Second, court decisions, PARC in 1971 and Mills in 1972, for example, helped to assure the right to education for all handicapped children. These decisions, coupled with other court decisions, caused a new era for handicapped children to emerge. Finally, "the flurry of activity by advocacy groups, state legislatures, and in the courts in the early 1970's did not go unnoticed by Congress" (Jones, 1981, p. 23). Congress studied the issues involving handicapped children for four years prior to the passage of P.L.94-142. While federal and state statutes provide state and local educational agencies with the regulations governing the programming and financing of special education and related services, it has been necessary for the courts to settle disputes between parents

and school officials.

Current Costs for Public and Nonpublic Special Education

The dramatic growth both in the quantity and quality of special education programs and related services is reflected in substantial financial payments by state and local educational agencies. To date, aid to special education is the largest and most rapidly growing portion of state categorical financial assistance to local school systems (Geske and Johnston, 1985). In 1982, the National School Boards Association (Vesa and Wendel, 1982) estimated that local school district budgets were rising twice as fast for special education, at 14 percent annually, as for regular instructional and operating budgets, at 7 - 8 percent annually. Furthermore, the ratio of the cost of education for handicapped students to the cost of education for non-handicapped students is generally considered to be approximately two to one nationally.

To explore this rising component of local school budgets, several national studies have been conducted. That programs and services for handicapped students are significantly more expensive than programs for non-handicapped students is widely recognized and accepted. Hartman (1980, pp. 136 - 138) established the following causes for the additional cost.

- * The majority of handicapped students receive special education services in addition to being enrolled in a regular education

program; the total cost of their program includes the cost of both regular and special education services.

- * Many moderately handicapped students are served in self-contained classes where the teacher/pupil ratio is very small, thus increasing the cost per student.
- * Because of the nature and severity of some handicapping conditions, there are students who require multiple special education related services.
- * A few students require services in public and private residential institutions for the severely, multiple handicapped where special services may be required in addition to educational programming.
- * The identification, assessment of needs, and program planning for handicapped students, a lengthy and expensive process, is done on an individual basis by support personnel.
- * Federal regulations require local school systems to implement procedures for locating and programming unserved and underserved handicapped students, to develop individualized educational programs (IEPs) for each child, to establish due process procedures for handicapped children and their parents/guardians, and to fulfill planning, recordkeeping, and reporting requirements in order to qualify for federal funds.

In another study, Kakalik found the cost for educating handicapped

students in public school to be an average of 2.17 times greater than the cost for educating non-handicapped students (Kakalik et al., 1981). In this same study, Kakalik determined that during the 1977-78 school year, total expenditures nationwide for the "added cost" of special education, that is, the expenditure above the cost of regular education, exceeded \$7 billion. The total cost of special education and related services per child served was an estimated \$3577. When compared with the cost of regular education for the non-handicapped child, the per pupil added cost of special education and related services was an estimated \$1927. The annual current expenditures per pupil in public school increased by an estimated 37 percent from 1977-78 to 1980-81. Therefore, Kakalik posited that the "added cost" of special education increased by at least the same amount, 37 percent. According to the Kakalik study, in excess of \$10 billion was spent nationwide during 1980-81 for the added cost of special education, an estimated total of \$4898 was spent per pupil and \$2638 per pupil for added costs. Not included in these statistics is the public expenditure for programs and services for pupils in nonpublic facilities. The figures projected in the Kakalik study may prove useful to local school systems as they analyze their individual special education costs.

While the Kakalik study focused on the cost of special education, the Sixth Annual Report to Congress on the Implementation of P.L.94-142 by the U.S. Department of Education, focused on the increased number of

students served. Children who received special education and related services increased in number annually between 1976-77 and 1982-83 to a total of 4,298,327, representing an increase of 16 percent. This increase becomes more significant when compared to the Nation's total school-age population, which decreased steadily during the same period of time (Sixth Annual Report, 1984). This report also noted that the expansion of services to secondary and post-secondary age handicapped students occurred, in part, due to an increased recognition of the importance of a successful transition from school to work and community life, and the need to preserve educational gains from earlier education. There exists an increasing trend to expand vocational services and the use of community resources to provide vocational skills to secondary and post-secondary handicapped youth (Sixth Annual Report, 1984). Since 1980, the state of Maryland has funded an Integrated Service Delivery System, whereby the State Department of Education's Divisions of Special Education (DSE), Vocational-Technical Education (DVTE) and Vocational Rehabilitation (DVR) work together to provide a comprehensive system of vocational education for handicapped students (Report on the National Conference, 1984). Consequently, as the number of students served and the type and magnitude of special education programs and services increases, there is a direct correlation with the increase in the cost to provide the mandated programs and services.

The ultimate responsibility of enforcing the provisions of the law

and payment of the costs of related services are clearly difficult issues associated with compliance of P.L.94-142 (Schipper, 1980). Numerous court cases have attempted to determine the intent of the legislation and to clarify financial responsibility. In the Hendrick Hudson District Board of Education v. Rowley (1982), the United States Supreme Court established legal standards for public programs for handicapped children. The court interpreted the Act, P.L.94-142, as requiring services for the handicapped to be sufficient to allow the child to benefit from instruction, but not to prescribe any one substantive standard for determining compliance with the Act's requirements. Unfortunately, the guidance the Supreme Court provided in the Rowley case has not reduced the number of lawsuits in the lower courts regarding the educational rights of handicapped children.

In another case, Irving Independent School District v. Tatro (1983), the financial responsibility for related services was again challenged. The United States Supreme Court further delineated the scope of the law's requirement for a school system to provide related services so that a handicapped child could benefit from special education. The student in question suffered from speech and orthopedic impairments, in addition to a neurogenic bladder and required clean intermittent catheterization (CIC) several times daily. The IEP did not require the school to provide the catheterization and the school system maintained it had no legal obligation to assign personnel to perform the service. The parents sued maintaining that the "related

services" clause in the law, P.L.94-142, included this type of health-related service. The appeals court dismissed the school district's argument, maintaining that the IEP called for the child to be placed in a self-contained special education class and that attendance in that class would not be possible without catheterization services. Therefore, failure to provide the service would prevent fulfillment of the IEP as required by the law. The Supreme Court upheld the decision by the Court of Appeals for the Fifth Circuit. However, the court also emphasized the limits of their decision. "The Court said that only children sufficiently handicapped to need special education can claim related services, and then only if the services are required to permit the child to benefit from the special education. The school district has no obligation to provide nursing services or to administer a medication or treatment that can appropriately be administered to the child other than during the school day. In addition, the Justices said that any service that must be performed by a licensed physician is excluded from the related services that the school district must pay for or provide. Finally, the court implied that a school district is not under obligation to furnish any specialized equipment the child may require in connection with the related services being requested" (Johnson, 1985, p. 3-4). Consequently, school officials have been even more concerned about the financial impact of these, as well as, other cases under litigation.

Another grave concern for school officials rests with the high

cost of private placement of handicapped students. In a recent case, Clevenger v. Oak Ridge (1984), a federal appellate court ordered the school district to place a handicapped child in a private school program at a cost to the school system of \$88,000 per year (Johnson, 1985). The legal obligation of school systems to pay for private school when parents became dissatisfied with the public school program has been a contentious issue. In the 1980 case, Stemple v. Board of Education, the United States Court of Appeals for the Fourth Circuit determined that parents who ignore the law's requirement to maintain the child's current placement during due process forfeit the right to payments from public funds for the private placement they selected. Some federal appeals courts accepted this rule, while others did not. The issue has now been settled by the Supreme Court through a 1985 case.

In Burlington School Committee v. Department of Education (1985), the Supreme Court determined that parents who place a child in a private facility, without the approval of local school officials during a dispute regarding the appropriateness of the public school program, are financially responsible for costs incurred. However, if a court determines that the public school program is not appropriate, then the parents may be reimbursed for the private school costs. This decision is significant for several reasons. First, it provides an incentive for public school officials to provide an appropriate program for each handicapped student. Second, it notifies parents of the financial risk

they take when they violate the law's provision to maintain the child in the current educational placement during the due process procedures to resolve a dispute.

In summary, it is clear that state and local school systems are allocating substantial funds to provide public and nonpublic special education programs and services required by law. Interpretation and clarification of P.L.94-142 by state and federal courts have also affected the financial burden of school systems. In some cases, school systems have unnecessarily incurred the substantial cost of private placement or related services when they have failed to conform to established procedures. Furthermore, they should analyze the costs of their public and nonpublic special education programs so that mandated services can be provided in a cost efficient manner.

Cost analysis techniques in special education

Educational finance, especially programs for handicapped children, is a complex subject that is tied closely to the political process (Bernstein et al., 1976). Federal legislation has significantly influenced the way in which states educate handicapped children, yet the federal government's financial role continues to be secondary to that of the state and local agencies. State support for special education programs has been influenced by several factors: namely size, wealth, political climate, structures used to provide basic financial support to local systems, and relative prominence of the state

contribution to the total funds made available for public education (Financing Free and Appropriate Public Education, 1983). In Maryland, an excess cost funding formula is used to provide financial assistance to local school systems. The issue to school finance, and, in particular, the financial analysis of special education has been the subject of national and local studies.

The first comprehensive cost analysis study comparing the cost of programs for exceptional children to the cost of general education programs was conducted by Rossmiller, et al. (1970). Using twenty-four school systems nationwide as the source of his data, he developed six broad categories to calculate the current operating costs. These categories include the following:

- * Management: administration, clerical and secretarial
- * Instruction: teacher and teacher aides
- * Instructional Support: supplies, equipment, guidance and counseling services, and other
- * Institutional Operations: operations, maintenance, fringe benefits, and other
- * Service: health and food
- * Transportation: the cost per pupil in average daily membership.

An initial assumption by Rossmiller et al. (1970) was that the cost per pupil in general and special education was equivalent, unless supplementary costs were reported for special education programs. He calculated the per pupil cost of operations and maintenance by a square

footage formula of space provided per pupil. He divided the total cost for operations and maintenance by the total student population. He then allocated thirty square feet per pupil to determine the per pupil cost of general education. Next, he calculated the per pupil cost of special education programs by dividing the amount of square feet occupied by handicapped students by thirty. Through this calculation he created an index. Finally, the index was multiplied by the per pupil cost calculated for general education students.

Another component of the Rossmiller et al. study (1970) was the per pupil cost of transportation, capital outlay and debt service per average daily membership. These calculations, however, were not incorporated in his per pupil cost figures for the various programs. They were reported separately. The Rossmiller et al. study (1970) provided an estimate of expenditures for comparison and a model for others to consider. His methodology was adopted or adapted in the following studies: Rossmiller and Moran in Kentucky (1973) and South Dakota (1973), Singletary in Florida (1973), Clemmons in Minnesota (1974) and Marriner in New York City (1977).

Another comprehensive cost analysis study, conducted by Hartman et al. (1978), developed a resource-cost model for estimating current and future costs of special education and related services. The Special Education Planning Model, SEPM, is based on a mathematical formulation of the relationships among students, programs, resources and decision rules involved in the special education process (Hartman, 1979). The

model requires information about present conditions and projected conditions for both decision variables and planning variables. Decision variables include "handicapping conditions, programs and services to be provided, use of resources within each program and service, allocation of handicapped students to programs, and number of students per unit of each instructional program" (Hartman, 1981, p. 35). The planning variable includes "total school age enrollment and the inflation rate" (Hartman, 1981, p. 35).

Comparing the resource-cost model approach with previous cost studies, Hartman (1981) claimed the following advantages.

- * This approach concentrated on educational and programmatic relationships and decisions that were involved in special education, which translated programmatic aspects into costs.
- * This approach identified educational programs for which costs were to be estimated.
- * This approach included only educational program aspects relevant to special education.
- * This approach is flexible, accommodating various types of costs.
- * The objectives of the study controlled the focus of the cost estimation and analytical efforts.
- * The cost estimates were future oriented rather than based on historical costs.
- * The model permits a sensitivity analysis of each model variable.

Although the model possessed many strengths, there were, however,

several limitations with the resource-cost model approach used by Hartman (1981). Certain information necessary for calculations with the model is not necessarily available from state educational agencies. Lack of information by type of instructional program, such as specific resources in each program, allocation of handicapped students per instructional unit and actual number of students per instructional unit, make it necessary to estimate the required information. Projected information to make estimates of future special education conditions was sometimes lacking and, at other times, unavailable. This lack of firm data about current and future conditions caused a bias throughout the estimation of future conditions.

Hartman used his resource-cost model to calculate estimates of the total cost of providing appropriate special education to all school-aged handicapped children in the United States from 1976-77 to 1980-81 (Hartman, 1981). While the model produced the most likely cost estimates, it also produced alternative low and high projections based upon the low and high alternative values of the model variables. Although the model provides an estimate of the total cost of special education, "excluded from these estimates were regular education costs incurred by handicapped students receiving portions of their education in regular classrooms; cost estimates for preschool-aged, handicapped students; and cost estimates for postschool-aged, handicapped students. The estimates represented neither the total cost of

educating handicapped students, because of the omission of regular education costs for handicapped students, nor the excess costs, because the equivalent costs of regular education were not deducted from the cost estimates of special education programs involving separate instruction" (Hartman, 1981, p. 41). As the demand for resources allocated to the needs of handicapped students increases, the need for improved cost analysis increases also. The resource-cost model provides an alternative method to analyze special education costs, as well as, a plan for future needs and is being considered for use in some states. In Illinois, a Resource Cost Model (RCM) is being considered as an alternative to the current practice, a personnel reimbursement model adopted in 1965. Because the original Illinois special education finance formula has not kept pace with the mounting costs and growing complexity of special education services mandated by state and federal statutes, an RCM has been proposed as an alternative. However, in a time when state support for education in Illinois has been declining, the RCM may remain a model, rather than become a reality (Geske & Johnston, 1985). The resource-cost model provides administrators with an additional tool or method for analyzing special education costs, which continue to represent a significant portion of annual operating budgets (Geske & Johnston, 1985).

Another national study of public special education program costs was conducted by Kakalik et al. (1981). The study, including data

collected through personal interviews conducted among a nationally representative sample of localities in 1977-78 and projected to 1980-81 estimates, addressed the following concerns.

- * What are the total costs of special education and related services by various age levels, handicapping conditions, educational placements and sizes of school districts?
- * What are the total costs of assessment and placement, instructional services, related services and administrative services?
- * What are the added costs of special education and related services above the cost of general education services for handicapped students?

