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ABSTRACT

The Title I Evaluation and Reporting System (TIERS) under Title I of the Elementary and Secondary Education Act first required project participation and achievement data from the states for the 1979-80 school year. Chapter 1 of the Education Consolidation and Improvement Act of 1981 (ECIA) repealed the requirements for use of federally mandated evaluation models. This paper notes the variation in state Title I gains over 2 years. Achievement information included state and project level aggregates for reading, mathematics, and language arts in grades 2 through 12 for the states, and grades 2,6, and 10 for the project level. The data set of achievement for 1979-80 and 1980-81 data from 24 states, received by the fall of 1982, were examined. Differences between the estimates of gain for the 2 years were minimal, with the largest being for grade 12 annual reading. Results are expected to vary from year to year, but there seems to be a tendency to interpret both state and local results as absolutes. (CM)

A Comparison of Title I Evaluation Data from 1979-80 and 1980-81

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Under Title I of the Elementary and Secondary Education Act (ESEA), all States were required to report participation and achievement data to the U.S. Department of Education using a standard reporting format called the Title I Evaluation and Reporting System (TIERS). TIERS was first required for the 1979-80 school year, and data were also submitted by States for 1980-81 and 1981-82. Chapter 1 of the Education Consolidation and Improvement Act of 1981 (ECIA) repealed the requirements for use of Federally-mandated evaluation models. The purpose of this paper is to note the variation in State Title I gains over two years. The gains, of course, are expected to vary from one year to the next, but there is a tendency to interpret the gains as absolutes and to compare States or local education agencies to each other based on single estimates.

Title I Evaluation and Reporting System (TIERS)

TIERS included both participation and achievement data. Participation information included counts of the numbers of students served by grade and by subject area, the number of teachers employed and trained, and the number of parents involved in various activities. For achievement, States were required to submit both State-level aggregates and project level information for reading, mathematics, and language arts programs. At the State level, the following information was collected for reading, mathematics, and language arts programs in grades 2 through 12: project membership, number of students pretested and posttested, weighted mean posttest normal curve equivalent score (NCE), and weighted mean NCE gain score. Data were compiled separately for fall-to-spring and for annual (fall-to-fall or spring-to-spring) evaluations. States were allowed to use one of three models for program evaluation: a norm-referenced model that compared the growth of project students with the growth of comparable students in the norming sample of a standardized achievement test, a comparison group model that compared project students to a similar group of students who were not in the project, and a regression model that compared project students to a dissimilar group of students. The vast majority of the projects were evaluated with the norm-referenced model.

Project level information was collected at grades 2, 6 and 10 only. The following information was required: LEA code, project code, subject matter area, evaluation model, test interval, project setting, grade level, project hours per week, total project hours, student-to-instructor ratio, posttest NCE score, NCE gain score, and a posttest identification code.

Data Set

Achievement information for the 1979-80 school year was summarized and presented by Stonehill and Anderson (1982). The 1980-81 and 1981-82 data were due to the U.S. Department of Education by February 1, 1983. Only data from 24 States had been received by the fall of 1982 when the analyses for this paper were being made; thus, only a subset of States are included.

States were permitted to evaluate their programs using either a fall-to-spring or an annual (usually spring-to-spring) testing schedule. Fall-to-spring and annual data were analyzed separately since different patterns of achievement gains are found with the different schedules. Not all States submitted results for both subjects and both testing schedules; in addition, many States had very few students tested for given subject/test schedule/ grade combinations. For most comparisons, States which had fewer than 100 students tested for a particular combination were eliminated from the analysis for that combination.

Results

Tables 1 through 4 present summary information for States that submitted data for both years. Differences between the estimates of gain for the two years are minimal, with the largest change being -3.0 NCEs for grade 12 annual reading, where comparatively few students were tested. Decisions about the national effectiveness would not differ substantially from one year to the next.

Tables 5 through 8 provide information on the number of States having specified absolute differences in gain scores between the two years. For fall-to-spring reading, from 0% to 13% of States have changes greater than 4.0 NCEs; for annual reading, the range is from 0% to 33%. A larger percentage of State showed changes greater than 4.0 NCEs in mathematics than in reading. It should be remembered that considerably fewer students were tested on an annual schedule than on a fall-to-spring schedule, and that fewer students were tested in mathematics than in reading.

Tables 9 through 12 provide an example of what happens when one uses a particular standard, such as 7 NCEs, to measure success. (The selection of 7NCEs as a "standard" in this example was purely arbitrary and is not meant to be an endorsement of a 7 NCE criterion for success.) Suppose that in 1979-80, States had been divided into those with successful and unsuccessful programs based on a 7 NCE criterion. That is, every State with at least a 7 NCE gain would have been faulted and asked to develop plans to improve its programs. How many States which were successful one year would have continued to be successful in the following year, and vice versa. In addition, what was the effect of grade level on this determination?

