BLACK STUDENT IMPROVEMENTS ON THE TAAS EXAM 1995-98

A REPORT OF THE

TEXAS EDUCATIONAL EXCELLENCE PROJECT

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Black Student Improvements on the TAAS Exam 1995-98

Between 1995 and 1998 the pass rate for black students on the TAAS exam increased by almost 25 percentage points. Despite these gains, the pass rate for black students in 1998 remains behind that of white students--only 62.6 percent vs. 87.9 percent--by a substantial margin. While the 1998 scores represent a narrowing of the black-white gap from 36.5 percentage points, to one of just over 25 percentage points, a considerable gap remains. The first step in improving black tests scores is to identify school districts that do a better job of educating black students.

The Texas Educational Excellence Project uses a technique of analysis known as multiple regression to identify school districts that do a better job of educating black students. This analytical tool makes it possible to develop generalizations about the overall performance of Texas school districts in how well they educate black students, while also providing information that can be used to make comparisons across individual school districts. Our model is based on what is generally know as an education “production function” where student performance (defined as black pass rates on the TAAS) is a function of inputs into the educational process, such as operating expenditures, student-teacher ratios, and various educational policies. Estimation of this production function results in predictions about how well districts are expected to do, given the level of inputs available to them. Based on the results of the production function model, we compare how well districts *actually* perform to how well the statistical model *predicts* they should perform based on their inputs. The difference, if any, between the actual results and the predictions indicates how well districts are doing in educating black students.

An Education Production Function

School districts are organizations; they receive inputs (resources and students) from their environment and produce outputs (educated students among others). A vast literature has designated a variety of education production functions whereby the outputs of school systems can be evaluated relative to their inputs (Burtless 1996; Smith 1995; Hanushek 1986; 1989; 1996).

Our dependent variable is the school districts pass rate for black students on the TAAS exam. Texas requires all school districts to administer exams to students in several grades on an annual basis. We make no claim that results on TAAS exams account for all of the overall learning experience of black students. Student performance is a multi-dimensional concept that can be measured in variety of different ways. However, pass rates on TAAS exams **do** measure whether students are picking up basic academic skills from grade to grade. Our dependent variable, therefore, focuses primarily on how well districts perform in teaching black students basic skills, and should not be construed as an overall measure of black student learning.

The independent variables fall into four general types--environmental constraints, financial resources, teacher qualifications, and district policies. Environmental constraints are factors that restrict agency performance; in the case of education the key constraint is how difficult/easy it is to educate students. In the context of educational policy, poverty is a serious constraint on student performance. The measures of constraint are the percent of poor students (defined as those eligible for free school lunches) and the percentage of black families that live in poverty. We also measure the educational level of blacks in the school district using the percentage of blacks in the school district over age 25 with a least a high school diploma. The education variable should be positively related to student performance and the other two measures should be negatively related to black pass rates.

Financial resources are the basic raw materials of any organization's attempt to meet its goals. Three measures of financial resources are included--per student instructional funds, average teacher's salary, and percent of funds received via state aid. These represent total resources devoted to education, the attractiveness of teaching positions in a competitive market place, and state efforts to overcome the unequal distribution of local financial resources. The relationship between expenditures and educational outcomes is one of the most contested questions in all of educational policy. Hanushek (1986; 1989; 1996) contends that there is no consistent relationship between money and student outcomes. Although this finding has been challenged by others (Hedges and Greenwald 1996), it remains the conventional wisdom. In recent longitudinal studies, however, Murray (1995), Evans, Murray and Schwab (1997), and Murray, Evans and Schwab (1995) found that districts that increased expenditures had improved performance afterward. Bohte (1999) found that expenditures were correlated

with higher test scores even when controlling for the previous year's test scores. We consider expenditures a critical variable for inclusion in the model. All relationships should be positive.

The two teacher qualification measures (or lack thereof) are the percent of teachers who hold a temporary certification in a subject specialty (as opposed to a permanent certification) and the average number of years of teacher experience. The relationship for noncertification should be negative, while the expectation is that more experienced teachers will lead to higher student outcomes.