Gathering data from 14 states, 46 separate local school systems and interviews with nearly 900 teachers from the sample systems, Kakalik et al. (1981) attempted to conduct a comprehensive national study that would yield information necessary for improvements in special education policies and programs. Kakalik et al. (1981) estimated the total cost of special education and related services by analyzing each type of service individually. He determined total costs by estimating the contact minutes of each type of service per student in average daily membership in each district, for each type of personnel, each age level, each handicapping condition, and each type of educational placement. Next, sample weights for salaries and fringe benefits per full time equivalent staff (FTE) member were used to

estimate the national average cost for that particular service by type of personnel. Finally, support services and nonpersonnel costs were estimated by age, level, handicapping condition and type of educational placement. Added costs, those above the cost of regular education for non-handicapped students, were calculated by estimating the total cost of regular education per non-handicapped student and subtracting that amount from the total cost of special education and related services per handicapped student.

While providing an alternative method of cost analysis, the Kakalik et al. (1981) procedures have weaknesses. Although the process is more accurate in determining special education and related service costs than previous procedures, these procedures are complex and require a thorough knowledge of cost accounting. The magnitude of the data collected and the cost involved may prohibit its replication by small school systems. Hence, the application of this study to state and local school systems may be limited, but it does provide a model for future comparative studies.

Jones and Salmon (1983) conducted a local study to analyze and compare the costs of public and nonpublic special education programs and services used by the Montgomery County, Maryland, Public School System. To complete the study, three models were developed to analyze and compare the costs and characteristics of the public and nonpublic special education programs provided to school-aged students who were in Levels V and VI, as defined by the Maryland Bylaw Continuum of

Services. The evaluation was conducted to determine whether the mix of public and nonpublic programs was cost effective and to determine whether alternative configurations should be explored by Montgomery County administrators.

The first model consisted of four components: discrete costs, transportation costs, special education overhead costs and general overhead costs necessary to analyze public day school costs by special education program. The second model utilized the same components to analyze the public costs for nonpublic day school programs. The third model consisted of three components: discrete costs, special education overhead costs, and general overhead costs necessary to analyze nonpublic residential special education program costs. These models permitted cost analysis and comparison of public special education programs for the single LEA, a micro study. Larson (1985), serving as a Research Associate during the Jones and Salmon (1983) study, determined that while, the initial models served to analyze and compare costs for a particular study, revisions were necessary to produce a framework which would provide a common means to analyze and compare the costs to LEAs for educating handicapped students in public and nonpublic day and residential facilities. Consequently, the purpose of Larson's study (1985) was to develop a framework or model for descriptive and comparative cost analysis of public and nonpublic special education programs. Furthermore, the model was designed to assist educators in formulating, implementing and analyzing special

education policy.

In summary, there have been numerous national and local studies conducted to analyze the cost of special education as a result of federal and state statutes, as well as, federal and state litigation. In complying with standards established in P.L.94-142 and Section 504, school systems encounter quantitative and qualitative costs in providing programs and services to handicapped students (Henderson and Hage, 1979). Quantitative costs result from the increasing number of students who qualify for special education programs; qualitative costs increase as school systems attempt to improve their programs. The promise of federal assistance to local school systems to share the financial burden created by P.L.94-142 has not reached authorized levels. The financial burden rests with state and local educational agencies. Consequently, the need for accurate cost analysis of special education remains paramount. A variety of methods and models have been developed, each with unique characteristics. Ultimately, state and local educational agencies must decide which model will yield the most effective special education cost analysis.

Federal excess cost requirement

Through previous research it has been shown that the per pupil cost of special education programs, on average, is two times greater than the per pupil cost of regular education for non-handicapped

students (Gillespie, 1980). The passage of P.L.94-142 represented a commitment by Congress to supplement state and local funding necessary to provide the mandated programs and services for all handicapped students. Congress authorized a federal contribution of up to forty percent of the national average per pupil expenditure per handicapped student by 1982. Unfortunately, appropriations have never reached that level, causing an added financial burden for state and local educational agencies. While Congress never intended to relieve state and local educational agencies of the financial burden, it did intend to supplement their fiscal efforts. If Congress appropriated funds to the authorized level, the burden on state and local educational agencies would be substantially reduced.

To receive federal funds under Part B of the Act, state educational agencies must submit a state plan. Included in the provisions of the state plan is an assurance that federal funds will not be commingled with state funds and that a separate accounting system will be used to provide the necessary audit of Part B funds. Under section 614 (a)(1) and (2)(B)(i) of the EHA-B, a local educational agency may only use funds under the EHA-B for the "excess costs" of providing special education and related services for handicapped students. Thus, EHA-B funds are used to help pay only those additional costs of educating handicapped students which are beyond the cost of educating non-handicapped students. Furthermore, the intent of the excess cost requirement is to ensure that, on average, the local educational agency (LEA) or intermediate

educational unit (IEU) spends as much for the education of handicapped students as it does for non-handicapped students from state and local funds before spending EHA-B funds.

State educational agencies (SEA) are required to establish procedures for allocating funds to LEAs and for providing assurances that the local agency complies with federal regulations. In Maryland, funding procedures for special education programs and services are included in the Annotated Code of Maryland, S 8-401 through S 8-417.5, to assure compliance with federal regulations.

Summary

General acceptance of public education for handicapped children is a relatively recent phenomenon, thrust upon the nation's school systems with the passage of P.L.94-142 in 1975. Although statutes requiring full programming for handicapped students existed in most states when P.L.94-142 became law, these laws lacked uniformity and frequently remained unenforced. Statutory sources of the right to a free appropriate public education for handicapped students comes from state and federal legislation, and has been interpreted and clarified by state and federal courts. Lack of understanding of both requirements of the laws and needs of the handicapped and the inherent expense of implementation of special education programs hindered development (Henderson and Hage, 1979). Both quantitative and qualitative factors have affected and will continue to affect the increase in special

education costs. Thus, future costs of special education will result from programmatic changes which continue to evolve.

Through the passage of P.L.94-142, Congress recognized that the financial burden of providing for the needs of handicapped students on SEAs and LEAs would be significant. In an attempt to supplement these fiscal efforts, Congress authorized a substantial commitment to aid with the "excess costs" of providing comprehensive special education programs and services. Unfortunately, appropriations have never matched the authorized levels of financial support. The Constitution of the United States is the basic law of the land and covers a wide area of powers, duties and limitations; however, it does not refer expressly to education. Therefore, education is a state function under the Tenth Amendment. Consequently, the financial burden has been and will continue to be the primary responsibility of the state. The prudent state and local educational administrators should carefully analyze the costs of special education programs and services, ensuring delivery of mandated services. To this end, this study will examine the Larson Model as a framework for analyzing the costs of programs and services for handicapped students in Frederick County, Maryland.

CHAPTER III

RESEARCH METHODOLOGY AND PROCEDURES

The research methodology used for this study was the testing of a framework or model for descriptive cost analysis, a product of educational research and development completed by Jeffrey B. Larson. Educational research and development (R & D) has been defined as a systematic process for developing and validating an educational product (Hofmeister, 1975). This study attempted to calculate and analyze the per pupil cost of special education programs and services by levels of service in the Frederick County, Maryland, Public School System for the 1984-85 school year to test the Larson IPSEC Model (1985) as a common framework for analyzing the costs of programs and services for handicapped students, and to provide Frederick County administrators a formal method of evaluation of special education costs. The study took place in Frederick County, Maryland, where the author is an employee of the school system and had access to the necessary data.

According to Hartman (1979), "Special education is and will continue to be of significant interest to educational policy makers, planners, and administrators. As the magnitude of resources devoted to the education of handicapped children increases, so will the need and

demand for improved information concerning the costs of such programs." The Annotated Code of the General Laws of Maryland (1984) defines a handicapped child as "a child who has been determined through appropriate assessment as having temporary or long-term special educational needs arising from cognitive, emotional, or physical factors, or any combination of these, and whose ability to meet general educational objectives is impaired to a degree whereby the services available in the general educational program are inadequate in preparing one to achieve his educational potential." In Maryland, it is the shared responsibility of the state and county to provide "free educational programs to each handicapped child, including a child who is severely handicapped and an individual eligible for compensatory special education services..." (Annotated Code of Maryland, 1984). Furthermore, "appropriate special education services and compensatory educational services are to begin as soon as an individual can benefit from them, whether or not he is of regular school age" (Annotated Code 1957, article 77 S 106D; 1978, chapter 22 S 2; chapter 835; 1984, chapter 255).

Selection of the Sample

The target population was the Frederick County, Maryland, Public

School System, one of twenty-four school systems in the state. Information collected for the study came from 1984-85 (fiscal year 1985), the most recent and complete data available. Information needed to complete the study was made available by various central office departments, including Finance, Budget, Student Services, Special Education and Transportation, and selected administrators.

Data Collection

The following data were obtained to complete the study:

1. Federal Expenditures
 - a. Chapter 1 (Education Consolidation and Improvement Act of 1981)
 - b. Part B Funds
2. State Expenditures
 - a. State funds for handicapped children
3. Local Expenditures
 - a. Local funds spent for handicapped children - unrestricted (salaries, contracted services, supplies, other charges, and equipment)
 - b. Pupil transportation
 - c. Capital outlay

- d. Maintenance
 - e. Operations
 - f. Building depreciation
 - g. Vehicle depreciation
- 4. Student enrollment
 - 5. State Plan as required by P.L.94-142

The data necessary for this study were obtained through the following sources:

- 1. Review of the Approved 1984-85 Budget - Board of Education of Frederick County, Maryland.
- 2. Review of the Maryland State Department of Education annual financial report for the fiscal year (FY 1985) submitted by Frederick County.
- 3. Consultation with the Frederick County Comptroller and Assistant Comptroller regarding the cost accounting data and procedures established by the Maryland State Department of Education.
- 4. Consultation with the Supervisor of Special Education regarding student enrollment, financial reports and staff assignments.
- 5. Consultation with the Coordinator of Residential Placement

regarding student enrollment, financial reports and placement information.

6. Consultation with the Supervisor of Pupil Personnel regarding the total student enrollment for 1984-85.
7. Consultation with the Assistant Supervisor of Transportation regarding the cost reports and financial statements applicable to special education for 1984-85.
8. Review of Frederick County's state plan and Frederick County's local application required by P.L.94-142.
9. Consultation with the State Plan Officer in the Maryland Department of Education assigned to review procedures in Maryland for compliance with the excess cost requirements under Section 614 (a) (1) and (2) (B) (i) of the EHA - B and 34 C.F.R. S300.182 - 300.186.

FRAMEWORK DESIGN

The Larson (1985) framework consists of two models for cost analysis. They are (1) identification of public special education costs (ISPEC), and (2) identification of nonpublic special education costs (INSEC).

Due to the limitations of this study, only tier one of the IPSEC

Model has been used. The first tier of each model calculates the day school costs, while the second tier of each model calculates the residential costs. Both models include five cost components: (1) discrete costs, (2) transportation costs, (3) overhead costs, (4) fixed assets costs and (5) related services costs. In addition, each model yields an aggregate per-pupil cost by handicapping condition or environment. "The handicapping conditions include: (1) deaf, (2) deaf-blind, (3) hard of hearing, (4) mentally retarded, (5) multihandicapped, (6) orthopedically impaired, (7) other health impaired, (8) seriously emotionally disturbed, (9) specific learning disabled, (10) speech impaired, and (11) visually impaired. The potential environments incorporated in both models are those which are commonly recognized placements for handicapped pupils. They include: (1) itinerant, (2) resource, (3) self-contained, and (4) separate school" (Larson, 1985). In addition to these placements identified by Larson for his study in Virginia, a fifth environment, diagnostic/prescriptive, is examined in this study. Because it reflects a current placement in Maryland, diagnostic/prescriptive represents Level I service in Maryland.

The framework calculates a per-pupil total aggregate in each model by totaling each of the pupil component costs: discrete,

transportation, overhead, and fixed assets. An aggregate for the related services cost is calculated separately. A diagram of the framework design, including both the IPSEC and INSEC models and their relationship appears in Figure 1, page 48.

The following description of the IPSEC model was developed by Jeffrey B. Larson in his 1985 study.

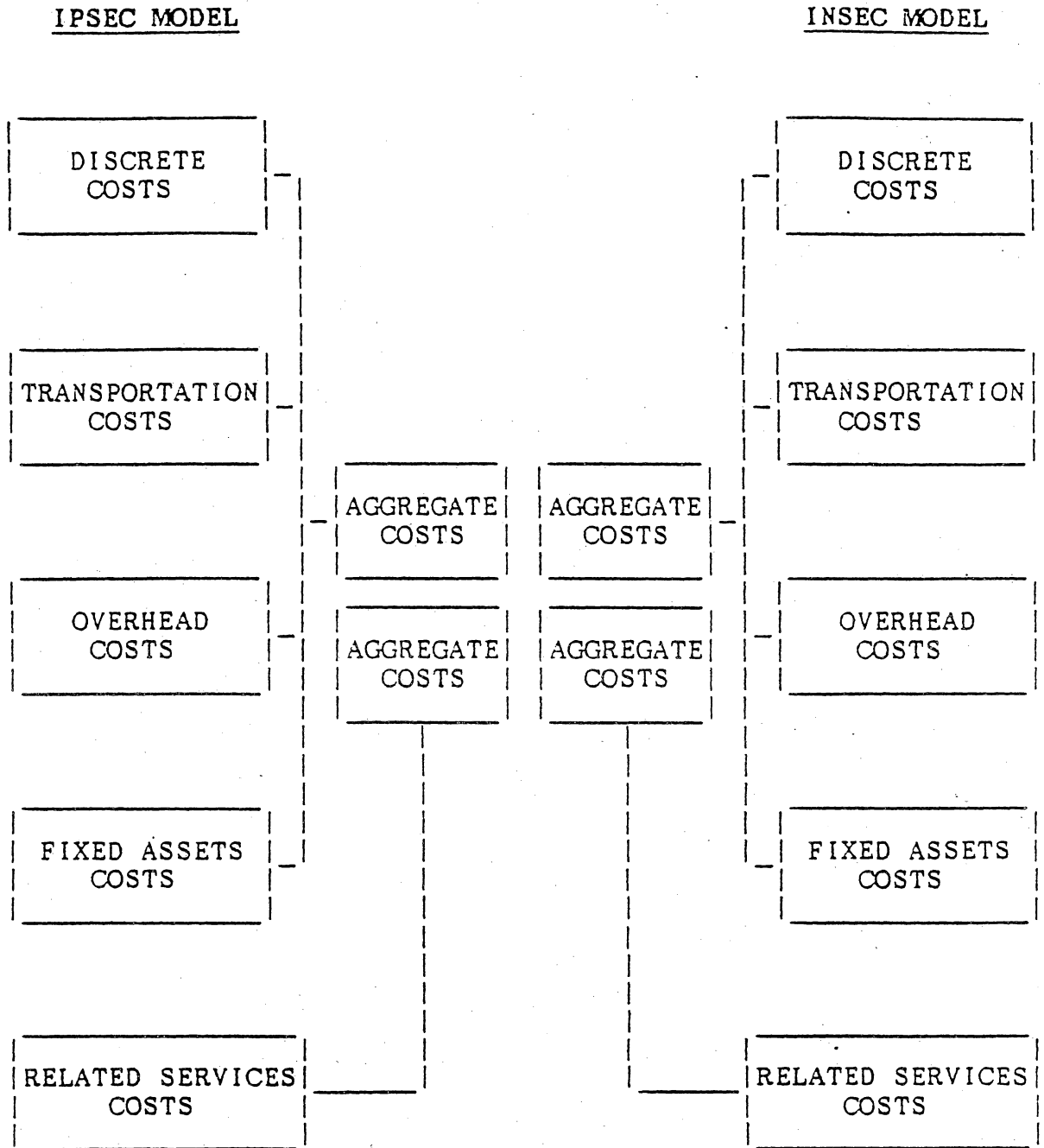


Figure 1

Framework Design

(Larson, 1985, p. 57)

The IPSEC Model

The first model of the framework for cost analysis and comparison of special education programs is IPSEC. The purpose of IPSEC is to analyze the costs of public special education programs by handicapping condition and environment.

