

Data Analysis Memo:

Teacher Credentials and Student Progress: What do the data say?

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February 2002 [updated December 2002]

1. Available California Data (used in these analyses)

Student Level

grade level and school membership

test scores (Stanford 9) for individual students, years 1999 through 2001,

used to construct individual and group API composite score

Socioeconomically Disadvantaged (SD) designation

School Level

Statewide Rank, the statewide decile (within schooltype) for a school's
API score

Teacher Characteristics

From the API research files two items for each school are available:

FCred-- percent fully credentialed teachers

ECred-- percent teachers with emergency credentials

(with the caveat that there may be overlap or underlap on these two
categories in any school.)

Two great weaknesses of these data. Scores are only linked to schools (which are characterized by ECred etc) rather than identifying whether a particular student had a credentialed teacher. And there will always be confounding between student characteristics, school characteristics and teacher credentialing, as the "real" clinical trial with assignment of students to credentialed and non-credentialed teachers is not conducted. The goal of these data analysis examples is to do a better job of describing how to look for the possible effects of teacher credential on student achievement and to present some interesting (if preliminary) results.

One reasonable point of view is that if there were a strong effect of credentialing that would justify expensive policy mandates, one might expect that effect to show through in these imperfect data, even weakly. None of this data analysis claims to demonstrate that universal credentialing wouldn't have some educational benefit--it's just that the (limited) data we have available does not, in any manner, support a large policy initiative to this end.

2. Starting Points--naive (strawperson) analyses, spurious associations?

Table 4 is tacked on after the more serious data analysis attempts contained in Tables 1-3 in order to illustrate some possible sources of misunderstandings and misinterpretations of these data. Tables 4A - 4C present, year-by-year, the description that high scoring schools have fewer emergency credential (and more full credential) teachers than low scoring schools. That relation is monotone and appears strong. However, it's obvious that the schools that draw from advantaged student populations tend to be those schools whose pay, resources, and working conditions are

attractive to teachers (and thus have few emergency credentialled teachers). Conversely, schools that draw from disadvantaged student populations are also those schools whose pay, resources, and working conditions are far less attractive to teachers, and these schools by necessity have far more emergency credentialled teachers. Thus the observed association between student achievement and teacher credentials is presumptively spurious (high scoring schools tending to have fewer emergency credential teachers than the lower scoring schools).

Regardless of whether emergency credential teachers are as effective (or even more effective) than full credential teachers (in promoting student learning etc) the strong pattern seen in Table 4 will be seen. Thus the information in Table 4 is interesting background, but provides no credible basis for policy, on teacher credentialling. The basic dictum--"Correlation is not Causation"--simply indicates that Table 4 in no way implies that if low scoring schools were instantaneously transformed to have no emergency credential teachers then students would be better off (at least in terms of test performance). The kind of research question we would like to be able to address in order to formulate good policy on teacher credentials is: Does a disadvantaged student make less progress with an emergency credential teacher than with a full credential teacher?

A particularly unfortunate example of misuse of these data is seen in the widely reported mid-December study by CFTL and SRI in California ("California's Teaching Force Key Issues and Trends 2002" The Center for the Future of Teaching and Learning, Research conducted by SRI International) in which the truly preposterous claim is made that universal credentialling is needed because the highest scoring High Schools have far fewer teachers with emergency credentials than do the lowest scoring High Schools (c.f. the bottom portions of Tables 4C 4B or 4A).

