ABSTRACT

DEMOGRAPHIC VARIABLES AS PREDICTORS OF LOCAL REPORT CARD DESIGNATIONS

by Christine R. Bennett

The following study examines the predictive value of demographic variables on Local Report Card designations in Ohio. Specifically, data on the percentage of minority students, percentage of economically disadvantaged students, student-to-teacher ratio, per-pupil spending, percentage of students with a disability, and LRC designations was collected from all elementary schools in Ohio in order to examine the predictive value of each variable on a school’s LRC designation. The results of the study indicate that percentage of minority students, percentage of students with a disability, percentage of economically disadvantaged students, and per pupil spending have significant predictive value. The results suggest that despite great effort to remove demographic bias from the LRC, it continues to exist.
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Demographic Variables as Predictors of Local Report Card Designations

The No Child Left Behind Act (NCLB) of 2001 was established with the purpose of holding schools accountable for providing an appropriate and equal education to all children. In order to hold schools accountable, NCLB requires an annual state and district report card to be issued publicly (McDonald, 2002). Ohio’s Department of Education has created a Local Report Card (LRC), in order to assess the academic performance and progress of students and to determine the instructional effectiveness of schools at both the building and district level. Ohio’s LRC is published annually and gives the following ratings based on the level of school effectiveness: Excellent with Distinction, Excellent, Effective, Continuous Improvement, Academic Watch, and Academic Emergency. Multiple factors may potentially affect the LRC designations that a school receives; one area that has not previously been considered at is the demographics of a school. The objective of this study is to determine whether demographic variables are predictive of Ohio schools’ Local Report Card designations.

Local Report Cards

Current Local Report Cards measure school performance in four core areas: State Indicators, Performance Index (PI), Adequate Yearly Progress (AYP), and value-added growth reports.

State Indicators

There are currently 25 different state indicators on which schools are evaluated. Twenty-three of these indicators reflect student performance on the Ohio Achievement Assessments (OAA); the final two indicators reflect graduation and attendance rates. Ohio Achievement Assessments are administered to children in grades 3 through 8, while the Ohio Graduation Test (OGT) is given to students in grade 10 and grade 11 if necessary. Students can earn the following designations on each section of the OAA or OGT: advanced, accelerated, proficient, basic, and limited. The designations help determine the indicators on which schools are assessed (ODE, 2005).
Proficiency test indicators – 3rd – 8th grade. In grades 3 through 8, there are 13 state indicators that measure student performance. All students are evaluated in reading and math, while fourth grade students are additionally evaluated in the subject of writing. To acquire an indicator for an individual subject area, 75 percent of students must score at or above the proficient level. If less than 75 percent of students have met the proficient level, the school does not meet the criterion for that particular state indicator (ODE, 2005).

Proficiency test indicators – 10th & 11th grade. In grades 10 and 11, there are ten performance indicators to be acquired. Students in both grades are assessed for achievement on the Ohio Graduation Test (OGT) in the subject areas of reading, writing, math, social studies, and science. In grade 10, consistent with the previously described standards, 75 percent of students must achieve proficiency for an indicator to be met. In grade 11, however, 85 percent of students must achieve proficiency for the state indicator to be met (ODE, 2005).

Graduation rate state indicator. The graduation rate from the preceding school year is calculated to determine if the state indicator is met. For example, to determine the graduation rate for the 2007-2008 Local Report Card, the graduation rate for the 2006-2007 school year must be reviewed. Only high schools containing grades 9 through 12 are evaluated on graduation rate. A 90 percent graduation rate must be met to acquire the state indicator (ODE, 2005).

Attendance rate for state indicator. The final state indicator evaluates the student attendance rate for the entire school. The aggregate attendance rate is determined by comparing the number of days students spent in attendance with the total number of enrolled students. An attendance rate of 93 percent must be met to obtain the state indicator (ODE, 2005).