Tier 1 of IPSEC

Tier 1 of the IPSEC model is used when the public special education program to be analyzed is a day school program. As mentioned previously, it is comprised of the following components: (1) discrete costs, (2) transportation costs, (3) overhead costs, (4) fixed assets costs, and (5) related services costs.

IPSEC Tier 1 Discrete Cost Component Discrete costs are defined as those expenditures which may be directly attributed to the special education program by handicapping condition and environment. The discrete cost component in the IPSEC model is divided into cost centers. The cost centers within the discrete cost component are the: (1) administration/supervision cost center, (2) support cost center, and (3) instruction cost center. Expenditures are allocated to each cost center based upon the positions within the handicapping condition and environment.

The administration/supervision cost center. Expenditures within the administration/supervision cost center are those costs which may

be directly attributable to the administration and supervision by handicapping condition and environment of the special education day program. Costs are allocated to the administration/supervision cost center by position. Position expenditures assigned to the administration/supervision cost center include special education directors, assistant directors, supervisors, coordinators, and principals of special education schools. For Frederick County, Maryland, model modifications will be made to include costs of principal's responsibility for direct supervision of special education teachers.

The support cost center. Expenditures within the support cost center are those costs which may be directly attributable to the support of the special education day program by handicapping condition and environment. Costs are allocated to the support cost center by position. Positions assigned to the support cost center include special education clerical personnel, health care personnel, and ancillary staff.

The instruction cost center. The instruction cost center within the discrete cost component includes those costs which may be directly attributable to special education instruction by handicapping condition and environment. Costs are allocated to the instruction cost center by position. Positions assigned to the instruction cost center include teachers, teacher assistants, and teacher aides.

The calculation of discrete costs. Expenditures are allocated by position within each cost center to cost categories. The cost categories within each center are salaries, benefits, materials/supplies/texts, equipment, travel, and contract services. Categorical allocation of expenditures by unit is achieved through the use of a multiplier. The method of calculation of the multiplier is dependent upon the cost center in which the expenditures are allocated.

The administration/supervision cost center multiplier is derived by determining the percent of time the administration/supervision position spends performing duties within special education and multiplying the result times the portion of special education instructional personnel assigned to the position within the handicapping condition and environment.

The support cost center multiplier is derived in the same manner as the administrative/support cost center multiplier. Specifically, the percent of time of the support position to duties devoted to special education is multiplied times the portion of special education instructional staff assigned to the handicapping condition within the environment.

The instruction cost center multiplier is calculated by determining the percent of time the instructional position spends on

duties within special education. The percentage is multiplied by the portion of handicapped pupils assigned to the instructional position within the handicapping condition and environment.

The expenditures allocated to the category by position are multiplied times the multiplier. The result is the expenditure allotted to the category by position within the handicapping condition and environment in each cost center.

The next step in determining the discrete costs by handicapping condition and environment is calculating the total expenditures within each cost category in each cost center. The total category expenditures are calculated by summing the previously calculated expenditures by handicapping condition and environment within each category within each cost center. The results are divided by the number of pupils served within the handicapping condition and environment which yields the per-pupil category costs by cost center. Figures 8 through 10 (Forms IPSEC-1 through IPSEC-3) present systematic spread sheet formats for calculating the per-pupil category costs within the handicapping condition and environment in each cost center within the discrete cost component.

The final step in determining the per-pupil expenditures within the discrete cost component involves calculating the total per-pupil

category expenditures across all cost centers. This is accomplished by totaling the per-pupil cost of each cost category across all cost centers. The results may be totaled to obtain the total per-pupil discrete cost by handicapping condition and environment. Figure 11 (Form IPSEC-4) presents the spread sheet format for summarizing the total per-pupil discrete cost component in tier 1 of the IPSEC model.

IPSEC Tier 1 Transportation Cost Component The second component in tier 1 of the IPSEC model is transportation costs. Expenditures allocated to the transportation cost component are those costs, by handicapping condition and environment, which are attributable to transporting handicapped pupils. The cost centers which comprise the transportation cost component are: (1) special transportation, (2) regular transportation, and (3) contract transportation.

The special transportation cost center. Special transportation costs are those expenditures for transporting special education pupils within the handicapping condition and environment apart from general education pupils. Initially, per-pupil special transportation costs are derived by obtaining the total cost of special transportation to the LEA. The total cost of special transportation to the LEA consists of operator costs and the maintenance and operation of the fleet costs. The total cost of special transportation is divided by the

total number of handicapped pupils receiving special transportation to obtain the per-pupil cost for special transportation. The total special transportation cost attributable to the handicapping condition and environment may be derived by multiplying the per-pupil special transportation cost by the number of pupils within the handicapping condition and environment receiving special transportation.

The contract transportation cost center. Contract transportation costs are those expenditures, for special education pupils within the handicapping condition and environment, for payments to parents in lieu of providing transportation. The total payments to parents are divided by the number of pupils receiving contract transportation to obtain the per-pupil contract transportation costs. Total contract transportation costs for pupils within the handicapping condition and environment are obtained by multiplying the per-pupil contract transportation costs by the total number of pupils within the handicapping condition and environment receiving contract transportation.

The regular transportation cost center. Regular transportation costs are those expenditures, for transportation of special education pupils within the handicapping condition and environment, with general education pupils. All pupils may not receive transportation, so

obtaining regular transportation costs requires more complex calculations.

The first calculation is to deduct the previously derived total special transportation costs and total contract transportation costs from the total transportation operation costs. This yields the total regular transportation costs. The total regular transportation costs are divided by the total number of pupils receiving regular transportation, yielding the per-pupil regular transportation cost.

Next, the total number of pupils receiving regular transportation is divided by the total enrollment to determine the proportion of the enrollment receiving regular transportation. This proportion is then applied to the total number of handicapped pupils eligible to receive regular transportation. The total number of handicapped pupils eligible to receive regular transportation is calculated by deducting the previously derived number of handicapped pupils receiving special transportation and contract transportation from the total enrollment of handicapped pupils. The total number of handicapped pupils receiving regular transportation is multiplied by the total per-pupil cost for regular transportation to derive the total regular transportation cost for special education.

To determine the number of special education pupils within the

handicapping condition and environment which receive regular transportation, the previously derived proportion of general education pupils receiving regular transportation is multiplied by the number of special education pupils within the handicapping condition and environment eligible to receive transportation. The number of eligible pupils within the handicapping condition and environment is calculated by deducting the number of pupils within the condition and environment receiving special transportation and contract transportation from the total enrollment within the handicapping condition and environment.

Total transportation costs. To determine the total cost for regular transportation within the handicapping condition and environment, the per-pupil cost of regular transportation is multiplied times the total number of special education pupils within the handicapping condition and environment receiving regular transportation.

The transportation cost component total is calculated by adding the total special transportation costs within the handicapping condition and environment, the total contract transportation costs within the handicapping condition and environment and the regular transportation costs within the handicapping condition and environment. The per-pupil transportation cost component total is

derived by adding the per-pupil special transportatin costs within the handicapping condition and environment, the per-pupil contract transportation costs within the handicapping condition and environment, and the per-pupil regular transportation costs within the handicapping condition and environment. Figure 6 (Form IPSEC-5) presents a systematic format for calculating the transportation cost component in tier 1 of IPSEC.

TRANSPORTATION COSTS

LEA _____

A. Special Transportation Costs

1. Total Special Transportation Costs \$_____.
2. Total Number of Pupils Receiving Special Transportation
_____.
3. Total Per-pupil Special Transportation Costs (A1 - A2)
\$_____.
4. Number of Pupils in Condition and Environment Receiving Special
Transportation _____.
5. Total Special Transportation Cost for Condition and Environment
(A3 x A4) \$_____.
6. Per-pupil Total Special Transportation Cost in Condition and
Environment (A5 - A4) \$_____.

Figure 6

Form IPSEC-5 Transportation Costs

B. Contract Transportation

1. Total Payments to Parents \$_____.
2. Number of Pupils Receiving Transportation From Parents
_____.
3. Total Per-pupil Payments to Parents for Transportation Costs
(B1 - B2)
\$_____.
4. Number of Pupils in Condition and Environment Receiving
Transportation From Parents _____.
5. Total Payment to Parents of Pupils in Condition and
Environment (B3 x B4) \$_____.
6. Per-pupil Total Payment to Parents of Pupils in Condition and
Environment (B5 - B4) \$_____.

Figure 6

(continued)

Form IPSEC-5 Transportation Costs

- C. Regular Transportation for Special Education Pupils
1. Total Transportation Operation Costs \$_____.
 2. Total Special Transportation Costs (A1) \$_____.
 3. Total Contract Transportation Costs (B1) \$_____.
 4. Total of Special Transportation and Contract Transportation
(C2 - C3) \$_____.
 5. Total Cost of Regular Transportation
(C1 - C4) \$_____.
 6. Number of Pupils Receiving Regular Transportation _____.
 7. Total Per-pupil Cost of Regular Transportation
(C5 - C6) \$_____.
 8. Total Number of Pupils _____.
 9. Proportion of Pupils Receiving Regular Transportation to Total
Number of Pupils (C6 - C8) _____.
 10. Total Number of Special Education Pupils _____.
 11. Number of Special Education Pupils Receiving Special
Transportation and Contract Transportation (A2 + B2) _____.

Figure 6

(continued)

Form IPSEC-5 Transportation Costs

12. Total Number of Special Education Pupils Eligible to Receive Regular Transportation (C10 - C11) _____.
13. Number of Special Education Pupils Receiving Regular Transportation (C9 x C12) _____.
14. Total Cost of Regular Transportation for Special Education Pupils \$_____.
15. Number of Pupils in Condition and Environment _____.
16. Number of Pupils in Condition and Environment Receiving Special Transportation (A4) _____.
17. Number of Pupils in Condition and Environment Receiving Contract Transportation (B4) _____.
18. Number of Pupils in Condition and Environment Eligible to Receive Regular Transportation (C15 - C16 - C17) _____.
19. Number of Pupils in Condition and Environment Receiving Regular Transportation (C9 x C18) _____.

Figure 6

(continued)

Form IPSEC-5 Transportation Costs

20. Total Regular Transportation Costs for Pupils in Condition and Environment (C7 x C19) \$_____.
 21. Per-pupil Total Regular Transportation Costs for Pupils in Condition and Environment (C20 - C19) \$_____.
- D. Total Transportation Costs for Pupils in Condition and Environment
1. Total Transportation Costs for Pupils in Condition and Environment (A5 + B5 + C20) \$_____.
 2. Per-pupil Total Transportation Costs for Pupils in Condition and Environment (A6 + B6 + C1) \$_____.

Figure 6

(continued)

Form IPSEC-5 Transportation Costs

IPSEC Tier 1 Overhead Cost Component The third component in tier 1 of the IPSEC model is the overhead cost component. Overhead costs may be defined as those expenditures which cannot be readily or accurately identified with a specific service, program, or unit but are known to benefit a specific population of pupils. The overhead cost component is divided into two cost centers: (1) general overhead costs and (2) special overhead costs.

The general overhead cost center. General overhead costs are defined as those expenditures which cannot be readily or accurately identified with a specific service, program, or unit but are known to benefit all pupils. General overhead costs are derived by extracting and totaling those elements of expenditures that involve indirect services to all pupils. The elements of expenditure to be extracted and totaled are for the indirect services of administration, maintenance and operation, and adult education. The sum of these expenditures yields the total overhead costs which may be associated with special education.

To determine the portion of the overhead costs which are general overhead, the overhead is multiplied by the portion of the instructional personnel in the LEA which are general education instructional personnel. The total number of general instructional personnel is divided by the total number of instructional personnel.

The total per-pupil general education overhead is calculated by dividing the total general education overhead costs by the number of general education pupils in the LEA.

The special overhead cost center. Special overhead costs may be defined as those expenditures which cannot be readily or accurately identified with a specific service, program, or unit but are known to benefit only special education pupils. Special overhead costs are derived by totaling the LEA expenditures that involve indirect services to handicapped pupils. The elements of expenditure to be totaled are for the indirect services of administration, maintenance and operation, and adult education.

To determine the portion of the overhead costs which may be attributed to special education, first, the total number of special education instructional personnel is divided by the total number of instructional personnel to obtain the portion of special education instructional personnel in the LEA. Next, the overhead costs are multiplied by the portion of instructional personnel in the LEA which are special education instructional personnel. This yields the total special and general overhead which may be attributed to special education. The total per-pupil general and special overhead is calculated by dividing the general and special overhead by the number

of special education pupils in the LEA. From this total, the total per-pupil general overhead is deducted, yielding the total per-pupil special education overhead.