The figures for fall-to-spring reading are presented in Table 9. Between 13% and 100% of the States would have been considered unsuccessful both years, depending on the grade chosen. Between 0% and 74% would have been considered to be successful both years, depending on the grade chosen. Larger gains are found in the lower grades. Of more interest, perhaps, is the percentage of States that changes categories from year to year; that is,

those who would have been successful in the first year and unsuccessful in the second year, or vice versa. This percentage may be obtained by summing the two middle columns in Tables 9 through 12.

The percentages of States that changed "success" categories for fall-to-spring reading ranges from 0% at grade 9 to 30% at grade 4. It is not possible to tell from available information whether the programs really did change from one year to the next or rather there is a great deal of "noise" in the system that accounts for the variation.

Summary and Conclusions

The purpose of this paper was to note the variation in State Title I results from two reporting years. The results are, of course, expected to vary from year to year. There seems to be a tendency, however, to interpret both State and local education agency results as absolutes, and to make conclusions about program success and differences among programs based upon single estimates. This is an unwise policy. It is recommended that (1) more than one year's data be used for assessing program achievement, particularly when sample sizes are small, (2) confidence bands be placed around the estimates, (3) gains not be compared across grade levels, and (4.) gains not be compared across subject matter areas.

Table 1

Reading Achievement Data for Annual Evaluations
(Subset of States)

Grade	School Year									Number of States
	1979-80			1980-81			Changes			
	Weighted Number Tested	Posttest NCE	Gain NCE	Weighted Number Tested	Posttest NCE	Gain NCE	Weighted Number Tested	Posttest NCE	Gain NCE	
2	41,691	39.7	0.0	44,233	39.2	1.3	2,541	-0.5	1.3	20
3	52,840	38.9	2.3	51,759	39.4	4.3	-1,081	0.5	2.0	19
4	53,177	38.5	1.7	52,937	38.5	3.0	-240	0.0	1.3	20
5	54,622	38.0	2.0	52,728	39.4	3.7	-1,894	1.4	1.7	19
6	52,225	39.1	3.4	45,080	40.1	4.8	-7,145	1.0	1.4	19
7	27,047	38.8	1.5	24,383	38.1	1.6	-2,664	-0.7	0.1	20
8	23,547	38.8	1.8	25,540	37.4	2.6	1,993	-1.4	0.8	20
9	12,849	39.5	2.9	15,276	36.3	1.3	2,427	-3.2	-1.6	15
10	6,564	35.2	0.0	7,732	34.5	0.9	1,168	-0.7	0.9	12
11	3,510	33.4	0.9	8,338	35.0	2.2	4,828	1.6	1.3	10
12	1,999	32.9	3.0	4,741	31.3	0.0	2,742	-1.6	-3.0	8

Table 2

Reading Achievement Data for Fall-to Spring Evaluations
(Subset of States)

Grade	School Year									Number of States
	1979-80			1980-81			Changes			
	Weighted Number Tested	Posttest NCE	Gain NCE	Weighted Number Tested	Posttest NCE	Gain NCE	Weighted Number Tested	Posttest NCE	Gain NCE	
2	176,700	39.8	9.6	159,158	39.9	9.0	-17,542	0.1	-0.6	24
3	172,685	35.1	7.6	161,809	37.6	7.2	-10,876	2.5	-0.4	24
4	156,174	35.2	6.8	162,695	37.0	7.0	6,521	1.8	0.2	24
5	144,636	35.4	5.9	153,215	37.0	6.3	8,579	1.6	0.4	24
6	125,561	35.7	5.5	127,454	36.8	5.6	1,893	1.1	0.1	24
7	96,594	34.3	5.1	104,222	35.1	4.3	7,628	0.8	-0.8	24
8	77,905	34.4	4.5	82,887	34.8	4.1	4,982	0.4	-0.4	23
9	43,734	33.7	4.8	42,762	35.3	4.9	-972	1.6	0.1	23
10	23,672	32.8	4.0	22,068	33.4	4.4	-1,604	0.6	0.4	23
11	11,373	30.3	2.8	11,104	32.1	3.9	-269	1.8	1.1	23
12	5,427	29.6	4.1	5,760	31.0	4.7	333	1.4	0.6	22

Table 3

Mathematics Achievement Data for Annual Evaluations
(Subset of States)

