

**Good Predictors of School FCAT
Reading Performance**



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Predictors of School FCAT Reading Performance

There are many factors outside of the immediate control of the faculty and staff at any given school that influence a student's academic performance. In the case of schools in the state of Florida academic performance affects the annually state assigned school grade. School grades are issued at the end of each academic year and are based upon the percent of students that are having success mastering grade level standards as well as those students that are improving at a designated level from one year to the next on the Florida Comprehensive Assessment Test (FCAT). School grades, which have been in effect since the 1999-2000 school year, are usually linked to the socio-economic status of a school. Economically advantaged schools tend to receive higher grades than economically disadvantaged schools that have a large percent of students on subsidized lunch programs.

Over the past 4 years, our district has examined the relationship between a school's socio-economic status and its FCAT performance. This relationship is examined through the use of a statistical method known as regression analysis. A regression analysis examines the relationship between two variables. If the two variables are closely related they will have a high correlation with one another. In addition, a regression analysis allows one to predict one variable knowing the other. After each FCAT administration, a regression analysis is conducted using the percent of students a school has on free/reduced lunch as an indicator of FCAT performance, the higher the poverty at a school the poorer the school's performance on the FCAT. This trend is observed at the elementary, middle and high school levels.

We recognize that there are other demographic variables, beyond the control of the school personnel that may affect and influence student academic performance other than the socio-economic variables. Many principals and their staffs feel that the movement of student in and out of their schools is disruptive and negatively influences instruction in the classroom. This movement in and out of the school can be defined through changes in enrollment and mobility. We define this movement as disruption and have formulated an index that quantifies these enrollment and mobility changes. In addition, the academic achievement gap that exists between our two major minority populations, Blacks and Hispanics, and their White counterparts can affect a school's grade. Our district contains minority majority schools where this historical gap in academic achievement exists. Therefore, schools with large minority populations tend to receive lower school grades. While schools can not change or alter the movement of students in and out of their schools or change the racial/ethnic make-up of their schools, if this negatively impacts the grade school's receive from the state they require additional resources to effectively process their mobile student population and resources to close the academic achievement gap between minority and non minority students.

This report examines the relationship between a schools free/reduced lunch population, enrollment changes, mobility rate, and minority population on FCAT Reading scores. Using regression analysis, the relationship between these variables and FCAT Reading Scores are reported for our district's elementary, middle, and high schools.

VARIABLES EXAMINED

Mobility Rate:	Calculated based on the number of new entries, re-entries and withdrawals for students occurring on or between the beginning or end of the school date divided by Survey 2 enrollment.*
Disruption Index:	Calculated based on the cumulative effect of mobility and enrollment changes.
Free/Reduced lunch:	The percent of a school's student population receiving free or reduced lunch.
Minority:	The percent of a school's population represented by Blacks and Hispanics.
Socio-Minority Index:	The average of a school's free/reduced lunch population and minority population.



* This is the former Florida Department of Education mobility rate formula.

Each regression analysis is reported by grade level. A correlation of 0.8 is considered to have high predictive value. Those areas highlighted on Table I indicate demographic variables that are highly predictive for a school's FCAT Reading performance.



**Table I: School Level Regression Analyses
Relationship to FCAT Reading Performance**

Grade Level	Mobility Rate	Disruption Index	Free/Reduced Lunch %	% Minority	Socio-Minority Index
Elementary	.67	.59	.89	.86	.90
Middle	.86	.80	.93	.91	.94
High	.77	.85	.53	.62	.60