Finally, the education production function contains three policy measures--the percentage of students taking gifted classes, class size, and student attendance (percent attending on an average day). Performance should be positively related to gifted classes and attendance and negatively related to class size.

Texas has a large number of school districts; many are very small or deal with a homogeneous student body. In an effort to use a set of organizations relatively similar in the task that they perform, we have restricted our analysis to school districts with a least 1000 students and at least 10 percent black students. These restrictions resulted in a total of 170 districts in the study.

The data analysis is a pooled time series with data from the years 1995 through 1998. In any pooled time series one needs to control for serial correlation resulting from any trend in the variables over time. A series of dummy variables are introduced to achieve this.

The basic production function is shown in table 1. Several variables are powerful predictors of black student pass rate. These include expenditure, background, and policy variables. Teacher salaries are strongly and positively related to the black student pass rate, as is the percentage of black adults age 25 and older with at least a high school education. Attendance also is strongly and positively related to the black student pass rate. The greater the percentage of low income students in the district, the lower the black student pass rate. No other variable achieved statistical significance.

The results of this model allow us to compare school districts as to how well they do above (or below) expectations. As an illustration, the model predicted that the Houston

Independent school district would have an average black pass rate of 47.78% from 1995-98. Houston's actual pass rate of 54.83 represents a 7.05 percentage point improvement over this standard. Based on this method, the top ranked school district for black students in Texas was Ferris with a rating of +21.6% followed closely by Pittsburg with a +21.14 score and Hooks with a +17.76 score.

The top 25 districts are shown in table 2. The first column is the numerical score on which the districts are ranked. The second column is the 1998 score and the third column is the average pass rate for black students from 1995 to 1998 in this district. These twenty-five districts represent a variety of different types of school districts located throughout the state. As mentioned above, Ferris again is the top ranked school district for black students. Again, it is notable that Houston, a large, metropolitan school district makes the list of the top twenty-five, as it did last year.

Table 3 reports the 25 best districts for black students in 1998 along with the 1995-1998 average scores. A comparison of this table with Table 2 gives some indication of relative movement among the rankings of school districts. Pittsburg with a 1998 score of 25.74 ranks first in 1998, with Linden-Kildare (23.95) second, Hooks (22.73) and Ferris (20.11) fourth. Recent gains are likely the result of the benefits of policies adopted earlier so these are the districts that are likely to continue to be rated highly in future studies.

The table in the Appendix gives an alphabetical listing of all of the school districts examined in this study, along with their scores. Any person interested in a specific school district can examine the Appendix to locate that district and identify the score and rank.

Conclusion

This study has identified those school district in Texas that performed better than expected on the pass rate for black students. These districts should serve as role models for other districts in Texas. The districts have a wide variety of programs for early diagnosis, coordination of curriculum, and parental involvement. If specific programs and performances are identified, then they can be transferred to other districts with an overall benefit to black students.

Although this study examined exemplary districts, that

should not detract from the relatively low pass rate for black students in Texas. A great deal of additional improvement is needed in these districts as well as other districts to close the test gap between black and Anglo students. Substantial progress has been made in the last few years; a great distance remains to be done. Improving educational opportunities for all Texas Children requires a long term commitment to education. Problems developed over a period of decades; solutions require both time and hard work.

The Texas Educational Excellence Project (TEEP) is a joint program of Texas A&M University and the University of Texas-Pan American. TEEP seeks to apply scholarly research to educational policy issues in order to make recommendations for greater quality and equity in Texas school systems.

Table 1. The Education Production Function

Dependent Variable = % of black students passing the TAAS 1995-98

Independent Variable	Coefficient	Standard Error
Low Income Students	-.0580	.0339
Gifted Classes	.1527	.1059
Attendance	3.0641	.4924
Teacher Salaries (000)	1.0310	.3131
Class Size	-.2893	.3998
NonCertified Teachers	-.0485	.1284
Teacher Experience	-.1483	.3000
State Funding Percent	.0294	.0268
Instructional Funding Per Student	.0009	.0018
Black Education (25+)	.2418	.0653
Black Poverty	-.0409	.0424

R-Square .63

Omitted are coefficients for individual year dummy variables.