Performance Index

The purpose of the Performance Index (PI) is to reflect the performance of every student on the OAA or OGT. The PI awards weighted scores for different levels of
student performance to ensure that students not reaching proficiency are still taken into consideration. PI scores, range from 0.0 to 120.0, for all subject areas. This applies to each grade that takes the OAA or OGT other than grade 11 (ODE, 2005).

*Calculating Performance Index.* Performance level is evaluated individually across subjects, and is determined by the student’s test score. The PI is a weighted score, which is calculated by multiplying the percentage of students performing at that level by a constant (the constant differs for each level). The results for each performance level are then added together to produce the school’s overall Performance Index. Performance constant weights are defined as follows: 1.2 for Advanced scores, 1.1 for Accelerated scores, 1 for Proficient scores, 0.6 for Basic scores, 0.3 for Below Basic/Limited scores, and 0 for Untested students (ODE, 2005). See figure 1

![PI Formula Diagram](image)

*Figure 1: PI Formula*

*Value-Added Reports*

Value-Added Assessment (Sanders) is a statistical measure included to evaluate student progress from one year to the next. The goal of value-added is to evaluate the
impact that schools have on student growth by comparing current level of learning with past learning. Value-Added scores are intended to reflect student progress regardless of demographic variables.

The value-added scores for Ohio are determined via a statistical regression model that calculates performance growth rates for each individual student. Essentially the technique utilizes OAA/OGT data from a 5 year-year time span to determine a performance growth rate for each student. This growth rate is then compared to the average growth rate of a reference group consisting of peers with similar performance histories on the OAA/OGT. Both performance trajectories are then compared to OAA/OGT proficiency requirements for each grade level over the 5 year period. The idea is that this analysis should establish a standards-based measure of adequate growth whereby students with similar achievement histories yield similar growth trajectories regardless of demographic attributes (ODE, 2006). See Figure 2 for example.
The value-added model is grounded on the assumption that prior achievement is an accurate predictor of future test achievement. Test scores that surpass projected values suggest exceedingly effective instruction. Conversely, scores that fall short of projected values insinuate inadequate instruction (Hershberg, Simon, & Lea-Kruger, 2004).

Value-Added designations. Beginning with fourth grade and continuing through eighth grade, growth trajectories are developed for all students based on scores from the previous year. Student proficiency is expected by the first grade level following the last grade level serviced in the current building. For example, in a school that serves students
in grades K through 5, a student’s growth trajectory would be directed at reaching proficiency by grade 6. If trajectories fail to demonstrate adequate proficiency gains, schools are pressured to improve academic progress. Schools are awarded points for academic gains in each subject and designated accordingly: “Green” indicates growth that exceeds expected state-level trajectories; “Yellow” indicates growth that coincides with expected state-level trajectories; and “Red” indicates growth that fails to meet growth trajectory expectations. Schools exceeding expected yearly growth will improve their LRC designation, while schools failing to meet expected growth for two consecutive years will move down one designation. Schools that meet expected growth rates are unaffected by value-added measures (ODE, 2006).

*Adequate Yearly Progress (AYP)*

The intent of Adequate Yearly Progress is to assess the performance of all tested students in relation to demographic subgroups. AYP goals include evaluation on participation rates, proficiency standards, and attendance rates. Results may be assessed annually or averaged with the previous year’s calculations. Ten different subgroups are evaluated, including the following: All students, Economically Disadvantaged Students, Asian/Pacific Islander Students, African American Students, American Indian/Alaskan Native Students, Hispanic Students, Multi-Racial Students, White Students, Students with Disabilities, and Students with Limited English Proficiency (ODE, 2005).

*Adequate Yearly Progress participation rate.* Participation rate is the first component of AYP. It compares the number of students tested on the state assessment with the number of students required to take the test. Each subgroup is evaluated separately and only participation on the Math and Reading divisions of the OAA are considered. A subgroup is measured if the school has a minimum of 40 students that fall into that category with the exception of the group of students with disabilities, which must have a minimum of 30 students; otherwise the subgroup is not evaluated. Schools may meet the AYP Participation Rate by accomplishing either of the following: (1) each subgroup demonstrates a 95 percent participation rate in the current year; or (2) the
average participation rate of the current year and previous year meets the 95 percent standard (ODE, 2005).