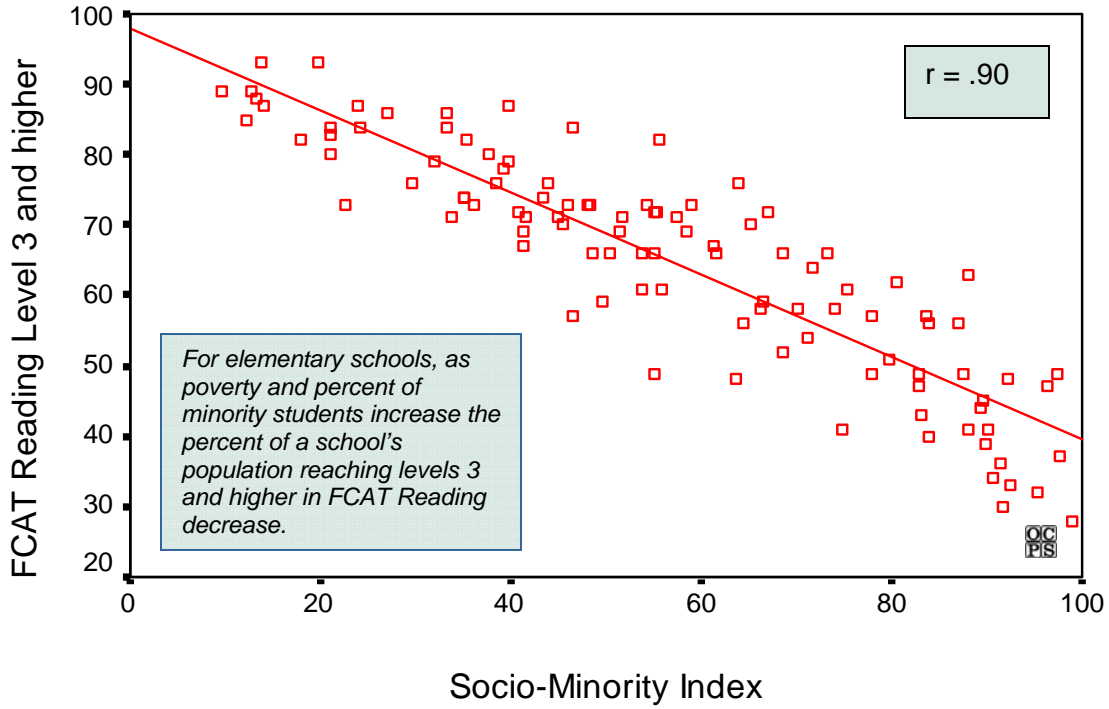


At the elementary school level, socio-minority index and free/reduced lunch alone had the highest correlation to FCAT Reading performance. At the middle school level all of the variables we examined had high predictive value but, the socio-minority index and free/reduced lunch alone had the highest correlations to FCAT Reading performance. At the high school level the disruption index had the highest correlation to FCAT Reading.

For elementary schools and middle schools, the higher the poverty of the school, the poorer the school's performance was on FCAT Reading. In addition, if one factors in the school's minority population the correlation is slightly higher. This is not surprising, because poverty and racial/ethnic status are closely linked. A disproportionate number of students receiving subsidized lunches are minority students. The relationship between poverty, race, and school performance was not observed at the high school level. For high schools, the greater the movement of students in and out of the school, the poorer that school's performance on FCAT Reading.