3. Data Analysis of Year-to-Year Student Progress

Table 1 leads off the results. Take for example the top frame which shows results for the 2000-2001 school year. Construct two (contrasting groups of schools: schools reporting no emergency credentialled teachers (ECred = 0) for 200-2001 school year and schools with a "high" percentage of emergency credentialled teachers (defined as ECred >15). (I chose the 15% cut originally rather arbitrarily to yield about 1/4 of elementary schools, approximately balancing with the number of ECred=0 schools.) Thus in the ECred group, not all students are being taught by emergency credential teachers, and this indirect exposure is the weakness of the present data. A quick run down of the school population: for the 4703 Elementary schools with API data all 3 years, in the 1999-2000 school year 1161 reported ECred = 0 and 1258 reported ECred >15, and for the 2000-2001 school year 1338 reported ECred = 0 and 968 reported ECred >15. For the ECred > 15 schools the actual values of percent of teachers with emergency credentials is summarized by:

ECred	N	Minimum	Q1	Median	Q3	Maximum
1999-2000	1258	16	19	24	32	100
2000-2001	968	16	19	23	29	86

For Table 1 API scores are computed using all the grade 2 through grade 6

students residing in the corresponding school classifications; in the top frame the API scores are computed for the year 2000 data and for the year 2001 (growth) data. (Scores are computed from about 400,000 students for the ECred=0 classification, and 500,000 for ECred>15.) The year-to-year improvement of students in high ECred schools is nearly double that for students in the ECred = 0 schools (29.7 vs 16.4).

The second comparison for the 2000-2001 data uses scores from those students who are identified as Socioeconomically Disadvantaged (SD). API scores are computed for each year for SD students in each school classification (approximately 150,000 students for ECred=0, and 400,000 for ECred>15). Again the pattern is that SD students in schools with high ECred improve more (12 API points) than SD students in ECred = 0 schools. The SD student comparison makes the level of API scores more comparable between high ECred and ECred = 0 schools.

The third comparison for the 2000-2001 data uses scores from those students who are identified as Socioeconomically Disadvantaged (SD) and whose schools are classified (by me) as high SD (schools with proportion of SD students > 1/2). This subset of SD students shows the same pattern; students (SD in high SD schools) in schools with high ECred improve more (10 API points) than SD students in high SD schools with ECred = 0.

Thus these data summaries for 2000-2001 data could be fodder for some remarkable (but irresponsible) headlines-- "credentialed teachers impair student progress"-- which, of course, we don't believe to be the case... As will be seen in Tables 2 and 3, the Table 1 comparison isn't entirely fair because lower scoring schools are over-represented in the high ECred (ECred > 15) category (and, conversely, lower scoring schools are underrepresented in the ECred = 0 category). And because lower scoring students (and schools) tend to have shown the most year-to-year improvement (see, for example, my Interpretive Notes reports), the comparison does have some bias in favor of the group (high ECred) that starts at a lower level. But that potential bias is greatly reduced for the SD student comparisons (starting levels more comparable), and there high ECred still shows the larger improvement.

The 1999-2000 school year data do not provide as strong an indication. Improvement is slightly greater (4 API points) in high ECred schools for all students but slightly less (3 points, 6 points) for SD students. But the main point is that from these data there's little indication that reducing ECred would be notably beneficial for student performance.

Table 2 (for 2000-2001 data) and Table 3 (for 1999-2000 data) repeat the analyses in Table 1 with the added important feature of the comparisons being done for each state decile (the 10 state ranks). Comparison by deciles provides the "fairest" comparison as this removes the disparity in score level seen in the comparisons in Table 1 (i.e. provides an approximate matching on initial level of performance). For example, in Table 2A, grade 2 - 6 students who are members of schools with ECred > 15 (for school year 2000-2001) and year 2000 State rank = 1 produce API scores of 444.3 and 484.1 for year 2000 and year 2001 test results. Correspondingly, grade 2 - 6 students who are members of schools with ECred = 0 (for school year 2000-2001) and year 2000 State rank = 1 produce

API scores of 454.4 and 478.3 for year 2000 and year 2001 test results. Thus the improvements, 39.8 and 23.9, are actually larger for the high ECred group. The subtables in the lower parts of Tables 2 and 3 repeat the API scores and give the number of grade 2-6 students contributing data to the API score.