Grade	School Year									Number of States
	1979-80			1980-81			Changes			
	Weighted Number Tested	Posttest NCE	Gain NCE	Weighted Number Tested	Posttest NCE	Gain NCE	Weighted Number Tested	Posttest NCE	Gain NCE	
2	27,837	44.1	-0.9	24,923	46.4	1.1	-2,914	2.3	2.0	19
3	38,370	42.2	-0.5	31,319	43.6	1.7	-7,051	1.4	2.2	19
4	41,780	41.0	1.1	34,972	43.2	3.4	-6,808	2.2	2.3	18
5	40,124	40.6	1.6	37,824	42.8	3.2	-2,300	2.2	1.6	19
6	40,609	41.6	4.1	37,486	43.1	5.5	-3,123	1.5	1.4	18
7	17,195	38.9	2.1	17,642	40.2	2.6	447	1.3	0.5	18
8	13,965	39.5	2.7	18,021	40.6	3.3	4,056	1.1	0.6	18
9	8,321	40.0	1.3	11,999	39.9	-0.1	3,768	-0.1	-1.4	13
10	4,611	38.0	-1.2	5,532	36.5	-0.2	921	-1.5	1.0	9
11	2,954	39.5	0.3	5,300	36.1	0.7	2,346	-3.4	0.4	7
12	2,105	38.3	0.8	3,506	34.0	0.0	1,401	-4.3	-0.8	6

Table 4

Mathematics Achievement Data for Fall-toSpring Evaluations
(Subset of States)

Grade	School Year									Number of States
	1979-80			1980-81			Changes			
	Weighted Number Tested	Posttest NCE	Gain NCE	Weighted Number Tested	Posttest NCE	Gain NCE	Weighted Number Tested	Posttest NCE	Gain NCE	
2	77,178	42.7	9.7	66,055	43.1	11.3	-11,123	0.4	1.6	24
3	85,589	40.2	8.9	80,269	40.8	9.7	-5,320	0.6	0.8	24
4	88,144	39.6	8.5	91,851	41.2	9.8	3,707	1.6	1.3	24
5	84,037	38.8	8.0	89,569	39.9	8.2	5,532	1.1	0.2	24
6	71,992	38.7	7.4	78,472	39.8	7.0	6,480	1.1	-0.4	24
7	49,161	37.6	5.8	57,704	38.6	5.8	8,543	1.0	0.0	24
8	38,580	37.1	5.4	47,569	37.3	5.1	8,989	0.2	-0.3	23
9	19,992	36.0	5.6	23,996	37.0	6.3	4,074	1.0	0.7	23
10	8,385	37.4	5.3	9,821	37.2	5.2	1,536	-0.2	-0.1	20
11	3,412	38.1	5.1	3,747	35.9	5.0	335	-2.2	-0.1	18
12	1,286	36.4	5.7	1,604	35.3	4.1	318	-1.1	-1.6	16

Table 5

Number of States Having Specified Differences in Gain Scores for Fall-to-Spring Reading Achievement (States with at Least 100 Students Tested)

Grade	Absolute Value of Difference Between 1979-80 and 1980-81 NCE Gains														Number of States
	0.0-1.0		1.1-2.0		2.1-3.0		3.1-4.0		4.1-5.0		5.1-6.0		6.1-7.0		> 7.0		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
2	8	(35)	8	(35)	6	(26)	1	(4)	0	(0)	0	(0)	0	(0)	0	(0)	23
3	15	(65)	5	(22)	2	(9)	1	(4)	0	(0)	0	(0)	0	(0)	0	(0)	23
4	14	(61)	6	(26)	1	(4)	2	(9)	0	(0)	0	(0)	0	(0)	0	(0)	23
5	16	(70)	4	(17)	0	(0)	1	(4)	1	(4)	1	(4)	0	(0)	0	(0)	23
6	15	(63)	8	(33)	0	(0)	0	(0)	1	(4)	0	(0)	0	(0)	0	(0)	24
7	12	(55)	7	(32)	0	(0)	1	(5)	1	(5)	1	(5)	0	(0)	0	(0)	22
8	18	(86)	0	(0)	1	(5)	0	(0)	2	(10)	0	(0)	0	(0)	0	(0)	21
9	12	(67)	6	(33)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	18
10	10	(56)	5	(28)	2	(11)	1	(6)	0	(0)	0	(0)	0	(0)	0	(0)	18
11	8	(67)	2	(17)	1	(8)	0	(0)	0	(0)	1	(8)	0	(0)	0	(0)	12
12	5	(63)	1	(13)	1	(13)	0	(0)	0	(0)	0	(0)	1	(13)	0	(0)	8
Total	133	(62)	52	(24)	14	(7)	7	(3)	5	(2)	3	(1)	1	(0)	0	(0)	215