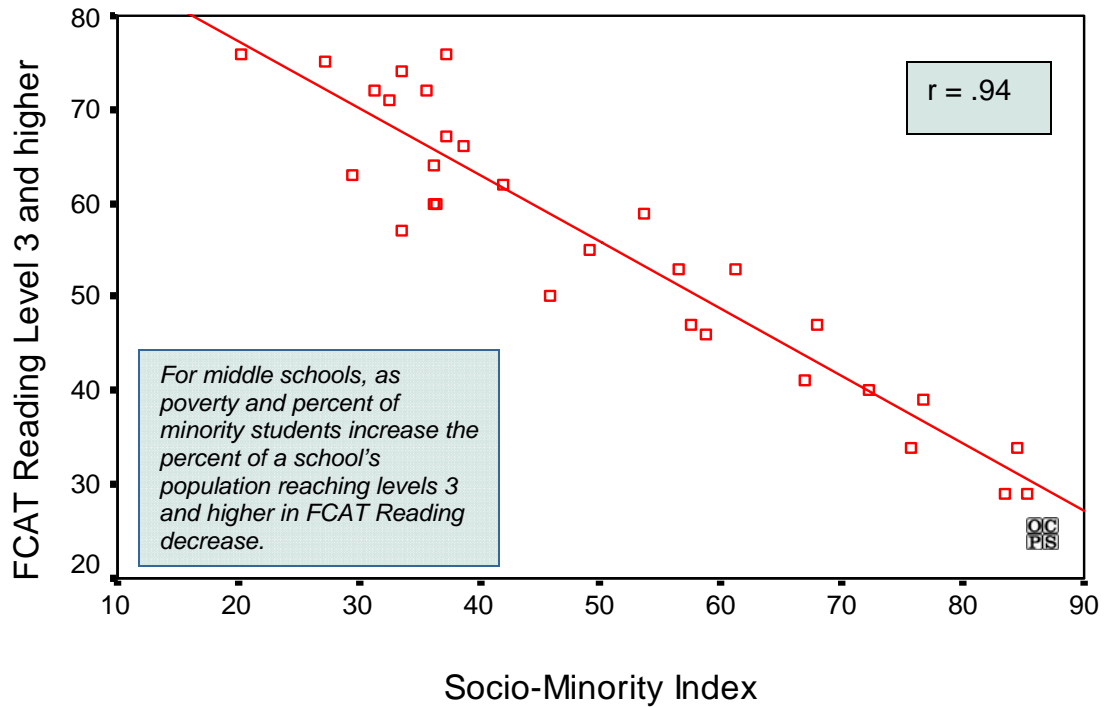
Elementary Schools

Socio-Minority Index



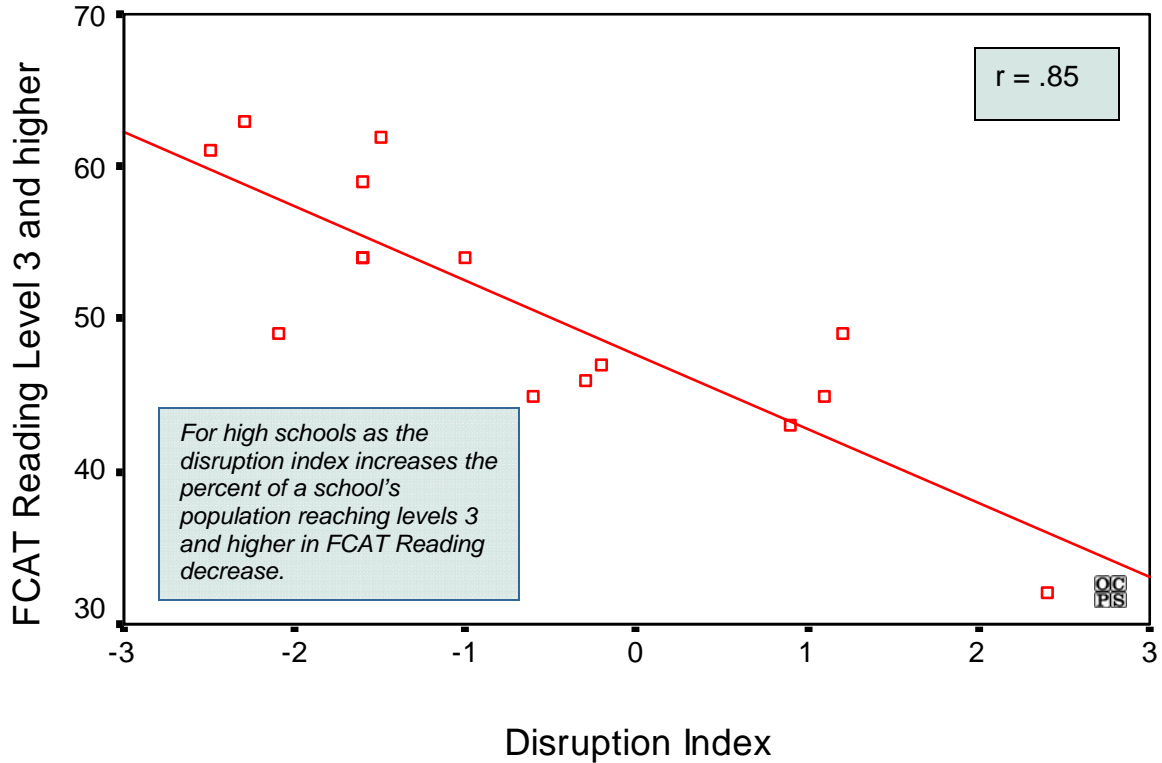
Middle Schools

Socio-Minority Index



High Schools

Disruption Index



CONCLUSION – PART I

Our regression analyses show that elementary and middle schools with the highest percentage of students on free/reduced lunch and those with high minority populations tend to perform the poorest on FCAT Reading and therefore receive the lowest state assigned school grades. At the high school level, schools that have the greatest changes in enrollment and mobility in and out of the school reflected in our district calculated disruption index perform the poorest on FCAT Reading.

Multiple Regression

Our next step was to conduct a multiple regression examining the predictive value of many demographic variables on the school's FCAT Reading performance. We examined the relationship between mobility, enrollment changes, free/reduced lunch, and minority population on the percent of student's at level 3 and above on FCAT Reading at the school's in our district. In the first portion of this paper each individual demographic variable was examined or an index was calculated based on two variables and that individual index was examined. This section of the paper reports the predictive value of relationship between all of the demographic variables and FCAT Reading. It is important to note that in some cases adding more information about the demographic characteristics of the school does not increase the predictive value for FCAT.

**Table I: School Level Multiple Regression Analyses
Relationship to FCAT Reading Performance**

Grade Level	Mobility Rate, Enrollment Changes, Free/Reduced Lunch %, Minority Population%
Elementary	.90
Middle	.95
High	.89

When comparing the multiple regression analysis to the previous regression analysis the correlations are comparable. At the elementary level, including all demographic variables does not provide for a stronger correlation than examining the socio-minority index alone. The percent of students on free/reduced lunch and the percent minority at the school were statistically significant in their relationship to FCAT Reading performance ($p < .05$).