Total overhead costs. The total overhead costs within the handicapping condition and environment are calculated by totaling the per-pupil general overhead and per-pupil special overhead expenditures and multiplying the sum by the total number of pupils within the handicapping condition and environment. The total general overhead costs within the handicapping condition and environment are determined by multiplying the per-pupil general overhead costs by the number of pupils within the handicapping condition and environment. The total special overhead costs within the handicapping condition and environment are determined by multiplying the per-pupil special overhead costs by the number of pupils within the handicapping condition and environment. Figure 7 (Form IPSEC-6) presents a systematic format for calculating the overhead costs in tier 1 of IPSEC.

OVERHEAD COSTS

LEA _____

A. General Overhead Costs

1. Total Expenditures for Administration \$_____.
2. Total Expenditures for Maintenance and Operation \$_____.
3. Total Expenditures for Adult Education \$_____.
4. Total of Expenditures for Administration, Maintenance and Operation, and Adult Education (A1 + A2 + A3) \$_____.
5. Number of Instructional Personnel in the LEA _____.
6. Number of Special Education Instructional Personnel in the LEA _____.
7. Number of General Instructional Personnel in the LEA (A5 - A6) _____.
8. Proportion of General Instructional Personnel in the LEA (A7 - A5) _____.
9. General Overhead Costs (A4 x A8) \$_____.
10. Total Enrollment in the LEA _____.
11. Special Education Enrollment in the LEA _____.
12. General Education Enrollment in the LEA (A10 - A11) _____.

Figure 7

Form IPSEC-6 Overhead Costs

13. Per-pupil General Overhead Costs (A9 - A12) \$_____.

B. Special Education Overhead Costs

1. Total General Overhead Costs (A4) \$_____.
2. Number of Instructional Personnel in the LEA (A5) _____.
3. Number of Special Education Instructional Personnel in the LEA (A6) _____.
4. Proportion of Special Education Instructional Personnel in the LEA (B3 - B2) _____.
5. Overhead Costs Attributed to Special/General Education (B1 x B4) \$_____.
6. Special Education Enrollment in the LEA (A11) _____.
7. Per-pupil Special/General Overhead Costs (B5 - B6) \$_____.
8. Per-pupil General Overhead Costs (A13) \$_____.
9. Per-pupil Special Overhead Costs (B7 - B8) \$_____.
10. Number of Pupils in Condition and Environment _____.

Figure 7

(continued)

Form IPSEC-6 Overhead Costs

C. Total Overhead Costs

1. Total General Overhead Costs for Pupils in Condition and Environment (B8 x B10) \$_____.
2. Total Special Overhead Costs for Pupils in Condition and Environment (B9 x B10) \$_____.
3. Total Overhead Costs for Pupils in Condition and Environment (C1 + C2) \$_____.
4. Per-pupil General Overhead Costs for Pupils in the Condition and Environment (B8) \$_____.
5. Per-pupil Special Overhead Costs for Pupils in the Condition and Environment (B9) \$_____.
6. Total Per-pupil Overhead Costs for pupils in the Condition and Environment (C4 + C5) \$_____.

Figure 7

(continued)

Form IPSEC-6 Overhead Costs

IPSEC Tier 1 Fixed Assets Cost Component The fourth component of tier 1 of the IPSEC model is the fixed assets component. Fixed assets may be defined as the cost of capital depreciation. The fixed assets cost component is divided into two cost centers: (1) building depreciation and (2) vehicle depreciation.

The building depreciation cost center. Building depreciation is defined as the amount of devaluation from the current appraised value of all the buildings in the LEA over the course of one year due to normal usage, decay and/or decline in price. The generally accepted rate of depreciation for buildings is $1/30$ of the current appraised value.

To determine the amount of the current appraised value which may be attributed to special education, the total current appraised value of all buildings in the LEA is divided by the portion of special education instructional personnel in the LEA. The total number of special education instructional personnel is divided by total number of instructional personnel. The current appraised value attributed to special education is then divided by 30 which yields the building depreciation attributed to special education. To determine the per-pupil building depreciation cost to special education, the special education building depreciation is divided by the number of total

special education pupils in the LEA. The total building depreciation which may be attributed to the handicapping condition and environment is calculated by multiplying the per-pupil special education building depreciation by the number of pupils within the handicapping condition and environment.

The vehicle depreciation cost center. Vehicle depreciation is defined as the amount of devaluation from the current appraised value of the fleet of buses in the LEA over the course of one year due to normal usage, decay and/or decline in price. The generally accepted rate of depreciation of vehicles is $1/12$ of the current appraised value.

Vehicle depreciation is calculated in the same manner as building depreciation. To determine the total value of all vehicles which may be attributed to special education, the current appraised value of all vehicles is divided by the portion of special education instructional personnel in the LEA. The total number of special education instructional personnel is divided by the total number of instructional personnel. The current appraised value of all vehicles is then divided by 12 which yields the vehicle depreciation attributable to special education. To determine the per-pupil special education vehicle depreciation the total special education vehicle depreciation is

divided by the total number of special education pupils. The total vehicle depreciation which may be attributed to the handicapping condition and environment is calculated by multiplying the per-pupil special education vehicle depreciation by the number of pupils within the handicapping condition and environment.

Total fixed assets costs. The total fixed assets within the handicapping condition and environment is the sum of the total building depreciation costs within the handicapping condition and environment and the total vehicle depreciation costs within the handicapping condition and environment. The total per-pupil fixed assets costs within the handicapping condition and environment is the sum of the per-pupil building depreciation costs within the handicapping condition and environment and the per pupil vehicle depreciation costs within the handicapping condition and environment. Figure 8 (Form IPSEC-7) presents a systematic format for calculating the fixed assets cost component in tier 1 of the IPSEC model.

FIXED ASSETS COSTS

LEA _____

A. Building Depreciation Costs

1. Current Appraised Value of all Buildings in the LEA \$ _____.
2. Number of Special Education Instructional Personnel in the LEA _____.
3. Number of Instructional Personnel in the LEA _____.
4. Proportion of Special Education Instructional Personnel in the LEA (A2 - A3) _____.
5. Portion of Building Depreciation Costs Attributed to Special Education Instruction (A1 x A4) \$ _____ - 30 \$ _____.
6. Total Special Education Enrollment in the LEA _____.
7. Per-pupil Building Depreciation Costs Attributed to Special Education Instruction (B5 - B6) \$ _____.
8. Number of Pupils in Condition and Environment _____.
9. Total Building Depreciation Costs Attributed to Special Education Pupils in Condition and Environment (A7 x A8) \$ _____.

Figure 8

Form IPSEC-7 Fixed Assets Costs

B. Vehicle Depreciation Costs

1. Current Appraised Value of all Buses in the LEA \$_____.
2. Portion of Bus Depreciation Costs Attributed to Special Education Instruction (A4 x B5) \$_____ - 12 \$_____.
3. Per-pupil Bus Depreciation Costs Attributed to Special Education Instruction (B2 - A6) \$_____.
4. Total Bus Depreciation Costs Attributed to Special Education Pupils in Condition and Environment (A8 x B3) \$_____.

C. Total Fixed Assets Costs

1. Total Fixed Assets Costs Attributed to Special Education Pupils in the Condition and Environment (A9 + B4) \$_____.
2. Total Per-pupil Fixed Assets Costs Attributed to Special Education Pupils in the Condition and Environment (A7 - B3) \$_____.

Figure 8

(continued)

Form IPSEC-7 Fixed Assets Costs

IPSEC Tier 1 Related Services Cost Component The final cost component in tier 1 of the IPSEC model is the related services cost component. Related services are those services which are required to assist the handicapped pupil to benefit from special education. They include speech pathology, audiology, psychological services, physical and occupational therapy, recreation, early identification and assessment, counseling services, medical evaluation services, health services, social work services, and parent counseling and training (CFR, 1981).

Each related service provided by the LEA is analyzed in isolation. Unlike the first four cost components, the related services component yields only the per-service per-pupil cost for special education. Data were not available to perform the calculations necessary to obtain the related services costs by handicapping condition and environment.

The related services cost component in the IPSEC model consists of the: (1) evaluation cost center and (2) therapy cost center. Expenditures are allocated to each cost center by position based upon the percent of time devoted to each cost center.

The evaluation cost center. Expenditures within the evaluation cost center are those costs attributed to the evaluation of the need for the related service. Activities by position allocated to the

percent of time devoted to the evaluation cost center include scheduling and performing evaluations, writing evaluation reports, meeting to discuss evaluation findings, follow-up consultation with parents and professionals, and travel associated with evaluation activities.

The therapy cost center. Expenditures allocated to the therapy cost center are those costs attributed to the provision of the therapeutic services. Activities by position allocated to the percent of time devoted to the therapy cost center are all non-evaluation activities, including scheduling and performing therapy, writing therapy notes, meeting to discuss therapy, consultation with parents and professionals concerning therapy, and travel associated with therapy activities.

The calculation of related services costs. Expenditures are allocated to cost categories by cost unit equaling the percent of time for duties of the position within each cost center. The categories within each cost center are salaries, benefits, materials/supplies/texts, equipment, travel, and contract services.

The expenditures allocated to the category by position are multiplied times the percent of time devoted to each cost center. The result is the categorical expenditure allocated to the cost center.

The next step in determining each related service cost component is calculating the expenditures within each cost category in each cost center. The total category expenditures are calculated by summing the previously calculated expenditures within each category within each cost center. The results are divided by the number of pupils receiving the related service in each cost center. This yields the per-pupil category costs within each cost center.

The final step in determining the per-pupil expenditures within each related service cost component involves calculating the total per-pupil cost in each cost center. The total per-pupil cost is calculated by summing the per-pupil category expenditures within each cost center. The results may be totaled to obtain the total per-pupil related service component cost. Figure 5 (Form IPSEC-8) presents a systematic spread sheet format for calculating the per-pupil related services costs in tier 1 of the IPSEC model.

IPSEC Tier 1 Aggregate Costs The final analysis of the costs of the public special education day school program by handicapping condition and environment is the calculation of the per-pupil aggregate cost. The per-pupil aggregate cost is the total per-pupil cost for the public special education day school program under analysis. The per-pupil aggregate cost is the sum of the following per-pupil cost components:

(1) discrete costs, (2) transportation costs, (3) overhead costs, and (4) fixed assets costs.

The per-pupil aggregate costs for related services are calculated separately as per-pupil related services are not analyzed by handicapping condition and environment. Further, all pupils may not receive all related services. Therefore, the per-pupil costs for related services received may be added to the per-pupil aggregate program cost to yield the per-pupil aggregate cost for the special education and actual related services received. Figure 6 (Form IPSEC-9) presents a spread sheet format for calculating the per-pupil special education day school program costs by handicapping condition and environment.

Aggregate public special education day school program costs by handicapping condition and environment may be calculated by adding the total costs of each cost component. As with the aggregate per-pupil costs, the related services cost component must be excluded from the total. This is due to the inability to obtain the number of pupils by handicapping condition and environment receiving each related service. Figure 7 (Form IPSEC-10) presents a spread sheet format for calculating aggregate public special education program costs by handicapping condition and environment.

CHAPTER IV

RESULTS

Special education programs and services are provided to handicapped students in all elementary, middle and high schools in Frederick County, Maryland. In addition, the county operates the Rock Creek School, a special education facility for students with severe language problems, intellectual, emotional and physical handicaps, and CHANGES, an alternative program for handicapped students, ages 12 to 20, whose behavior problems have excluded them from regular classrooms. Approximately 2,030 handicapped students participated in programs and services in forty-one county schools during the 1984-85 year school at a cost of almost \$4 million.

Special education programs and services represented a significant portion, 6.17 percent, of the \$64 million operating budget for 1984-85. Expenditures of the operating funds were: instruction - 57.2%; operations - 12.2%; fixed charges - 7.5%; transportation - 7.4%; special education - 6.17%; administration - 5.5%; maintenance - 2.9%; and pupil personnel, community services and capital outlay - 1.13%. The sources of operating funds include local - 58.4%, state - 36.6%, federal - 3.4% and other - 1.6%. Typical of most school budgets, the cost of personnel in the special education budget represents the

largest portion, 120.5 teachers and 63 support people constitute 73.4% of the special education budget. Not included in these figures, however, are administrative/supervisory and secretarial positions associated with special education.

While limited budget analysis occurs each year in an attempt to prepare, modify and/or justify the various budget categories, an indepth cost analysis rarely occurs. Consequently, when approached with the proposal for a cost analysis of the Frederick County special education programs and services, central office administrators responded favorably. Information necessary was made readily available upon request.

Frederick County utilizes an accounting system that is standard throughout Maryland. Each line item of the budget has an eight digit expense code. Using an appropriate descriptor, the items are identified by the fund (FD), class (CL), category (CA), program (PG), service area (SA), activity (AC), object (OB) and subobject (SO). The standard computerized system provides for easy completion of the Annual Financial Report submitted to the Maryland State Department of Education. For the purposes of this study, the primary category analyzed was Special Education, although, it was necessary to analyze other categories such as instruction, pupil personnel and transportation.

Data Collection Process

Collection of data for this study occurred over a ten month period through interviews, telephone calls, numerous financial reports and other data sources collected by the Board of Education. Because the data collected were reported at various times during the 1984-85 year, the information was cross-checked with other sources whenever possible to ensure reliability.

A copy of the Annual Financial Report for fiscal year 1985 was provided by the Finance Department. The Comptroller and Assistant Comptroller readily provided requested documents and explanations of the financial reports and the accounting system procedures. Information regarding the official school enrollment for 1984-85 was provided by the Supervisor of Pupil Personnel. Data regarding case loads and special education staff assignments were provided by the Supervisor of Special Education, his secretary and three Coordinators of Special Education. In addition, they also supplied information regarding case loads of the support personnel, speech clinicians, occupational and physical therapists. Information regarding transportation costs was provided by an Assistant Transportation Supervisor, responsible for maintaining those records. Data regarding the "excess cost" of special education were provided by the Comptroller and a Fiscal Affairs Officer with the Maryland State Department of Education.

Research Findings

Research Question 1: Will the Larson IPSEC Model, Identification of Public Special Education Costs, (Larson, 1985) yield valid calculations that determine the per pupil cost of Levels I, II, III, IV and V of special education programs and services provided by Frederick County, Maryland, Public Schools during the 1984-85 school year?