Table 2
Top 25 Districts for Black Students 1995-98

Rank	Name	Score	98 Score	Average
1	Ferris	21.60	20.11	68.93
2	Pittsburg	21.14	25.74	67.93
3	Hooks	17.76	22.73	66.10
4	Linden-Kildare	15.11	23.95	66.75
5	Sweeny	14.32	11.47	66.45
6	Del Valle	13.64	15.73	57.63
7	Connally	13.13	10.01	67.23
8	McGregor	12.58	20.08	66.78
9	Texas City	11.93	10.27	59.38
10	Tatum	11.65	13.96	61.17
11	Stafford MSD	11.38	7.19	69.18
12	Sulpher Springs	10.87	9.39	62.75
13	Atlanta	10.72	18.08	62.22
14	Wilmer-Hutchins	10.28	11.24	54.70
15	Kountze	10.07	16.06	55.17
16	Liberty-Eylau	9.63	10.22	59.47
17	Daingerfield-Lo	8.75	10.26	59.50
18	Aldine	8.69	11.72	59.78
19	North Forest	8.36	3.97	56.85
20	New Boston	8.34	9.15	61.83
21	Garland	8.02	4.42	62.22
22	Goose Creek	7.95	7.26	55.20
23	Grand Prairie	7.76	5.72	62.13
24	Wichita Falls	7.17	5.34	57.72
25	Houston	7.05	7.36	54.83

Table 3
Best Districts for Black Students 1998

Rank	Name	98 Score	Average
1	Pittsburg	25.74	67.93
2	Linden-Kildare	23.95	66.75
3	Hooks	22.73	66.10
4	Ferris	20.11	68.93
5	McGregor	20.08	66.78
6	Atlanta	18.08	62.22
7	Kountze	16.06	55.17
8	Del Valle	15.73	57.63
9	Rockdale	14.67	52.15
10	Bay City	14.57	51.88
11	Newton	14.25	48.92
12	La Grange	14.11	56.22
13	Tatum	13.96	61.17
14	Angleton	13.02	60.58
15	Malakoff	12.78	46.97
16	Aldine	11.72	59.78
17	Sweeny	11.47	66.45
18	Sabine	11.37	56.92
19	Wilmer-Hutchins	11.24	54.70
20	Wharton	10.29	51.33
21	Texas City	10.27	59.38
22	Daingerfield-Lo	10.26	59.50
23	Liberty-Eylau	10.22	59.47
24	Queen City	10.01	51.03
25	Connally	10.01	67.23

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Appendix Table 1
Scores for All Districts