Basically, it's a mixed picture for Tables 2A 2B and 2C as the advantage in improvement goes in both directions. (One has to discount the small number of comparisons with few students, such as top deciles for ECred > 15.) Table 3 for 1999-2000 data does show a somewhat consistent 8 to 10 point advantage for ECred = 0. But 8 to 10 points is not a large effect: a little less than each student getting one more question correct on the Stanford 9 tests. Or to put it in a NCLB metric, 8 to 10 API points approximately represents one additional percent of the students above proficient, a fraction of the mandated annual yearly improvement. (I have been waiting for the 2002 data from CDE so I could replicate all this with the 2001-2002 school year but those data won't be available for a couple weeks yet.)

4. In Summary.

It is what these Tables don't show that is the most important point-- these displays do not reveal a large systematic advantage for students in schools with ECred = 0. With these (limited) data I looked hard for an effect but really can't find one. So these data displays provide justification for raising the simple query: Why mandate a very expensive, disruptive initiative to attain schools' ECred = 0? Seems to me there's a burden of proof (i.e. producing some compelling empirical evidence) on those promoting this mandate to show large potential advantages. Right now we know that cost is large, yet the benefit (in terms of student achievement) appears extremely equivocal.

Tables for
Teacher Credentials and Student Progress: What do the data say?

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February 2002 [updated December 2002]

Table 1:

Comparison of Student Scores in High ECRED Schools versus no ECRED Schools

	Improvement, 2000-2001 School Year	
	Students in Schools with ECRED > 15 in AY 2000-2001	Students in Schools with ECRED = 0 in AY 2000-2001
All Students, Grades 2-6		
API2k	552.7	747.7
API01	582.3	764.1
Improvement	29.7	16.4
SD Students, Grades 2-6		
API2k	509.4	617.9
API01	542.6	639.1
Improvement	33.2	21.3
SD Students in High SD Schools, Grades 2-6		
API2k	503.4	582.6
API01	537.4	606.2
Improvement	34.0	23.6
	Improvement, 1999-2000 School Year	
	Students in Schools with ECRED > 15 in AY 1999-2000	Students in Schools with ECRED = 0 in AY 1999-2000
All Students, Grades 2-6		
API99	520.4	718.5
API2k	558.5	752.6
Improvement	38.1	34.1
SD Students, Grades 2-6		
API99	469.7	574.4
API2k	511.9	620.
Improvement	42.2	45.6
SD Students in High SD Schools, Grades 2-6		
API99	464.	534.4
API2k	505.7	581.7
Improvement	41.7	47.4

Table 2A:

Deciles Breakdown for 2000-2001, All Students Grades 2 - 6

All Students Grades 2 - 6

Improvement by Decile 2000-2001 for High and Low Emergency Credential

State Decile	ECRED > 15			ECRED = 0		
	API2k	API01	Imp	API2k	API01	Imp
1	444.3	484.1	39.8	454.4	478.3	23.9
2	517.3	548.1	30.8	520.6	554.6	34.
3	567.7	595.5	27.8	571.8	600.1	28.3
4	611.2	634.4	23.2	613.6	640.3	26.7
5	649.8	671.4	21.6	653.	672.8	19.8
6	691.1	704.9	13.9	692.2	710.9	18.7
7	730.7	748.2	17.5	732.7	749.7	17.
8	769.2	783.4	14.2	774.3	790.3	16.
9	820.	829.2	9.2	821.	832.6	11.7
10	879.3	892.4	13.1	881.6	889.3	7.7

Subtables

All Students Grades 2 - 6

API Scores by Decile 2000-2001 for High and Low Emergency Credential

Students in Schools with ECRED > 15

State Decile	N2k	API2k	N01	API01
1	165073	444.	168302	484.
2	102869	517.	104784	548.
3	68724	568.	69924	596.
4	51358	611.	51797	634.
5	34528	650.	35930	671.
6	24986	691.	26400	705.
7	16130	731.	16311	748.
8	13867	769.	13898	783.
9	8267	820.	8307	829.
10	7933	879.	8107	892.