As explained in Chapter III, the Larson IPSEC Model includes five components: discrete costs, transportation costs, overhead costs, fixed assets costs and related services costs. The model is designed to provide per pupil costs by handicapping condition or environment. This study is limited to Tier 1, day school programs, calculated by environment or level of special education programs, defined by the Maryland State Bylaw Continuum of Services.

The first part of the IPSEC Model is the discrete cost component, those costs which may be directly attributed to special education. This component is subdivided into three cost centers: administration/supervision, support and instruction. Expenditures are allocated to each cost center based upon the positions within the environment or level. Since the financial reporting system provides aggregate costs, calculation of costs by position was limited to those positions that were shared by the various levels of service.

Due to the complexity of the model and volume of data pertaining to the discrete cost component, this section required the largest portion of time for analysis. In addition, since data regarding students and staff change throughout the year, it was determined that September 30, 1984, the date for reporting the official enrollment to the Maryland State Department of Education, would be utilized whenever possible. Therefore, all references to students and staff numbers assigned to schools and transportation figures come from information provided for September, 1984.

A significant problem encountered in the attempt to complete the administrative/supervision cost center calculations was that, by definition, positions assigned were limited to principals of special education schools. In Frederick County, Levels I, II, III, and IV are located in regular schools supervised with other instructional programs. Only Level V programs are located in separate day school facilities. Therefore, the first modification of the Larson model was necessary. The administrative/supervision salary costs for Levels I, II, III and IV are prorated cost figures for all principals based upon a ratio of special education teachers to the total number of teachers and subdivided by the ratio in each level. Level V administrative costs reflect the costs of the principals at the two special day schools.

A unique feature of the Larson Model is the proration of shared costs using a multiplier based upon the prorated number of teachers or students assigned to a program. This feature provided a logical and

systematic method of associating costs based upon the portion of the time of duties in relation to the number of teachers/aides assigned to each program. However, since many costs were already in aggregate form by level of service, the multiplier was only necessary for those positions with duties involved in more than one level of service. This second modification of the Larson Model occurred during the calculation of the instruction cost center subcomponent. Financial data regarding the teachers, aides, materials/supplies/textbooks, equipment and contracted services were reported by level of service. Thus, the instructional multiplier was always one. Financial data regarding the support center costs were also reported by level of service.

A summary of aggregate discrete cost and per pupil costs by level of service are presented in Table 1. The aggregate discrete costs include three cost center components: administration/supervision, support and instruction. A detailed summary of discrete cost center components is reported separately in Appendix D.

Table 1
DISCRETE COSTS SUMMARY - TOTAL BY LEVEL*

	I	II	III	IV	V
Adm./Superv.	\$19,678	\$32,989	\$32,584	\$54,508	\$57,513
Support	-	-	\$ 1,994	-	\$12,176
Instruction	\$288,192	\$728,107	\$479,052	\$472,576	\$1,183,798
Total Costs	\$307,870	\$761,096	\$513,630	\$527,084	\$1,253,487
Pupils Per Level	506	675	477	60	311
Per Pupil Cost	\$ 608	\$ 1,128	\$ 1,077	\$ 8,785	\$ 4,030

*Calculations are rounded to the nearest whole dollar.

The second part of the IPSEC Model is the transportation cost component. Larson separated this component into three cost centers: special transportation, contract transportation and regular transportation. The Assistant Transportation Supervisor provided raw data for these cost centers. However, due to the commingling of program costs, considerable hand calculation was necessary to accurately reflect the costs associated with special education. Data for these cost components were obtained from the Transportation and Finance Departments.

The special transportation cost center calculates costs for transporting special education students apart from general education students. In Frederick County, two groups of Level V special education students create costs in this category. Approximately 270 students were transported to the Rock Creek School for the severely handicapped. In addition, 41 students in grades 6 to 12 were transported from their home schools to the alternative center for the CHANGES program. Compounding the calculation for these 41 students was the fact that they shared a bus transporting students to the Frederick County Vocational School located a few miles away. Consequently, modification of existing data was necessary to determine accurate costs.

Another unique feature of the Larson Model involves the costs for handicapped students transported by regular transportation. Using a multiplier, costs are prorated by the number of regular education

students transported compared to the total student enrollment. The format provided permits systematic calculations after the initial figures are determined.

As reported by another study using the Larson Model, "a conceptual error was discovered in calculating the aggregate costs of transporting handicapped students. Under the Larson Model contract, special, and regular per-pupil costs are added together to provide an aggregate per-pupil figure. Unfortunately, this procedure grossly overestimates transportation costs as a different base is used for each cost center" (Kienas, 1986, p. 76). Consequently, a modification to the Larson Model is necessary to more accurately reflect these costs. The alternative method calculates a total transportation cost for each of the three cost centers, adding the total costs together and then dividing the total by the number of handicapped students in each condition or environment (level) to determine a per pupil cost for transportation.

The special transportation cost center includes costs for 270 Level V students transported to the Rock Creek School and the added cost of 41 Level V students transported to the alternative education center. However, these 41 students first arrive at their home schools

and a second bus carries them to the special program. This creates a unique cost since these students are included in the special and regular transportation cost center.

Frederick County also has a unique contract transportation cost. Parents of 31 students transport their children to the Maryland School for the Deaf, located in the city of Frederick. These students are not included in the official enrollment for Frederick County and the county has no additional cost associated with these students. Therefore, while the cost of transporting these students through contracts with their parents is included in the total transportation costs, they are not included in any costs per level of service. No other students are transported by contract with their parents.

The per pupil cost of regular transportation of Levels I through IV of special education is \$215. The contract cost is zero. The per pupil cost of special transportation is \$1652, however, this figure is misleading because the per pupil cost for 270 students to Rock Creek is \$1865 while the per pupil cost for 41 students to CHANGES is only \$250. Students attending Rock Creek and CHANGES are considered Level V because they attend a separate day school. Calculations of the transportation cost component are provided in Table 2 on page 88.

Table 2
TRANSPORTATION COST COMPONENT*

<u>Level</u>	<u>Special Transportation</u>	<u>Contract Trans.</u>	<u>Regular Trans.</u>
I	-0-	-0-	\$90,085
II	-0-	-0-	\$120,400
III	-0-	-0-	\$84,710
IV	-0-	-0-	\$10,750
V	\$513,659	-0-	\$7,310

<u>Level</u>	<u>Total Cost</u>	<u>Eligible Pupils</u>	<u>Per Pupil Cost</u>
I	\$90,085	419	\$215
II	\$120,400	560	\$215
III	\$84,710	394	\$215
IV	\$10,750	50	\$215
V	\$7,310	304	\$1714

*Calculations are rounded to the nearest whole dollar.

The third portion of the IPSEC Model is the overhead cost component, those expenditures which cannot be readily or accurately identified with a specific service, program or unit, but are known to benefit a specific population of pupils. This component has two cost centers: general overhead costs and special overhead costs. Included as expenditures under general overhead costs are services of administration, maintenance and operation, and adult education. Data for these components were obtained from the Finance Department and the Annual Financial Report.

The forms provided to calculate the overhead cost centers are systematic and efficient to complete the application of the data. Similar to the shared costs calculated in the Discrete Cost component, a multiplier based upon the number of instructional personnel was used to calculate the differences between regular and special education. The per-pupil general overhead cost was \$531; the per-pupil special overhead cost was \$306; and, a total per-pupil overhead cost was \$837.

The fourth portion of the IPSEC Model is the fixed assets component which includes two cost centers: building depreciation and vehicle depreciation. Larson defines building depreciation as the amount of devaluation from the current appraised value of all buildings over one year due to normal usage, decay and/or decline in price at the rate of 1/30 of the current appraised value. The vehicle depreciation is the amount of devaluation from the current appraised value of the

fleet of buses over one year due to normal usage, decay and/or decline in price at the rate of 1/12 of the current appraised value. The forms provided to calculate the fixed assets costs were systematic and used a multiplier based upon the number of instructional personnel. Total fixed assets cost per-pupil amounted to \$421.

The last cost component in tier 1, day school operation, of the IPSEC Model is the related services cost component. Larson defines related services as those services which are required to assist the handicapped student to benefit from special education. Because Larson found that sufficient data were not available to calculate related services costs by handicapping condition and environment, each related service is analyzed in isolation yielding a per service per pupil cost. Accurate expenditure data were difficult to obtain from the financial reports. In particular, data regarding materials, equipment, and travel expenditures were not included in the financial report. Psychological services were prorated based upon an estimate provided by the psychologists since no precise record is maintained. However, the largest portion of their time (90%) is devoted to annual updates of current special education students or referrals to test newly identified candidates.

The distinction between evaluation and therapy costs in the Larson Model was difficult to achieve. A lack of specific information made it necessary to estimate the portion of time devoted to evaluation and

therapy services. Although calculation of related service costs is similar to the discrete cost component procedures, it does not account for positions that share time with non-handicapped students. While the Larson Model provides for the calculation of per pupil expenditures within each related service cost component, the lack of accurate data yields soft rather than hard conclusions. Appendix D provides the details of the related service cost calculations.

Using the Larson IPSEC Model, Tier 1 as modified, it has been possible to obtain per pupil expenditures for special education students in Levels I, II, III, IV and V who attend day schools in Frederick County, Maryland. While exact data necessary for all calculations were not immediately available, adjustment and estimation were used to complete the calculation procedures in order to yield results. Further modification of the Larson Model and modification of the financial accounting system used in Maryland should yield more accurate results. The aggregate costs and aggregate per pupil costs appear in Table 3 on pages 110 and 111. Further details of the per pupil calculations are provided in Appendix D.

Table 3
AGGREGATE COSTS*

Total					
Cost Components	Level I	Level II	Level III	Level IV	Level V
<u>Discrete Costs:</u>					
Adm./Superv.	\$19,678	\$32,989	\$32,584	\$54,508	\$57,513
Support	-	-	-	-	\$12,176
Instruction	\$288,192	\$728,107	\$479,052	\$472,576	\$1,183,798
Transportation	\$90,085	\$120,400	\$84,710	\$10,750	\$520,969
Overhead	\$423,522	\$564,975	\$399,249	\$50,220	\$260,307
Fixed Assets	\$213,026	\$284,175	\$200,817	\$25,260	\$130,931
<hr/>					
Total	\$1,034,503	\$1,730,646	\$1,196,412	\$613,314	\$2,165,694
Child Count	506	675	477	60	311
Per-Pupil Cost	\$2,044	\$2,564	\$2,500	\$10,222	\$6,964

*Calculations are rounded to the nearest whole dollar.

Research Findings

Research Question 2: What was the per pupil cost for students receiving Level V services in a nonpublic facility during 1984-85? What factors contributed to the cost for each student?

During 1984-85 three students received Level V services in a nonpublic facility. Placement at the different facilities was determined by student needs and the availability of space. Due to the needs of each student, no state, regional or local facility was appropriate. The total cost of the nonpublic placement for these three students was \$25,718 with a per pupil cost of \$8572.67. The local share, paid by Frederick County, was \$18,561, and the state paid the remaining amount, \$7,175. The local school system pays the full amount and requests reimbursement from the state at the end of the fiscal year after actual costs have been incurred. Factors affecting the cost for each student include the length of placement, type of program and services provided and the general operating costs at each facility. See Table 4, page 94 for more details.

Table 4
LEVEL V SERVICES - NONPUBLIC FACILITY*

	Students		
	A	B	C**
Length of Placement	July 1984- December 1985 (6 months)	September 1984- June 1985 (10 months)	July 1984- June 1985 (12 months)
Total Cost	\$5,473	\$8,403	\$11,842
Local Share	\$5,473	\$6,544	\$6,544
State Share	-0-	\$1,859	\$5,298
Other Factors	* Already hospitalized for psychological problems	* Placed by Social Services	* Church related facility,
	* Quit school in December	* No family or foster care available	thus no residential care cost
			* Only place available
Total Local Share	\$18,561		
Total State Share	<u>\$ 7,157</u>		
Total Cost	\$25,718		

** Only elementary student placed in a nonpublic facility during the past decade.

*Calculations are rounded to nearest whole dollar.

Research Findings

Research Question 3: What was the per pupil cost for students receiving Level VI services in both public and nonpublic facilities during 1984-85? What factors contributed to the cost for each pupil?

During 1984-85 five students received Level VI services in a public facility, an institution owned by the state but operated by Montgomery County, and seven students received Level VI services in a nonpublic facility. The full year cost per student at the public facility, RICA - Rockville located in Montgomery county, was \$7440. Two of the five students attended RICA - Rockville for less than a full year, the remaining three for the full year. The total cost for the five students attending RICA - Rockville was \$27,590, with a per pupil cost of \$5518. The local share of the total cost was \$24,902 and the state share was \$2,688. See Table 5, page 97 for more details.

The two students who attended RICA - Rockville for less than a full year withdrew from school after becoming sixteen when they were no longer subject to the Maryland compulsory attendance statute. In accordance with state policy, all students requiring Level VI services are first recommended to a public facility for placement. If space is available and their specific needs can be met, they are accepted. However, if space is not available and/or their specific needs cannot be met, placement at a nonpublic facility is sought. From a list of

state approved facilities, both in and outside of Maryland, applications are sent for consideration. Nonpublic facilities are not obligated to accept students if the facility is not prepared to satisfy individual needs or if the student/family are not willing to comply with entrance requirements.

The total cost for seven students placed at five nonpublic facilities was \$212,023, with a per pupil cost of \$32,289. One student, however, attended a facility for only four days at a cost of \$196. He was placed in a state hospital due to mental and physical requirements for the remainder of the school year. Frederick County was not responsible for additional charges in his case. By eliminating him from the list, due to the limited cost and services provided, the total cost is reduced minimally to \$211,827, but the per pupil cost increases significantly to \$35,304.50. Similar to the Level V nonpublic placements, factors affecting this cost include length of placement, required programs and related services and operational costs of each facility. See Table 6 on page 98 for more details.

Table 5
 LEVEL VI SERVICES - PUBLIC FACILITY (RICA - ROCKVILLE)*

<u>Student</u>	<u>Length of Placement</u>	<u>Total Cost</u>
A	October 1984 (1 month)	\$2,480
B	September 1984-August 1985 (12 months)	\$7,440
C	September 1984-August 1985 (12 months)	\$7,440
D	September 1984-August 1985 (12 months)	\$7,440
E	February-June 1985 (4 1/2 months)	<u>\$2,790</u>
	Total	\$27,590

	<u>Local Share</u>	<u>State Share</u>	<u>Other Factors</u>
A	\$2,480	-0-	* Quit school - FCPS charged for 3 months
B	\$6,544	\$896	* Space available
C	\$6,544	\$896	* Space available
D	\$6,544	\$896	* Space available
E	<u>\$2,790</u>	<u>-0-</u>	* Quit school
Total	\$24,902	\$2,688	

Per Pupil Cost - \$5,518

*Calculations rounded to nearest whole dollar.