At the middle school level, the socio-minority index is just as powerful as including all of the demographic variables. The percent of students on free/reduced lunch and the percent minority at the school were statistically significant in their relationship to FCAT Reading performance ($p < .05$).

At the high school level, the correlation is slightly higher if one includes all demographic variables. The mobility rate and enrollment changes were statistically significant ($p < .05$). However, unlike the elementary and middle schools where the percent of students on free and reduced lunch had the highest relationship to FCAT performance, for high schools the mobility rate had the strongest relationship to FCAT Reading performance. Therefore, when combining these variables with others to form an index the relationship becomes stronger. For elementary and middle schools, the socio-minority index had the highest correlation. For high schools the disruption index, that combines mobility rate and enrollment changes, had the highest correlation.

CONCLUSION – PART II

The multiple regression analyses demonstrates that at the elementary and middle school level the strongest predictors of FCAT reading performance are the percentage of students on free/reduced lunch and the percent minority population at a school. At the high school level, the strongest predictor of FCAT reading performance is a school's mobility rate. Other variables such as enrollment changes add to the predictive value. This added value is reflected in our district calculated, disruption index.

Our research indicates that the best predictors of FCAT Reading performance are different for elementary and middle schools compared to high schools. For elementary and middle schools the best predictors of FCAT Reading are socio-economic and minority variables. Therefore, the best predictor for these grade levels is the socio-minority index. At the high school level, the best predictor of FCAT Reading is mobility rate and enrollment changes. Both of these variables are included in our district derived, disruption index. At the high school level, the disruption index is the best predictor of FCAT Reading performance.