Rank	Name	Score	98 Score	Average
68	Abilene	1.55	1.75	56.63
18	Aldine	8.69	11.72	59.78
122	Alief	-4.14	-2.33	53.90
41	Anahuac	4.45	6.56	51.28
26	Angleton	6.51	13.02	60.58
151	Arlington	-7.89	-9.63	49.67
165	Athens	-11.68	-12.42	35.55
13	Atlanta	10.72	18.08	62.22
145	Austin	-6.61	-8.26	39.40
27	Bay City	6.47	14.57	51.88
36	Beaumont	5.13	6.21	50.92
163	Bellville	-11.52	-12.26	36.53
92	Bonham	-1.06	-0.78	32.00
155	Brenham	-9.08	-14.50	38.55
79	Brownsboro	0.26	0.41	53.88
143	Bryan	-6.22	-1.97	41.67
34	Caldwell	5.31	4.47	53.75
148	Cameron	-7.00	-6.39	41.15
164	Carthage	-11.56	-16.50	39.17
105	Cedar Hill	-2.47	-8.60	54.88
52	Center	3.29	4.75	47.47
166	Chapel Hill	-13.18	-13.57	33.92
120	Clarksville	-3.98	-11.03	45.63
153	Cleveland	-8.51	-13.73	32.00
159	Cold Spring-Oakhurst	-10.15	-10.06	30.17
149	College Station	-7.19	-8.63	48.00
30	Columbia-Brazoria	5.88	2.55	55.15
91	Columbus	-0.75	-2.97	50.28
84	Commerce	-0.49	3.33	48.42
7	Connally	13.13	10.01	67.23
69	Copperas Cove	1.35	1.93	55.60
66	Corrigan-Camden	1.74	-7.38	46.92
131	Corsicana	-5.22	-4.28	40.42
125	Crockett	-4.51	-8.87	38.45
64	Crosby	2.02	-2.35	56.38
46	Crowley	4.15	6.65	64.85
95	Cureo	-1.15	-1.46	46.08
17	Daingerfield-Lone St	8.75	10.26	59.50
108	Dallas	-2.65	-5.06	45.55
83	Dayton	-0.45	-0.98	45.78
6	Del Valle	13.64	15.73	57.63
47	Denison	4.11	0.55	54.47
74	Denton	0.64	1.46	52.03

100	DeSoto	-1.61	0.61	57.97
67	Diboll	1.56	-0.96	46.58
139	Dickinson	-5.92	-6.12	37.55
114	Duncanville	-3.17	-1.43	53.60
103	East Central	-2.30	0.05	53.28
29	Edna	5.90	4.66	54.08
53	El Campo	3.21	9.29	51.35
129	Elgin	-4.93	-6.16	41.42
118	Ennis	-3.49	-4.14	45.83
89	Everman	-0.71	-2.43	51.70
117	Fairfield	-3.33	-9.86	48.30
1	Ferris	21.60	20.11	68.93
81	Fort Bend	-0.15	2.26	56.47
127	Fort Worth	-4.70	-6.20	41.47
144	Ft Sam Houston	-6.58	-5.96	61.50
72	Gainesville	0.98	0.17	55.05
37	Galena Park	5.03	5.87	57.53
73	Galveston	0.75	3.47	42.45
21	Garland	8.02	4.42	62.22
63	Giddings	2.05	-11.50	50.80
123	Gilmer	-4.33	-4.47	45.42
62	Gladewater	2.24	-0.65	49.85
147	Gonzales	-6.98	-10.10	38.80
22	Goose Creek	7.95	7.26	55.20
23	Grand Prairie	7.76	5.72	62.13
156	Greenville	-9.44	-14.64	35.65
134	Groesbeck	-5.42	-6.78	43.33
43	Hallettsville	4.17	3.97	54.78
49	Hardin-Jefferson	3.73	-0.69	51.17
65	Hearne	1.96	-2.49	45.42
169	Hempstead	-16.05	-18.63	32.90
136	Henderson	-5.64	-5.35	42.58
77	Hillsboro	0.34	1.27	44.70
167	Hitchcock	-14.56	-18.33	34.97
3	Hooks	17.76	22.73	66.10
25	Houston	7.05	7.36	54.83
150	Huntsville	-7.81	-7.44	41.63
58	Irving	2.84	-1.42	59.30
146	Jacksonville	-6.78	-2.79	37.20
42	Jasper	4.33	0.13	51.40
38	Jefferson	4.95	5.28	52.05
71	Judson	1.27	2.32	60.08
80	Kaufman	-0.06	-0.18	48.15
99	Kilgore	-1.50	2.31	46.03
93	Killeen	-1.07	1.84	55.35
31	Kirbyville	5.72	4.11	51.67
70	Klein	1.33	-3.87	60.65