Table 6
LEVEL VI SERVICES - NONPUBLIC FACILITY*

<u>Student</u>	<u>Length of Placement</u>	<u>Total Cost</u>
A	July 1984-December 1984 (6 months)	\$24,200
B	July 1984-June 1985 (12 months)	\$43,881
C	September 1984 (4 days)	\$196
D	July 1984-May 1985 (11 months)	\$33,758
E	July 1984-June 1985 (12 months)	\$35,848
F	April 1985-June 1985 (2 1/2 months)	\$2,515
G	July 1984-July 1985 (12 months)	\$35,867
	Total	<hr/> \$212,023

*Calculations rounded to the nearest whole dollar.

Table 6
LEVEL VI SERVICES - NONPUBLIC FACILITY*
(continued)

<u>Student</u>	<u>Local Share</u>	<u>State Share</u>	<u>Other Factors</u>
A	\$6,544	\$17,656	* Public facility not appropriate * Left at age 21
B	\$6,544	\$37,337	* Deaf and emotionally disturbed * Public facility not appropriate
C	\$196	-0-	* Hospitalized after 4 days. Severely disturbed * Public facility not appropriate
D	\$6,544	\$27,214	* Public facility not available
E	\$2,515	-0-	* Public facility not available
F	\$6,544	\$29,323	* Public facility not available
Total	\$71,189	\$140,834	

Per Pupil Cost (6) - \$35,337

Per Pupil Cost (7) - \$30,289

*Calculations are rounded to the nearest whole dollar.

In Maryland, the state and county share the responsibility for the cost of educational programs and services for handicapped children in nonpublic facilities (Annotated Code of Maryland, S8-409 (d)). The county must contribute the local share of the basic education plus an additional 200 percent of the basic education cost. The state reimburses the county for costs that exceed the 300 percent figure. The Fiscal Affairs Administrator in the Maryland Department of Education notifies each county of its local share, that is, the 300 percent, of the costs for nonpublic placement of special education students. The State then reimburses the county school system for the amount in excess of the 300 percent local share, providing the county has followed the necessary procedures. For 1984-85 Frederick County's local share of the excess costs was \$6544. This amount is adjusted annually using a formula calculated by the State Department of Education with data from the Annual Financial Report. The total cost of Level V and VI public and nonpublic placements for 1984-85 was \$265,331, of which \$150,679 was reimbursed by the State.

Research Findings

Research Question 4: In accordance with Title 34 of the Code of Federal Regulations, Part 300 (Assistance to States for Education of Handicapped Children), what is the minimum amount Frederick County must spend for the education of handicapped children prior to the expenditure of Part B Funds?

The excess cost requirement was enacted to ensure that EHA-B funds were used to help pay only those additional costs of educating handicapped children which are in excess of the cost of non-handicapped children. Furthermore, it is intended to ensure that, on average, a local educational agency (LEA) or an intermediate educational unit (IEU) spends as much for the education of handicapped students as it does for the education of non-handicapped students before it uses EHA-B funds. The formula provides procedures for computing the average per pupil expenditure (APPE) for all elementary and secondary students within a district, including both handicapped and non-handicapped students, as well as an aggregate amount. Using the formula provided by the Maryland State Department of Education for computation of the minimum local expenditure for "excessive costs", Frederick County should spend a minimum of \$588,937 or \$1499 per student independent of state and EHA-B funds. According to the report from the Finance Department, Frederick County spent \$5,294,000 from state and local sources for all special education programs and services during 1984-85. Serving 2030 students, the per student expenditure was \$2608, thus exceeding the minimum of \$2470 per student expected by state and federal guidelines. For additional details see Appendix D.

CHAPTER V

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This study proposed to test an instrument and to provide a descriptive cost analysis of the Frederick County, Maryland, Public School System's special education programs and services. This chapter discusses the issues related to previous special education studies associated with cost analysis, modifications of the Larson IPSEC Model necessary to complete the calculations and an analysis of the resulting calculations. In addition, conclusions and recommendations for further modification and use of the Larson Model are provided.

DISCUSSION

"In 1977 the Education for All Handicapped Children Act (P.L.94-142) was implemented nationally, requiring the public schools to institute a variety of new procedures with respect to the identification, evaluation, classroom placement, and individualized curricular planning for students with a wide range of physical and mental disabilities" (Raphael, Singer and Walker, 1985, p. 69). Public schools were expected to provide instructional services appropriate to the needs of each handicapped child regardless of the severity of the handicapping condition or the cost involved. Programs and related

services were to be provided free to each handicapped student. Since implementation of P.L.94-142, the total number of students receiving special education programs and services has surpassed 4 million nationally, representing nearly 11 percent of the elementary and secondary school population (Raphael et al., 1985).

Since the passage of the law, the cost of implementing P.L.94-142 has been a topic of concern for policy makers, school administrators and taxpayers. This concern has grown during recent years as public education came under scrutiny at the state and national levels. Traditional explanations regarding rising costs are no longer accepted without justification. "Rather, it is a question of these costs measured against two variables: the number of pupils served and the quality of the education received" (Pittinger and Kuriloff, 1981, p. 91). This phenomenon was noted by Hartman in his study (1981) which stated that as the magnitude of resources devoted to education of

handicapped students increased, so would the need and the demand for improved information concerning the costs of these programs.

Previous studies of special education finance (Rossmiller et al., 1970; Hartman, 1979; Kakalik et al., 1981 and Larson, 1985) related to cost accounting have indicated the difficulties in gathering data on a uniform basis. "Rossmiller (et al., 1970) found that standardized cost accounting systems were a necessary step for districts to accurately determine program costs and, thus, evaluate efficient use of resources" (Gillespie, 1980, p. 112). Reinforcing this idea in their study, Wilkens and Porter (1977) cited the lack of uniform cost accounting in many states as a major obstacle in providing data regarding special education finance and services (Gillespie, 1980). While Maryland public schools use a uniform financial reporting system, all expenditures are not necessarily charged to the appropriate category. As evidenced in this study, all expenditures for psychological services performed for special education students were not charged against the special education category. Rather, they appeared in the pupil personnel category. When this occurs, the benefits of a cost analysis are diminished by the inaccuracy of the data reported. According to

Black (1985), benefits of cost analysis program include:

- * Accurately calculate the cost of individual program services and the overall costs of the program per child/family served.
- * Understand the operations of the entire program more completely and discover how time and resources might be used more efficiently.
- * Speak clearly and precisely about the costs of the program to various audiences.

Although Black recognizes the benefits of a cost analysis system, he warns against a cumbersome model that lacks cost efficiency. An effective cost analysis system, according to Black, must not be burdensome, requiring more staff time and effort than it is worth. The Larson Model can accurately calculate the cost of individual program services and the overall per pupil cost of programs and services. The model provides information which allows one to speak precisely about the cost of special education and the model is cost efficient. Hence, the only criteria established by Black found lacking in the Larson Model is how time and resources might be used more efficiently.

In his study, Larson addressed factors previously recognized as significant to achieve accurate program analysis. These factors include:

- * Appropriate equivalencies in cost and enrollment data.
- * Practical cost units which provide a comparative base.
- * Effective and practical cost centers.
- * Appropriate cost elements and categories which will enable effective allocation and interpretation.
- * An effective way of approaching equipment, overhead, capital depreciation, related service, and start-up costs.

Using the Research and Development process and validation by a panel of experts, Larson addressed 9 of the 10 factors. He found that total costs by handicapping condition and environment by each related service was unobtainable. Therefore, he limited his calculation to per pupil cost for each related service. He also found that calculation of start-up costs was a gross estimate at best. The Larson Model, similar to other cost analysis models, is complex. Anyone attempting to use the model should have knowledge of both accounting and special education budgetary procedures. Without this basic information, successful use of the model is far more difficult.

In applying the Larson model to the Frederick County Public School System some modifications were necessary. The discrete portion of the model is the most complicated of the four basic components necessary to calculate the per pupil cost of special education programs and services

by either the handicapping condition or environment. Frederick County uses Maryland's standard financial reporting system to record costs by category and program. This method of accounting could be applied to the Larson Model for calculations of environment or level of service only. Costs by handicapping condition were excluded from the reporting system. The State of Maryland also requires each school system to complete a Special Services Information System (S.S.I.S.) report that provides the handicapped child count by handicap type, age and environment for each school year. Types of handicapping condition include mentally retarded, hard of hearing, deaf, speech/language impaired, visually handicapped, emotionally impaired, orthopedic impaired, other health impaired, specific learning disability, multi-handicapped and deaf-blind. The age categories include 0-2, 3-5, 6-17 and 18-21. The environments include: Level 5, separate school facility; Level 6, separate school facility and Level 7, other educational environment (home and hospital).

The first modification of the Larson Model occurred during the calculations for the administrative/supervision cost center of the discrete component. By definition, the position of principal was limited to principal of special education schools. In Frederick County, only Level V students attend separate day school facilities;

Levels I through IV students are located in regular schools. According to Frederick County Board of Education Policy, principals have direct line authority for supervising special education personnel in their buildings. Thus, the administrative cost of the principals, was prorated according to the ratio of special education teachers to the total number of teachers for the Levels I through IV calculations. The cost of the principals of the two special day schools was included in the Level V calculations only. To include the cost of special school principals in Levels I through IV would have resulted in erroneous and inflated figures for the administrative cost center.

A second modification of the Larson Model affected the calculations of the instruction cost center component. Since the costs of teachers, aides, materials/supplies/textbooks, equipment, travel and contracted services were already reported by level of service, the instructional multiplier was altered to a constant 1.0. If these costs had not been reported by level, then the multiplier, based upon the percentage of time devoted to special education services and the number of pupils assigned, would have been used as prescribed. Once again, following the prescribed procedures would have produced inaccurate results. These modifications to the calculation of the discrete cost components have produced more accurate results based upon the available information.

Another area requiring some modification of the Larson model

procedures was the transportation cost component. Specifically, the calculations of the special transportation and contract transportation were altered due to the programming arrangements in Frederick County. The commingling of most transportation costs created the necessity for substantial hand calculation. Costs related to special education students have not been reported separately. The special education cost center calculates costs for transporting special education students apart from general education students. In Frederick County, two groups of Level V students generate expense in this cost center. Students attending the special education school, Rock Creek, for the severely handicapped are transported separately. However, the buses used to transport them are also used to transport students during the day for other special programs. Evaluating the bus manifests required the elimination of those costs not associated with special education. An additional 41 students in grades 6 to 12 were transported from their home schools to the alternative center for handicapped students whose behavior problems have removed them from regular classrooms. These 41 students had to be included in the calculations of special transportation and regular transportation.

Another area of modification to the transportation cost component involves the contract transportation center. This center is for

payments to parents in lieu of transportation by the school system. Parents of 31 students transport their children to the Maryland School for the Deaf, located in the city of Frederick. However, the county has no additional costs associated with these students. While the cost of the contract transportation is included in the total cost of transportation, it is not applied to any of the levels of special education service provided by Frederick County.

No modifications were necessary to complete the overhead cost component or the fixed asset cost component. However, as noted in the Kienas study (1986), the value of equipment and furniture has not been included in the calculations of fixed asset costs. Neither is the value of the land owned by the school system. Including these amounts would affect the aggregate and per pupil cost of special education programs and services. An additional indirect cost omitted from the Larson Model is the annual cost of the county-owned vehicles used by administrators who devote a portion of their time to special education. While the cost may be minimal, it is an additional cost that should be included if an accurate reflection of true costs is to be calculated.

The last cost component, related services, was not modified, but results were limited. As noted by Larson (1985) and Kienas (1986), this cost component is difficult to complete. The lack of distinction

between evaluation and therapy costs is often arbitrary, and costs by handicapping condition and environment by each related service is often unobtainable. Cost procedures, also, do not account for positions that share time with non-handicapped students. Related service expenditures in Frederick County were not easily identified; thus, estimates were necessary to complete the calculations.

Modifying the Larson IPSEC Model procedures to provide valid calculations was necessary. However, as shown in Table 1 on page 84, the range of the per pupil amount in the discrete cost component was \$608 for Level I to \$4,030 for Level V. The transportation cost component, Table 2 on page 85, was \$215 per pupil, except for Level V which was \$1714. The total overhead cost per pupil was \$837 for all levels of service. The fixed assets cost per pupil amounted to \$421 for all levels of service. Thus, when tallied, the range of aggregate costs, Table 3 on page 89, was a low of \$2,044 for Level I to a high of \$10,222 for Level IV. The "high" per pupil cost of Level IV service is primarily due to the high per pupil cost of instruction, \$7876 per student.

Calculations of per pupil costs for Levels I, II, III and IV are in addition to costs associated with all students. Results derived from the Larson Model should provide Frederick County administrators with information necessary to assess costs of the special education programs. The model should assist administrators in identifying those areas which require further evaluation.

CONCLUSIONS

Several studies conducted, prior to and after the passage of P.L.94-142, have estimated the per pupil expenditures for educating handicapped children. The method generally employed in these studies has been either the expenditure method or the resource allocation method. The former method uses a model where school system budgets are analyzed and expenditures associated with each type of special education program are determined. A per pupil estimate is calculated by dividing the total program cost by the number of students served. A limitation of this method according to Raphael et al. (1985) is that districts seldom report expenses by programs. Consequently, the lack of uniform recordkeeping complicates cost comparisons with other school systems. While Frederick County reports special education costs by level of service, it does not report costs by handicapping conditions. Calculation of special education program and service costs by handicapping condition is not required by the Maryland State Department of Education. The latter method, the resource allocation method, defines each classification of handicapped children as components of the educational program. In addition, cost estimates of each of these services are calculated based upon the cost of each input. The per pupil cost is achieved by adding the costs of all the services provided

each student in each type of special education program (Raphael et al., 1985). Previous special education cost studies have reported findings on either an aggregate amount or on a per pupil basis of analysis. The Larson Model as modified provides for both an aggregate and per pupil cost by handicapping condition or environment.