Students in Schools with ECRED = 0

State Decile	N2k	API2k	N01	API01
1	5885	454.	5814	478.
2	14392	521.	14259	555.
3	17292	572.	17202	600.
4	23284	614.	22843	640.
5	38747	653.	38496	673.
6	43469	692.	42994	711.
7	47669	733.	47317	750.
8	61305	774.	60801	790.
9	74744	821.	73424	833.
10	81156	882.	81202	889.

Table 2B:

Deciles Breakdown for 2000-2001, SD Students Grades 2 - 6

SD Students Grades 2 - 6

Improvement by Decile 2000-2001 for High and Low Emergency Credential

State Decile	ECRED > 15			ECRED = 0		
	API2k	API01	Imp	API2k	API01	Imp
1	440.4	481.4	41.1	448.4	472.5	24.1
2	504.7	537.5	32.8	503.8	538.	34.2
3	548.7	576.9	28.3	541.	570.1	29.1
4	578.8	607.3	28.5	568.3	600.7	32.4
5	605.	632.8	27.7	592.7	617.1	24.4
6	636.5	652.1	15.6	630.9	650.6	19.7
7	666.7	687.8	21.1	657.8	678.3	20.5
8	709.8	723.5	13.7	695.6	708.	12.5
9	742.4	728.4	-14.	717.8	729.5	11.7
10	763.2	771.6	8.5	782.7	788.6	5.9

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Subtables

SD Students Grades 2 - 6

API Scores by Decile 2000-2001 for High and Low Emergency Credential

SD Students in Schools with ECRED > 15

State Decile	N2k	API2k	N01	API01
1	156486	440.	160513	481.
2	90961	505.	93243	537.
3	56653	549.	56614	577.
4	37361	579.	37775	607.
5	21883	605.	22883	633.
6	13226	637.	14177	652.
7	6659	667.	6879	688.
8	5314	710.	5103	724.
9	1554	742.	1210	728.
10	658	763.	669	772.

SD Students in Schools with ECRED = 0

State Decile	N2k	API2k	N01	API01
1	5474	448.	5438	472.
2	12600	504.	12246	538.
3	13474	541.	13405	570.
4	15852	568.	15589	601.
5	22145	593.	22213	617.
6	21881	631.	21803	651.
7	18511	658.	18251	678.
8	18420	696.	17607	708.
9	12616	718.	12136	729.
10	6226	783.	5925	789.

Table 2C:

Deciles Breakdown for 2000-2001, SD Students in High SD Schools Grades 2-6

SD Students in High SD Schools Grades 2 - 6

Improvement by Decile 2000-2001 for High and Low Emergency Credential

State Decile	ECRED > 15			ECRED = 0		
	API2k	API01	Imp	API2k	API01	Imp
1	440.3	481.5	41.1	448.4	472.5	24.1
2	505.	537.4	32.5	503.8	538.	34.2
3	548.5	577.1	28.6	541.8	571.2	29.4
4	581.3	609.9	28.5	569.8	602.2	32.4
5	614.2	642.6	28.4	601.7	621.	19.4
6	654.2	670.2	16.	648.2	662.8	14.6
7	710.	728.4	18.4	689.6	695.9	6.3
8	758.2	761.	2.8	741.5	753.	11.6
9	807.9	790.	-17.9	797.2	801.3	4.

Subtables

SD Students in High SD Schools Grades 2 - 6

API Scores by Decile 2000-2001 for High and Low Emergency Credential

SD Students in High SD Schools with ECRED > 15

State Decile	N2k	API2k	N01	API01
1	155498	440.	160060	481.
2	89528	505.	92110	537.
3	55053	548.	55739	577.
4	34284	581.	34798	610.
5	17237	614.	17950	643.
6	9218	654.	9966	670.
7	3026	710.	3248	728.
8	1790	758.	1627	761.
9	434	808.	113	790.