15	Kountze	10.07	16.06	55.17
45	La Grange	4.15	14.11	56.22
96	La Marque	-1.17	3.06	46.95
102	La Vega	-2.22	1.55	46.38
57	Lamar Consolidated	2.90	5.04	52.00
128	Lancaster	-4.73	-12.51	48.95
16	Liberty-Eylau	9.63	10.22	59.47
106	Liberty	-2.47	0.43	47.40
4	Linden-Kildare	15.11	23.95	66.75
51	Littlefield	3.35	0.13	53.80
126	Livingston	-4.66	-6.90	41.25
32	Longview	5.51	8.39	53.25
111	Lubbock	-2.94	-3.53	46.60
113	Lufkin	-3.01	-0.14	45.20
78	Luling	0.26	-0.20	50.00
142	Madisonville	-6.16	-7.18	38.13
48	Malakoff	4.00	12.78	46.97
28	Manor	6.16	0.81	52.40
130	Marlin	-5.00	-8.68	39.67
112	Marshall	-2.98	-4.49	43.97
8	McGregor	12.58	20.08	66.78
115	McKinney	-3.26	-1.61	32.75
87	Mesquite	-0.63	-0.71	54.15
33	Mexia	5.49	4.51	54.05
85	Midland	-0.54	-0.63	43.00
170	Mineola	-16.49	-31.55	36.63
76	Montgomery	0.38	0.41	54.35
60	Mount Pleasant	2.51	-3.50	51.20
132	Nacognoches	-5.23	-5.19	43.20
140	Navasota	-6.06	-1.05	38.53
20	New Boston	8.34	9.15	61.83
39	Newton	4.69	14.25	48.92
19	North Forest	8.36	3.97	56.85
152	Palestine	-8.12	-7.25	40.13
61	Paris	2.35	-2.65	51.78
56	Pflugerville	3.04	-2.35	61.45
2	Pittsburg	21.14	25.74	67.93
97	Port Arthur	-1.41	-1.48	41.00
54	Queen City	3.13	10.01	51.03
94	Randolph Field	-1.13	-1.95	68.30
75	Rice Consolidated	0.57	0.11	44.30
137	Richardson	-5.73	-9.24	53.20
59	Rockdale	2.64	14.67	52.15
158	Royal	-9.61	-10.10	32.08
135	Rusk	-5.44	-0.47	41.28
50	Sabine	3.49	11.37	56.92
162	San Augustine	-10.93	-13.73	38.80

161	San Antonio	-10.50	-1.36	36.08
154	Sealy	-9.06	-8.37	43.92
119	Sheldon	-3.85	-3.01	50.22
109	Shepherd	-2.69	1.17	43.58
116	Sherman	-3.27	-2.03	48.08
124	Silsbee	-4.42	-1.31	43.13
90	Slaton	-0.74	-1.60	33.10
168	Smithville	-15.65	-18.24	35.10
141	Spring	-6.11	-4.86	54.10
11	Stafford MSD	11.38	7.19	69.18
12	Sulpher Springs	10.87	9.39	62.75
5	Sweeny	14.32	11.47	66.45
10	Tatum	11.65	13.96	61.17
98	Taylor	-1.44	-1.21	45.55
107	Teague	-2.60	-5.05	50.60
157	Temple	-9.60	-9.33	41.40
40	Terrell	4.46	9.87	55.53
121	Texarkana	-4.07	-8.21	41.78
9	Texas City	11.93	10.27	59.38
133	Tyler	-5.35	-5.56	45.90
104	Van Vleck	-2.31	-3.80	49.20
44	Vernon	4.17	7.13	52.60
101	Waco	-1.86	3.60	39.20
160	Waller	-10.47	-12.66	41.55
138	Waxahachie	-5.73	-6.62	44.88
88	West Orange-Cove	-0.69	-0.31	46.63
55	West Oso	3.11	6.97	46.78
82	Westwood	-0.30	-4.14	51.20
35	Wharton	5.20	10.29	51.33
24	Wichita Falls	7.17	5.34	57.72
86	Willis	-0.60	-0.52	43.13
14	Wilmer-Hutchins	10.28	11.24	54.70
110	Yoakum	-2.93	-5.01	43.38