Subject to the limitations of this study, the findings support the following conclusions:

(1) The Larson Model as modified yields valid calculations that determine the per pupil cost of Levels I through V of special education programs and services provided in Frederick County, Maryland, Public Schools.

(2) The model is sufficiently common in terminology, that, with modifications, it can be utilized by other LEAs in Maryland to analyze similar costs of special education programs and services.

(3) The complexity of the calculations used in the model requires sufficient and accurate data to obtain valid results.

(4) The results of this study provide a basis for additional studies of special education program and service costs in Frederick, or comparison with similar studies of other LEAs in Maryland.

(5) The Frederick County School System, as well as, the Maryland Department of Education, financial reporting system does not currently reflect the total costs of providing special education programs and

services. More detailed and accurate identification of appropriate costs is necessary to completely calculate aggregate and per pupil costs.

(6) The cost of Level VI programs and services is less expensive in a public facility than in a nonpublic facility. Therefore, school systems should continue to utilize their allocation of placements at the public facility prior to placements in a nonpublic facility.

RECOMMENDATIONS

This study has resulted in the following recommendations.

- (1) The explanation of the model procedures be clarified and expanded so that individuals working with special education but unfamiliar with financial terminology could more readily use the model.
- (2) The procedure for determining the total cost of residential services includes a multiplier for materials/supplies/text, travel, equipment, and contract services. In using the Larson Model to allocate costs for administrative positions modifications on a district by district basis will be necessary to identify all allocable discrete costs. For example, while Frederick County employs a Coordinator of Residential Placements, no funds are allocated for materials/supplies/textbooks, equipment, or contracted services at

residential facilities. Thus, the multiplier, as stated in the Larson Model, would yield inaccurate results for this study.

- (3) Procedures to calculate the transportation cost component should be modified. A more accurate procedure calculates a total transportation cost for each of the three cost centers, adding the total costs together and then dividing the total costs by the number of handicapped students in each condition or environment to determine a per pupil cost.
- (4) Procedures to calculate the fixed asset cost component should be modified to include the value of land, furniture and equipment. Including the value of the land, \$11,339,677, and value of the furniture and equipment \$13,957,031, in this study would increase the per pupil fixed assets cost from \$421 to \$640 per pupil.
- (5) Make provisions in the components for any additional costs, such as vehicles used by administrators who devote a portion of their time to special education, that would not normally apply to existing cost center components. While this cost may be minimal, it is an added cost not currently included in the calculations for Frederick County. The cost of professional journals, organization membership or professional conferences which indirectly benefit students is also not included in the current model.

- (6) The financial reporting system used by Frederick County and the State of Maryland should be modified to more accurately reflect the costs of special education programs and services. Procedures should be adopted to ensure that all appropriate costs are properly identified and included in the Annual Financial Report.
- (7) In determining a LEAs compliance with the excess cost requirement of P.L.94-142, additional clarification is needed from the State Department of Education to ensure that Superintendents, Special Education Directors, and business office personnel clearly understand the procedures and the intent of the legislation.
- (8) This study be replicated in other Maryland School systems to determine the need for additional modifications or applicability for use throughout the state.

References

Abeson, A., and Ballard, J. "State and Federal Policy for Exceptional Children." In F. J. Weintraub, A. Abeson, J. Ballard, and M. L. LaVor, eds., Public Policy and the Education of Exceptional Children. Reston, VA: The Council for Exceptional Children, 1976.

Annotated Code of Maryland

S 8-401.1 (2) (1981)

S 8-402 (a) (1981)

S 8-417.2 (d) (1981)

S 8-417.3 (d) (1981)

Art. 77 S106 G-3 (1957)

Ch. 22 S2 (1978)

Ballard, J., Ramirez, B. A., & Weintraub, F. J. (eds.). (1982). Special Education in America: Its Legal and Governmental Foundations. Reston: The Council for Exceptional Children.

Ballard, J. & Zettel, J. (1977). Public Law 94-142 and Section 504: What They Say About Rights and Protection. Exceptional Children. Reston, VA: The Council for Exceptional Children.

Black, T. (1985). Budget and Program Planning in Early Education Programs. Topics in Early Childhood Special Education Quarterly, 5(1), 53-62.

Bernstein, C. D., et. al. (1976). Financing Educational Services for the Handicapped. Reston: The Council for Exceptional Children.

Brown v. Board of Education, 347 U.S. 483 (1954).

Burlington School Committee v. Department of Education of Massachusetts, 736 F. 2nd 773, (1st Cir. 1984).

Chatterton v. Lincoln State Department of Education, 3 EHLR 551:548 (1979)

Clevenger v. Oak Ridge, 744 F. 2nd 514. (6th Cir. 1984).

Code of Federal Regulations, 34 C.F.R. Part 300 (1981).

- Colley, R. (1981). The Education for All Handicapped Children Act (EHA): A Statutory and Legal Analysis. Journal of Law and Education, 0(2), 137-161.
- Commission. (1983). Financing of a Free and Appropriate Education for Special Needs Children (Report of the Commission on Financing) Washington, DC: U.S. Government Printing Office.
- Council of Chief State School Officers. (1983). Financing Free and Appropriate Public Education for Handicapped Students. Washington, D.C.: National Association of Chief School Administrators.
- Department of Education. (1984). 6th Annual Report to Congress on the Implementation of P.L.94-142: The Education for All Handicapped Children Act of 1975 - executive summary. Exceptional Children, 51(3), 199-201.
- Gearheart, W. R. (1980). Special Education for the '80s. St. Louis: C. V. Mosby Company.
- Geske, T. G. and Johnston, M. J. (1985). A New Approach to Special Education Finance: The Resource Cost Model. Planning & Changing, 16, 105-117.
- Gillespie, D. N. (1980). A Study of Compliance with the Education for All Handicapped Children Act, Excess Cost Requirements in Selected Local Education Agencies in Florida. Doctoral dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA.
- Gisi, L. G. (1985). How States Are Reforming Education. U.S.A. Today, 113(2478), 76-78.
- Goldberg, S. S. (1982). Special Education Law. New York: Plenum Press.
- Hartman, P., Hartman, W. T., Bernstein, C. & Lavine, C. (1978). Special Education Planning Model: Users Guide. Palo Alto, CA Management Analysis Center.

- Hartman, W. T. (1979). Estimating the Costs of Educating Handicapped Children: A resource-cost model approach (Grant No. G00780013). Washington, D.C.: U.S. Office of Education, Bureau of Education for the Handicapped.
- Hartman, W. T. (1981). Estimating the Costs of Educating Handicapped Children: A resource-cost model approach - summary report. Educational Evaluation and Policy Analysis, 3(4), 33-47.
- Henderson, R. A., & Hage, R. E. (1979). Economic Implications of Public Education of the Handicapped. Journal of Research and Development, 12(4), 71-79.
- Hendrick Hudson District Board of Education v. Rowley, 458 U.S. 176, 102 S. Ct. 3034, 73 L. Ed. 2d 690 (1982).
- Hessler v. State Board of Education of Maryland, 3 EHLR 553:262 (1981).
- Irving Independent School District v. Tatro, 104 S. Ct. 3371, 3377 (1984).
- Johnson, T. P. (1986). The Principal's Guide to the Educational Rights of Handicapped Students. Reston, VA: The National Association of Secondary School Principals.
- Johnson, T. P. (1985) The Supreme Court on Special Education: An Update. (A Legal Memorandum No. ISSN 0192-6152). Reston, VA: The National Association of Secondary School Principals.
- Jones, P. R. (1981). A Practical Guide to Federal Special Education Law: Understanding and Implementing P.L.94-142. New York: Holt, Reinhart and Winston.
- Jones, P. R., & Salmon, R. G. (1983). An Evaluation of Public and Nonpublic Special Education Programs Used by Montgomery County Maryland Public Schools (Tech. Rep.). Blacksburg, VA: Virginia Polytechnic Institute and State University, Division of Administration and Educational Services.
- Kienas, K. L. (1986). A Comparison of the Efficiency and Effectiveness of Two Models for Determining the Cost of Special Education Programs. Doctoral dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA.
- Kakalik, J. S., Furry, W. S., Thomas, M. A., Carney, M. F. (1981). The Cost of Special Education (Contract No. 300-79-0733). Washington, DC: U.S. Department of Education, Office of Special Education. Santa Monica, CA: The Rand Corporation.

- Larson, J. B. (1985). Framework for Descriptive and Comparative Cost Analysis of Public and Nonpublic Special Education Programs. Doctoral dissertation, Virginia Polytechnic Institute and State University, Blacksburg, VA.
- National Institute of Education. (1984). A Report on the National Conference on Transition for Youth with Handicapping Conditions to Work, Coordination of State Policies and Practices. Washington, DC: U.S. Government Printing Office.
- _____. 94th Congress, 1st session, (1975) U.S. Code Cong. & Ad. News 1433
- Pittinger, J. C. & Kuriloff, P. (1982). Educating the Handicapped: Reforming a Radical Law. Public Interest, 66(winter), 72-96.
- Public Law 94-142, The Education for All Handicapped Children Act of 1975. 94th Congress, S.6.
- Raphael, E. S., Singer, J. D. & Walker, D. K. (1985). Per Pupil Expenditures on Special Education in Three Metropolitan School Districts. Journal of Education Finance, 11(summer), 69-88.
- Rehabilitation Act of 1973, 29 U.S.C. S 1401 (1973).
- Rossmiller, R. A. Hale, D., & Frohreich, J. (1970). Educational Programs for Exceptional Children: Resources Configurations and Costs. National Educational Finance Project No. 2. Madison: University of Wisconsin, Department of Educational Administration.
- Schipper, W. (1980). Financial and Administrative Considerations. The Journal of School Health, May, 288-290.
- Stemple v. Board of Education, 623 F. 2nd 904, 4th Circuit, (1980).
- Town of Dartmouth v. Massachusetts Department of Education, 3 EHLR 5512:313 (1980).
- Vesa, S. and Wendel, F. (1982). How School Districts Finance Special Education. Phi Delta Kappan, 63, 703-704.
- Weintraub, F. J., & Ramirez, B. A. (1985). Progress in the Education of the Handicapped and Analysis of P.L.98-199. Reston, VA: The Council for Exceptional Children.
- Wilkins, W. H. and Porter, D. O. (1977). State Aid for Special Education: Who Benefits? Washington, D.C.: National Institute of Education U.S. Department of Health, Education and Welfare.

APPENDICIES

APPENDIX A
FACTS ABOUT MARYLAND

GENERAL INFORMATION

Frederick County is one of twenty-four school systems in Maryland, which includes twenty-three counties and Baltimore City. The following are 1984 estimates:

Enrollment:

Pre-kindergarten	7,825	
Kindergarten	46,380	
Grades 1 - 12	619,558	
Adult Basic Education	<u>30,000</u>	
	703,763	
Number Receiving Special Education Services	92,100	
Total Education Budget	\$2.61 billion	
State - 41%	Federal - 4%	Local - 55%
Cost per pupil	\$3,748	
Current Expenses for Maryland Public Schools:		
Instruction	48.7%	
Fixed Charges	21.2%	
Operations and Maintenance	12.7%	
Special Education	7.8%	

Transportation	4.8%
Administration	4.1%
Other6%

APPENDIX B

FACTS ABOUT FREDERICK
COUNTY MARYLAND PUBLIC SCHOOLS

1984-85

1984-85 Fact Sheet

Employees	2,444
Administration/Supervisory	140
Classroom/Instruction	1,248
Other Professional	120
Support	746
Food Service	190
Enrollment	23,435
Operating Budget	\$64,738,969

Revenue Sources:

Local	58.45%
State	36.6%
Federal	3.4%
Other	1.6%

School Buildings:

24 elementary
8 middle
8 high
1 votech
1 special education

Educational Expenditures:

Instruction	57.2%
Operations	12.2%
Fixed Charges	7.5%
Transportation	7.4%
Special Education	6.2%
Administration	5.5%
Maintenance	2.9%
Pup. Serv., Com. Serv., Cap. Outlay	1.1%

1 outdoor school
1 alternative center

FREDERICK COUNTY PUBLIC SCHOOL

ENROLLMENT

SEPTEMBER 30, 1984

Pre-kindergarten		39
Special Education		401
Kindergarten		1,798
Grade 1		1,871
Grade 2		1,687
Grade 3		1,577
Grade 4		1,597
Grade 5		1,642
Grade 6		1,680
Grade 7		1,854
Grade 8		1,909
Grade 9		2,109
Grade 10		1,960
Grade 11		1,725
Grade 12		1,546
Home and Hospital		<u>20</u>
	Total	23,435
Grade P-K to 5	10,211	43.6%
Grade 6 to 12	12,803	54.6%
Special Education & Home and Hospital...	<u>421</u>	<u>1.8%</u>
	23,435	100%

SPECIAL EDUCATION CASELOADS

1984-85

<u>School</u>	<u>I</u>	<u>II</u>	Level <u>III</u>	<u>IV</u>	<u>V</u>	<u>Total</u>	<u>Teachers</u>
Elementary	72	362	206	13		653	23.3
Middle	154	152	133	5		444	12.5
High School	281	136	136	24		577	14.5
Changes					41	41	4
Rock Creek	<u> </u>	<u>25</u>	<u>2</u>	<u>18</u>	<u>270</u>	<u>315</u>	<u> </u>
Total	507	675	477	60	311	2030	
Speech Clinicians	1	64	31	21	0	117	
Physical Therapist						24	
Occupational Therapist						35	

APPENDIX C

DISCRETE COST COMPONENT

WORKSHEETS

DISCRETE COSTS (ADMINISTRATION/SUPERVISION)

AGENCY _____

HANDICAPPING CONDITION (circle one) Deaf D/B III ENR THR MH OI OHI SED SLD SI VI Other, specify: _____

ENVIRONMENT (circle one) Itinerant Resource Self-Contained Separate Day School Residential School Other, specify: _____

Position	Salary (1 + 2 = 3)			% of Time to Duties (4 + 5 + 6 must = 100%)			Number of Teaching/Aide Child Care Personnel Assigned (8 + 7 = 9)			1 (ADMINISTRATION/ SUPERVISION) Multiplier (5 x 9 = 10) (6 x 9 = 11)	
	1 Gross Salary	2 Fixed Charges	3 Total Salary	4 Non- Handi- capped	5 Sp. Ed. & Related Services	6 Residential Services	7 Working with Handicapped	8 Working in Condition & Environment	9 Portion Working in Cond. & Env.	10 Sp. Ed. Related Services	11 Residential Services

Figure 2
Form IPSEC-1 Discrete Costs (Administration/Supervision)

Portion of Total Salary To Condition & Environment			Materials/Supplies/Texts				Equipment			
(3x12) +12)	(3x11 +13)	(12x11 +14)	15	(10x15 +16)	(11x15 +17)	(16x17 +18)	19	(10x19 +20)	(11x19 +21)	(20x21 +22)
12	13	14	15	16	17	18	19	20	21	22
Sp. Ed. & Related Services	Residential Services	Total Special Services	Total Support	Sp. Ed. & Related Services	Residential Services	Total Special Services	Total Support	Sp. Ed. & Related Services	Residential Services	Total Special Services

Figure 2
Form IPSEC-1 Discrete Costs (Administration/Supervision)

Travel (10+23 +24) (11+23 +25) (24+25 +26)				Contract Services (10+27 +29) (11+27 +29) (28+29 +30)				TOTAL (12+16+29+24+28 +31) (13+17+21+25+29 +31) (31+32 +33)		
23	24	25	26	27	28	29	30	31	32	33
Total Support	Sp. Ed. & Related Services	Residential Services	Total Special Services	Total Support	Sp. Ed. & Related Services	Residential Services	Total Special Services	Sp. Ed. & Related Services	Residential Services	Special Services.