SD Students in High SD Schools with ECRED = 0

State Decile	N2k	API2k	N01	API01
1	5474	448.	5438	472.
2	12600	504.	12246	538.
3	13252	542.	13157	571.
4	15196	570.	14934	602.
5	17214	602.	17244	621.
6	13166	648.	13292	663.
7	5338	690.	5128	696.
8	3399	741.	3162	753.
9	755	797.	784	801.

Table 3A:

Deciles Breakdown for 1999-2000, All Students Grades 2 - 6

All Students Grades 2 - 6
Improvement by Decile 1999-2000 for High and Low Emergency Credential

State Decile	ECRED > 15			ECRED = 0		
	API99	API2k	Imp	API99	API2k	Imp
1	408.6	450.7	42.1	412.8	463.9	51.2
2	474.6	513.7	39.1	473.7	522.1	48.4
3	519.1	559.1	40.	517.1	564.	46.9
4	564.5	602.9	38.4	566.4	614.6	48.2
5	605.6	644.9	39.3	606.6	655.4	48.8
6	647.1	679.6	32.5	648.5	686.4	37.9
7	687.4	718.2	30.8	691.4	730.	38.5
8	735.8	760.9	25.1	736.9	770.8	33.9
9	788.9	812.8	24.	788.2	816.8	28.6
10	855.6	867.1	11.4	861.3	879.7	18.4

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Subtables

All Students Grades 2 - 6
API Scores by Decile 1999-2000 for High and Low Emergency Credential

Students in Schools with ECRED > 15

State Decile	N99	API99	N2k	API2k
1	190593	409.	187392	451.
2	119770	475.	119404	514.
3	95562	519.	93382	559.
4	65527	565.	62801	603.
5	50710	606.	48926	645.
6	35229	647.	34455	680.
7	18821	687.	18794	718.
8	20128	736.	19705	761.
9	14149	789.	14267	813.
10	11841	856.	11945	867.

Students in Schools with ECRED = 0

State Decile	N99	API99	N2k	API2k
1	5908	413.	5816	464.
2	8052	474.	7730	522.
3	11562	517.	11458	564.
4	19568	566.	18698	615.
5	28940	607.	27440	655.
6	41377	648.	40810	686.
7	47260	691.	45441	730.
8	56289	737.	53762	771.
9	63941	788.	62440	817.
10	76926	861.	75607	880.

Table 3B:

Deciles Breakdown for 1999-2000, SD Students Grades 2 - 6

SD Students Grades 2 - 6

Improvement by Decile 1999-2000 for High and Low Emergency Credential

State Decile	ECRED > 15			ECRED = 0		
	API99	API2k	Imp	API99	API2k	Imp
1	404.6	447.2	42.6	404.1	453.7	49.5
2	461.3	501.2	39.9	447.2	498.7	51.5
3	494.9	536.7	41.8	486.4	534.7	48.3
4	526.5	567.7	41.2	521.9	573.7	51.8
5	563.	603.9	40.9	542.6	596.9	54.3
6	587.	619.5	32.4	577.1	620.8	43.7
7	619.4	650.9	31.5	609.8	648.8	39.
8	662.1	687.6	25.5	646.9	684.5	37.5
9	677.3	722.5	45.2	674.9	709.	34.
10	779.3	791.3	12.	746.8	770.7	23.9

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Subtables

SD Students Grades 2 - 6

API Scores by Decile 1999-2000 for High and Low Emergency Credential

SD Students in Schools with ECRED > 15

State Decile	N99	API99	N2k	API2k
1	160470	405.	178013	447.
2	89116	461.	105358	501.
3	66714	495.	76132	537.
4	39569	526.	44778	568.
5	28717	563.	32993	604.
6	15059	587.	18440	619.
7	6439	619.	7939	651.
8	5737	662.	6426	688.
9	2029	677.	2985	722.
10	1100	779.	1327	791.