Table 6

Number of States Having Specified Differences in Gain Scores for Annual Reading Achievement (States with at Least 100 Students Tested)

Grade	Absolute Value of Difference Between 1979-80 and 1980-81 NCE Gains														Number of States
	0.0-1.0		1.1-2.0		2.1-3.0		3.1-4.0		4.1-5.0		5.1-6.0		6.1-7.0		> 7.0		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
2	3	(21)	5	(36)	2	(14)	1	(7)	0	(0)	1	(7)	1	(7)	1	(7)	14
3	4	(33)	3	(25)	1	(8)	0	(0)	2	(17)	0	(0)	1	(8)	1	(8)	12
4	8	(62)	1	(8)	2	(15)	1	(8)	0	(0)	0	(0)	0	(0)	1	(8)	13
5	5	(36)	4	(29)	1	(7)	2	(14)	1	(7)	0	(0)	1	(7)	0	(0)	14
6	9	(60)	2	(13)	2	(13)	0	(0)	1	(7)	1	(7)	0	(0)	0	(0)	15
7	3	(38)	5	(63)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	8
8	4	(57)	0	(0)	1	(14)	2	(29)	0	(0)	0	(0)	0	(0)	0	(0)	7
9	2	(50)	0	(0)	2	(50)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	4
10	1	(33)	2	(67)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	3
11	1	(50)	0	(0)	0	(0)	1	(50)	0	(0)	0	(0)	0	(0)	0	(0)	2
12	1	(50)	0	(0)	0	(0)	1	(50)	0	(0)	0	(0)	0	(0)	0	(0)	2
Total	41	(44)	22	(23)	11	(12)	8	(9)	4	(4)	2	(2)	3	(3)	3	(3)	94

Table 7

Number of States Having Specified Differences in Gain Scores for Fall-to-Spring Mathematics Achievement (States with at Least 100 Students Tested)

Grade	Absolute Value of Difference Between 1979-80 and 1980-81 NCE Gains														Number of States
	0.0-1.0		1.1-2.0		2.1-3.0		3.1-4.0		4.1-5.0		5.1-6.0		6.1-7.0		> 7.0		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
2	7	(33)	4	(19)	6	(29)	1	(5)	0	(0)	1	(5)	1	(5)	1	(5)	21
3	11	(50)	4	(18)	0	(0)	2	(9)	2	(9)	1	(5)	2	(9)	0	(0)	22
4	8	(36)	3	(14)	3	(14)	3	(14)	2	(9)	1	(5)	0	(0)	2	(9)	22
5	10	(45)	6	(27)	3	(14)	1	(5)	1	(5)	0	(0)	1	(5)	0	(0)	22
6	14	(61)	4	(27)	2	(9)	2	(9)	0	(0)	0	(0)	1	(4)	0	(0)	23
7	16	(73)	0	(0)	5	(23)	1	(5)	0	(0)	0	(0)	0	(0)	0	(0)	22
8	8	(42)	9	(47)	1	(5)	1	(5)	0	(0)	0	(0)	0	(0)	0	(0)	19
9	8	(62)	2	(15)	1	(8)	2	(15)	0	(0)	0	(0)	0	(0)	0	(0)	13
10	5	(50)	0	(0)	2	(20)	1	(10)	1	(10)	0	(0)	0	(0)	1	(10)	10
11	0	(0)	0	(0)	2	(100)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	2
12	1	(50)	1	(50)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	2
Total	88	(49)	33	(19)	25	(14)	14	(8)	6	(3)	3	(2)	5	(3)	4	(2)	178

Table 8

Number of States Having Specified Differences in Gain Scores for Annual Mathematics Achievement (States with at Least 100 Students Tested)