Figure 2
Form IPSEC-1 Discrete Costs (Administration/Supervision)

DISCRETE COSTS (SUPPORT)

AGENCY _____

HANDICAPPING CONDITION (circle one) Deaf D/B HH EMR TMR NH OI OHI SED SLD SI VI Other, Specify: _____

ENVIRONMENT (circle one) Itinerant Resource Self-Contained Separate Day School Other, Specify: _____

Position	Salary			% of Time to Duties		# of Teachers/Aides Assigned			Support Multiplier
	1	1 + 2 = 3 2	3	4	4 + 5 must = 100% 5	6	7 ÷ 6 = 8 7	8	5 x 8 = 9 9
Support	Gross Salary	Fixed Charges	Total Salary	Non-Handicapped	Sp. Ed. & Related Services	Working with Handicapped	Working in Cond. & Env.	Portion Working in Cond. & Env.	Sp. Ed. & Related Services

Figure 3

Form IPSEC-2 Discrete Costs Support Cost Center

Portion of Total Salary to Cond. & Env. 3 x 9 = 10 10	Materials/Supplies/Texts		Equipment		Travel		Contract Services		Total Cond. & Env.
	11	9x11 = 12 12	13	9x13 = 14 14	15	9x15 = 16 16	17	9x17 = 18 18	10+12+14+16+18=19 19
Sp. Ed. & Related Services	Total Support	Sp. Ed. & Related Services	Total Support	Sp. Ed. & Related Services	Total Support	Sp. Ed. & Related Services	Total Support	Sp. Ed. & Related Services	Total Special Services

Figure 3

Form IPSEC-2 Discrete Costs Support Cost Center

DISCRETE COSTS (INSTRUCTION)

AGENCY _____

HANDICAPPING CONDITION (circle one) Fee/ D/O MP EMI IMI MI CI OI SFO CLO SI VI Other, specify: _____

ENVIRONMENT (circle one) Itinerant Resource Self-Contained Separate Day School Residential School Other, specify: _____

Position	Salary (1 + 2 + 3)			% of Time to Duties (4 + 5 + 6 must = 100%)			Number of Pupils Assigned (8 + 7 = 9)			Instruction Multiplier (5 x 9 = 15) (5 x 9 = 11)	
	1	2	3	4	5	6	7	8	9	10	11
	Gross Salary	Fixed Charges	Total Salary	Non-Handicapped	Sp. Ed. & Related Services	Residential Services	In Sp. Ed.	In Condition & Environment	Portion Assigned in Conc. & Env.	Sp. Ed. Related Services	Residential Services
Teacher/Aids											

Figure 4

Form IPSEC-3 Discrete Costs Instruction Cost Center

Portion of Total Salary To Condition & Environment (2x12 + 12) (3x13 + 13) (12+13 +14) 12 13 14			Materials/Supplies/Items 15 (10x15 +16) (11x15 +17) (15+17 +13) 16 17 13				Equipment 18 (15x19 +20) (11x19 +21) (20+21 +22) 19 20 21 22			
Co. Ed. & Related Services	Residential Services	Total Special Services	Total Instruction	Sp. Ed. & Related Services	Residential Services	Total Special Services	Total Instruc- tion	Sp. Ed. & Related Services	Residential Services	Total Special Services

Figure 4

Form IPSEC-3 Discrete Costs Instruction Cost Center

Travel (10+22 =24) (11+23 =25) (24+25 =25)				Contract Services (10+27 =27) (11+27 =29) (25+29 =30) (12+15+29+24+23 =31)					TOTAL (13+17+21+25+29 =31) (31+32 =33)		
23	24	25	26	27	28	29	30	31	32	33	
Total Instruction	Sp. Ed. & Related Services	Residential Services	Total Special Services	Total Instruction	Sp. Ed. & Related Services	Residential Services	Total Special Services	Sp. Ed. & Related Services	Residential Services	Special Services	

Figure 4

Form IPSEC-3 Discrete Costs Instruction Cost Center

DISCRETE COSTS (Summary)

LEA _____

HANDICAPPING CONDITION (circle one) Deaf D/B III EMR IHR III DI OII SED SLD SI VI Other, Specify: _____

ENVIRONMENT (circle one) Itinerant Resources Self-Contained Separate Day School Residential School Other, Specify: _____

		Total Salary	Materials/Supplies/Tests	Equipment	Travel	Contract Services	Total (1+2+3+4+5 = 6)
		1	2	3	4	5	6
		Sp. Ed. & Related Services	Sp. Ed. & Related Services	Sp. Ed. & Related Services	Sp. Ed. & Related Services	Sp. Ed. & Related Services	Sp. Ed. & Related Services
Admin./Superv.							
Support							
Instruction							
Total Costs							
Child Count in Cond. & Envir.	Per-Pupil Cost						

Figure 5

Form IPSEC-4 Discrete Costs Total

RELATED SERVICES COSTS (EVALUATION/THERAPY-SERVICES)

AGENCY _____

SERVICE (one form per-related service) _____

Position	Salary (1 + 2 = 3)			% of Time to Duties (4 + 5 must = 100%)		Number of Children Served		Portion of Total Salary to Duties (3 x 4 = 8) (3 x 5 = 9)	
	1	2	3	4	5	6	7	8	9
Evaluation/ Therapy Service	Gross Salary	Fixed Charges	Total Salary	Evaluation	Therapy- Service	Evaluation	Therapy- Service	Evaluation	Therapy- Service

Figure 9
Form IPSEC-8 Related Services Costs

Contract Services			Total		
19	(4 x 19 = 20) 20	(5 x 19 = 21) 21	(9 x 11 + 14 + 17 + 20 = 22) 22	(9 x 12 + 15 + 13 + 21 = 23) 23	(22 + 23 = 24) 24
Total Related Services	Evaluation	Therapy-Service	Evaluation	Therapy-Service	Total Special Services

Figure 9

Form IPSEC-8 Related Services Costs

Aggregate Costs

AGENCY _____

HANDICAPPING CONDITION (circle one) Def D/B HII EPR TMR MII OI OHI SED SLD SI VI Other, specify: _____

ENVIRONMENT (circle one) Itinerant Resource Self-Contained Separate Day School Residential School Other, specify: _____

Costs in Condition and Environment	Sp. Ed. & Related Services	Resident Services	Total Special Services
Discrete			
Transportation			
Fixed Assets			
Overhead			
Total			

Related Services Costs	Evaluation		Therapy		Total	
	Sp. Ed. & Related Services	Residential Services	Sp. Ed. & Related Services	Residential Services	Sp. Ed. & Related Services	Residential Services
1.						
2.						
3.						
4.						
5.						
Total						

Figure 10

Form IPSEC-9 Aggregate Costs

APPENDIX D

COST COMPARISON RESULTS

Herein are tables containing results of the cost calculations using the IPSEC Model for cost analysis. All data was obtained for fiscal year 1985. Anyone interested in obtaining the raw data collected for this study may contact:

Alan Slobojan

<u>TYPE OF COST*</u>	<u>Level I</u>	<u>Level II</u>	<u>Level III</u>
DISCRETE COST COMPONENT			
Admin./Superv. Cost Center	\$19,480	32,989	32,593
Salaries	15,542	26,687	26,687
Materials/Supplies/Text	329	527	491
Equipment	978	1,565	1,468
Travel	0	0	0
Contract Services	2,631	4,210	3,947
Support Cost Center	0	0	0
Salaries	0	0	0
Materials/Supplies/Text	0	0	0
Equipment	0	0	0
Travel	0	0	0
Contract Services	0	0	0
Instruction Cost Center	288,192	728,197	479,052
Salaries	288,192	724,322	458,953
Materials/Supplies/Text	0	3,875	18,551
Equipment	0	0	1,461
Travel	0	0	80
Contract Services	0	0	87
TRANSPORTATION COSTS	90,085	120,400	84,710
OVERHEAD COSTS	423,522	564,975	399,249
FIXED ASSETS COSTS	213,026	284,175	200,817

*Costs are rounded to the nearest whole dollar (aggregate costs).

AGGREGATE COSTS*

TYPE OF COST DISCRETE COST COMPONENT	Level IV	Level V
Adm./Supr. Cost Center	54,508	57,413
Salaries	43,873	48,851
Materials/Supplies/Texts	889	922
Equipment	2,642	273
Travel	0	0
Contract Services	7,104	7,367
Support Cost Center	0	12,176
Salaries	0	12,176
Materials/Supplies/Texts	0	0
Equipment	0	0
Travel	0	0
Contract Services	0	0
Instruction Cost Center	472,576	1,034,132
Salaries	452,488	997,773
Materials/Supplies/Text	20,010	35,214
Equipment	78	1,145
Travel	0	0
Contract Services	0	0
TRANSPORTATION COSTS	10,750	520,696
OVERHEAD COSTS	50,220	260,307
FIXED ASSETS COSTS	25,260	130,931

*Costs are rounded to the nearest whole dollar.

RELATED SERVICE COSTS*

TYPE OF COST	TYPE OF SERVICE	
	<u>Psychologist</u>	<u>Physical Therapist</u>
Salaries	\$181,054	\$28,641
Materials/Supplies/Texts	3,036	0
Equipment	0	0
Travel	2,700	300
Contract Services	<u>0</u>	<u>0</u>
Total Cost	\$186,790	\$28,941
Students Served	978	24
Evaluation Cost	\$186,790	
Students Served	978	
Cost Per Student	\$191	
Therapy Cost	0	\$28,941
Students Served	0	24
Cost Per Student	0	\$1,206

*Costs are rounded to the nearest whole dollar.

RELATED SERVICE COSTS*

TYPE OF COST	TYPE OF SERVICE	
	<u>Speech Therapist</u>	<u>Occupational Therapist</u>
Salaries	\$366,023	\$37,437
Materials/Supplies/Text	0	0
Equipment	0	0
Travel	3,000	300
Contract Services	<u>0</u>	<u>0</u>
Total Cost	\$369,023	\$37,737
Students Served	117	35
Evaluation Cost	\$36,902	0
Students Served	13	0
Cost Per Student	\$2,839	0
Therapy Cost	\$332,121	\$37,737
Students Served	117	35
Cost Per Student	\$2,839	\$1,078
Evaluation Cost Total		\$223,692
Students Served		991
Cost Per Student		\$226
Therapy Cost Total		\$398,799
Students Served		176
Cost Per Student		\$2,266

*Costs are rounded to the nearest whole dollar.

SCHEDULE II - BASIC COST
PER NON-HANDICAPPED STUDENT
FISCAL YEAR 1985*

<u>Account Code</u>	<u>Description</u>	<u>Amount</u>	<u>Total</u>
01	Administration	\$ 3,658,725	
02	Instruction	38,363,417	
03	Pupil Personnel	211,645	
04	Health	39,537	
06	Operations	7,481,880	
07	Maintenance	1,761,728	
08	Fixed Charges	3,646,758	
13	Special Education	3,393,293	
			\$58,556,983
Less:			
	Adult Education	\$ 96,796	
	Special Education	5,042,469	
	Federal Funds	2,368,605	
	Compensatory Ed.		
	Density Aid (2/3)		<u>7,507,870</u>

SCHEDULE II - BASIC COST
PER NON-HANDICAPPED STUDENT
FISCAL YEAR 1985
(continued)

Enrollment 9/30/84		23,435
Less: Special Education		
Level IV	60	
Level V	316	
Level VI	<u>12</u>	<u>388</u>
		<u>23,047</u>

Basic Cost	\$2,215
Less: State Aid	<u>756</u>
Local Share - B.C.P.	\$1,459

SCHEDULE III - EXCESS COST

COMPLIANCE

FISCAL YEAR 1985

LOCAL SHARE

Cost of Special Education		\$5,042,469
Less: Basic Cost		
Basic Cost per pupil	\$2,215	
No. of Pupils (public)	<u>311</u>	
		\$688,865
Local Share B.C.P.	\$1,459	
No. of Pupils (nonpublic)	<u>17</u>	
		24,803 <u>713,668</u>
Excess Cost		\$4,328,801
Federal Funds	\$740,000	
State Funds:		
Formula	\$1,525,000	
Nonpublic	<u>120,000</u>	<u>2,385,000</u>
Local Excess Cost		\$1,943,801
Mandated Minimum (1981 State Statute)		\$588,937
Local Funds Provided		\$2,553,000

Code of Federal Regulations - 300.184

Excess Costs - Computation of Minimum Amount

Total Expenditures (FY '84)		\$62,099,114
Less: Chapter I	\$ 810,705	
Title VI-B	21,431	
State & Local Special Ed. (Title II)	3,158,182	
ESOL	3,710	
	<u>8,000</u>	
		<u>-4,761,109</u>
		\$57,338,005
Student Population (September 30, 1983)	23,216	
Average Per Pupil Expenditure		\$2,470
Students Served 1984-85	2,030	
Total to be Spent (Minimum) for Special Education		\$5,013,613
Actual Spent for Special Education (Less EHA-B, CH 1 Funds)		\$5,294,000
Per Pupil Average (@2030 students)		\$2,608

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