SD Students in Schools with ECRED = 0

State Decile	N99	API99	N2k	API2k
1	5023	404.	5320	454.
2	6083	447.	6344	499.
3	8193	486.	9239	535.
4	11774	522.	12909	574.
5	14013	543.	15813	597.
6	17111	577.	20040	621.
7	15974	610.	17717	649.
8	13714	647.	15785	684.
9	8958	675.	10836	709.
10	5262	747.	5941	771.

Table 3C:

Deciles Breakdown for 1999-2000, SD Students in High SD Schools Grades 2-6

SD Students in High SD Schools Grades 2 - 6
Improvement by Decile 1999-2000 for High and Low Emergency Credential

State Decile	ECRED > 15			ECRED = 0		
	API99	API2k	Imp	API99	API2k	Imp
1	404.6	447.1	42.5	404.1	453.7	49.5
2	461.5	500.8	39.3	447.2	498.7	51.5
3	495.4	536.7	41.3	486.4	534.7	48.3
4	527.9	570.	42.	524.1	573.9	49.8
5	567.4	608.1	40.7	549.8	601.3	51.5
6	599.7	631.4	31.7	597.5	637.4	39.9
7	651.8	688.6	36.8	639.3	667.1	27.8
8	705.4	732.2	26.8	700.7	731.3	30.6
9	780.5	776.	-4.5	750.5	768.2	17.7

Subtables

SD Students in High SD Schools Grades 2 - 6
API Scores by Decile 1999-2000 for High and Low Emergency Credential

SD Students in High SD Schools with ECRED > 15

State Decile	N99	API99	N2k	API2k
1	160245	405.	177062	447.
2	88689	462.	104199	501.
3	65847	495.	74532	537.
4	37506	528.	42019	570.
5	25142	567.	28366	608.
6	9855	600.	11804	631.
7	3435	652.	3758	689.
8	2190	705.	2366	732.
9	88	780.	465	776.
10	347	818.	434	808.

SD Students in High SD Schools with ECRED = 0

State Decile	N99	API99	N2k	API2k
1	5023	404.	5320	454.
2	6083	447.	6344	499.
3	8193	486.	9239	535.
4	10838	524.	12093	574.
5	11456	550.	12676	601.
6	8956	597.	10377	637.
7	5481	639.	5751	667.
8	1841	701.	2169	731.
9	302	751.	515	768.

Table 4A.

Static School-Level Tables (Traditional) 1999 Scores

Descriptive Statistics: FCrED_99, ECrED_99 by CARank_99, All Schools

Variable	CARank_99	N	Mean	Median
FCrED_99	1	648	74.087	75.000
	2	675	80.682	82.391
	3	661	83.141	85.000
	4	679	87.147	89.500
	5	660	89.310	91.688
	6	674	91.259	94.297
	7	662	93.374	95.641
	8	681	94.165	96.297
	9	654	95.357	97.094
	10	688	96.125	97.188
ECrED_99	1	648	23.474	22.199
	2	675	17.919	16.699
	3	661	16.617	14.799
	4	679	13.020	10.500
	5	660	10.359	8.249
	6	674	9.245	6.950
	7	662	6.799	5.000
	8	681	6.028	4.300
	9	654	5.043	3.600
	10	688	3.938	2.900

Mean ECrED_99 by State Decile
and Schooltype

CARank99	SType99		
	E	H	M
1	24.371	18.215	23.493
2	18.195	14.162	19.530
3	17.010	13.402	17.306
4	13.495	11.300	12.257
5	10.497	10.005	10.010
6	8.929	10.884	9.361
7	6.063	7.961	9.205
8	5.670	6.568	7.163
9	4.641	6.335	5.831
10	3.404	5.852	4.770

Mean FCrED_99 by State Decile
and Schooltype

CARank99	SType99		
	E	H	M
1	72.79	81.74	74.04
2	79.66	86.10	81.16
3	82.63	86.34	82.95
4	86.51	89.78	87.94
5	88.95	89.12	90.98
6	91.16	90.43	92.34
7	93.90	92.44	91.72
8	94.34	93.66	93.79
9	95.57	94.36	95.18
10	96.53	94.28	95.78

Table 4B.