Grade	Absolute Value of Difference Between 1979-80 and 1980-81 NCE Gains														Number of States
	0.0-1.0		1.1-2.0		2.1-3.0		3.1-4.0		4.1-5.0		5.1-6.0		6.1-7.0		> 7.0		
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
2	1	(10)	1	(10)	3	(30)	1	(10)	1	(10)	3	(30)	0	(0)	0	(0)	10
3	3	(33)	0	(0)	2	(22)	0	(0)	2	(22)	0	(0)	0	(0)	2	(22)	9
4	2	(18)	4	(36)	2	(18)	2	(18)	1	(9)	0	(0)	0	(0)	0	(0)	11
5	3	(27)	3	(27)	2	(18)	2	(18)	0	(0)	0	(0)	0	(0)	1	(9)	11
6	3	(27)	3	(27)	3	(27)	1	(9)	0	(0)	0	(0)	1	(9)	0	(0)	11
7	4	(44)	3	(33)	1	(11)	0	(0)	0	(0)	0	(0)	0	(0)	1	(11)	9
8	3	(43)	1	(14)	1	(14)	0	(0)	0	(0)	2	(29)	0	(0)	0	(0)	7
9	1	(33)	1	(33)	0	(0)	0	(0)	1	(33)	0	(0)	0	(0)	0	(0)	3
10	1	(33)	0	(0)	1	(33)	0	(0)	0	(0)	1	(33)	0	(0)	0	(0)	3
11	0	(0)	1	(50)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	1	(50)	2
12	0	(0)	0	(0)	0	(0)	0	(0)	1	(50)	0	(0)	0	(0)	1	(50)	2
Total	21	(27)	17	(22)	15	(19)	6	(8)	6	(8)	6	(8)	1	(1)	6	(8)	78

Table 9

Number and Percent of States with Fall-to-Spring Reading Gains Above or Below 7 NCEs for 1979-80 and 1980-81

Grade	NCE Gains								Number of States
	<7 in 1979-80 <7 in 1980-81		<7 in 1979-80 ≥7 in 1980-81		≥7 in 1979-80 <7 in 1980-81		≥7 in 1979-80 ≥7 in 1980-81		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
2	3	(13)	1	(4)	2	(9)	17	(74)	23
3	7	(30)	2	(9)	2	(9)	12	(52)	23
4	6	(26)	3	(13)	4	(17)	10	(43)	23
5	12	(52)	2	(9)	3	(13)	6	(26)	23
6	16	(67)	1	(4)	4	(17)	3	(12)	24
7	17	(77)	2	(9)	2	(9)	1	(5)	22
8	18	(86)	1	(5)	1	(5)	1	(5)	21
9	18	(100)	0	(0)	0	(0)	0	(0)	18
10	17	(94)	0	(0)	1	(6)	0	(0)	18
11	11	(92)	1	(8)	0	(0)	0	(0)	12
12	7	(88)	0	(0)	1	(12)	0	(0)	8

Table 10

Number and Percent of States with Annual Reading Gains Above or Below 7 NCEs for 1979-80 and 1980-81

Grade	NCE Gains								Number of States
	<7 in 1979-80 <7 in 1980-81		<7 in 1979-80 ≥7 in 1980-81		≥7 in 1979-80 <7 in 1980-81		≥7 in 1979-80 ≥7 in 1980-81		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
2	10	(71)	1	(7)	3	(21)	0	(0)	14
3	10	(83)	1	(8)	1	(8)	0	(0)	12
4	12	(92)	0	(0)	1	(8)	0	(0)	13
5	12	(86)	1	(7)	1	(7)	0	(0)	14
6	14	(93)	1	(7)	0	(0)	0	(0)	15
7	8	(100)	0	(0)	0	(0)	0	(0)	8
8	7	(100)	0	(0)	0	(0)	0	(0)	7
9	4	(100)	0	(0)	0	(0)	0	(0)	4
10	3	(100)	0	(0)	0	(0)	0	(0)	3
11	2	(100)	0	(0)	0	(0)	0	(0)	2
12	2	(100)	0	(0)	0	(0)	0	(0)	2

Table A-1

Correlations Between 1979-80 and 1980-81 Achievement Data
(Subset of States)

Grade	Reading						Mathematics					
	Annual			Fall-to-Spring			Annual			Fall-to-Spring		
	Post	Gain	N	Post	Gain	N	Post	Gain	N	Post	Gain	N
2	.75	.29	14	.78	.80	23	.55	.35	10	.37	.76	21
3	.56	.02	12	.72	.83	23	.87	.03	9	.44	.68	22
4	.61	-.35	13	.70	.61	23	.29	.44	11	.83	.38	22
5	.71	.18	14	.82	.54	23	.87	.20	11	.73	.61	22
6	.36	.34	15	.82	.69	24	.80	-.35	11	.73	.66	23
7	.49	.69	8	.77	.18	22	.46	-.27	9	.75	.71	22
8	.80	.18	7	.48	.32	21	.86	-.51	7	.73	.66	19
9	.52	.33	4	.68	.61	18	.94	-.33	3	.79	.62	13
10				.73	.33	18				.25	.30	10
11				.74	.11	12						
12				.77	.01	8						

Reference

Stonehill, R.M. and Anderson, J.I. An evaluation of ESEA Title I--program operations and educational effects. A Report to Congress. U.S. Department of Education, Office of Planning, Budget and Evaluation, March 1982.