Static School-Level Tables (Traditional) 2000 Scores

Descriptive Statistics: FCrED_2k, ECrED_2k by CARank_2k, All Schools

Variable	CARank_2k	N	Mean	Median
FCrED_2k	1	633	72.003	73.000
	2	643	79.495	80.000
	3	666	82.249	84.000
	4	656	85.471	88.000
	5	666	88.979	91.000
	6	648	91.139	93.000
	7	642	92.388	95.000
	8	656	93.527	96.000
	9	656	94.468	96.000
	10	663	95.276	97.000
ECrED_2k	1	633	23.622	23.000
	2	643	18.496	17.000
	3	666	16.075	14.000
	4	656	13.341	11.000
	5	666	10.342	9.000
	6	648	8.509	7.000
	7	642	7.400	6.000
	8	656	6.418	4.000
	9	656	5.803	4.000
	10	663	4.928	3.000

Mean ECrED_2k by State Decile
and Schooltype

CARank2k	SType2k		
	E	H	M
1	23.444	20.486	26.407
2	17.904	17.520	21.661
3	15.970	14.964	17.364
4	12.925	13.568	14.954
5	9.720	13.161	10.728
6	7.702	10.519	10.436
7	6.827	9.308	8.539
8	5.524	8.349	8.752
9	5.255	7.548	6.773
10	3.996	7.906	6.545

Mean FCrED_2k by State Decile
and Schooltype

CARank2k	SType2k		
	E	H	M
1	71.83	77.74	69.01
2	79.64	82.39	76.90
3	82.08	84.43	81.33
4	85.70	85.42	84.53
5	89.40	86.83	88.91
6	91.61	90.15	89.86
7	92.75	90.90	91.88
8	94.25	91.59	91.94
9	94.75	93.44	94.05
10	96.02	92.34	94.39

Table 4C.

Static School-Level Tables (Traditional) 2001 Scores

Descriptive Statistics: FCrED_01, ECrED_01 by CARank_01, All Schools

Variable	CARank_01	N	Mean	Median
FCrED_01	1	648	72.597	73.000
	2	646	79.848	81.000
	3	664	82.755	85.000
	4	659	85.646	88.000
	5	670	87.966	91.000
	6	650	91.120	94.000
	7	650	92.549	95.000
	8	664	94.108	96.000
	9	651	94.379	97.000
	10	653	95.508	97.000
ECrED_01	1	648	20.284	18.000
	2	646	15.975	14.000
	3	664	13.739	11.000
	4	659	11.716	10.000
	5	670	9.864	7.000
	6	650	7.549	6.000
	7	650	6.532	5.000
	8	664	5.387	4.000
	9	651	5.025	3.000
	10	653	4.283	3.000

Mean ECrED_01 by State Decile
and Schooltype

CARank01	SType2k		
	E	H	M
1	18.985	20.811	25.468
2	14.996	16.872	19.500
3	12.515	15.691	17.615
4	11.088	12.099	14.000
5	8.973	13.229	11.211
6	6.574	10.297	9.802
7	5.695	7.740	9.180
8	4.566	8.038	7.018
9	4.099	7.085	7.472
10	3.511	6.663	5.784

Mean FCrED_01 by State Decile
and Schooltype

CARank01	SType2k		
	E	H	M
1	73.19	76.36	67.50
2	80.52	80.95	76.19
3	83.78	81.91	78.93
4	86.20	85.67	83.38
5	88.43	86.13	87.31
6	91.81	88.72	89.84
7	93.45	91.62	89.45
8	94.80	91.48	93.04
9	95.14	92.87	92.22
10	96.17	93.11	94.47