Adequate Yearly Progress proficiency calculations. The next feature of Adequate Yearly Progress evaluates the proficiency level of each individual subgroup on the OAA. A subgroup is measured if the school has a minimum of 40 students that fall into that category; otherwise the subgroup is not evaluated. Again, each subgroup is evaluated separately and only participation on the math and reading sections of the OAA are considered. However, it is important to note that while each subgroup is evaluated separately in both subjects; all grades (3, 4, 5, 7, 8, and 10) are consolidated so that each subgroup only yields one score for math and one score for reading. Each subgroup can demonstrate proficiency by any of the following means: (1) the target proficiency rate is met for the current year; (2) the target proficiency rate averaged from the current year and previous year is met; (3) the subgroup meets AYP through “Safe Harbor” conditions, described later, by demonstrating a 10 percent reduction in students scoring below proficient level, as compared to the previous year (ODE, 2005).

Adequate Yearly Progress graduation rate calculation. The next component of AYP is graduation rate, which evaluates the annual percentage of graduates yielded by a particular high school. It is important to note that individual subgroups are not used in determining AYP graduation rates; subgroups are calculated as a whole. A standard graduation rate of 73.6 percent must be met in order to meet AYP requirements. AYP graduation rate standards can be met in three different ways: (1) the graduation rate from the current school year is at or above the 73.6 percent standard; (2) the average graduation rate from the previous two school years is at or above the 73.6 percent standard; (3) Safe Harbor standards are met by improving the graduation rate by 10 percent between the current and previous school years. (ODE, 2005).

Adequate Yearly Progress attendance rate. The final component of AYP is attendance rate, which considers the rate of attendance for all students in Kindergarten through 8th grade. Similar to calculating AYP graduation rate, subgroups are not considered when determining AYP attendance rate; subgroups are calculated as a whole.
A standard attendance rate of 93 percent is required to meet AYP requirements. AYP attendance rate can be met in three different ways: (1) the attendance rate for the current school year is at or above 93 percent; (2) the average attendance rate of the current school year and the previous school year is at or above 93 percent; (3) Safe Harbor standards are met by improving the attendance rate between the current and previous school years by 10 percent (ODE, 2005).

Safe Harbor. If AYP is not met through proficiency and participation rates, Safe Harbor offers an alternative way to meet standards. By demonstrating a 10 percent reduction of students who previously failed to meet standards of proficiency, a school may satisfactorily obtain credit for AYP. Safe Harbor evaluates each subgroup individually, rewarding any subgroup that failed to meet other methods of proficiency (ODE, 2005).

Consequences of Adequate Yearly Progress. A school that meets Adequate Yearly Progress cannot be classified any lower than the Continuous Improvement status, regardless of scores on state indicators and performance index. However, Excellent or Effective schools that fail to meet AYP standards for three consecutive years are dropped into the Continuous Improvement category. Schools are eligible to advance out of the Continuous Improvement category when they demonstrate AYP standards for two consecutive years. In addition, a school that has otherwise failed to meet AYP or Safe Harbor standards may qualify for the next LRC designation if it demonstrates satisfactory value-added academic gains (ODE, 2005).

Report Card Designations

When awarding designations, Local Report Cards consider a school’s achievement on state indicators, performance index, value-added reports, and AYP status. Classifications of Excellent with Distinction, Excellent, Effective, Continuous Improvement, Academic Watch, and Academic Emergency are awarded based upon: (1) The percentage of state indicators met or the total score earned on the Performance Index and (2) by determining if AYP standards have been met (ODE, 2005).
**Excellent with Distinction.** A school is awarded an Excellent with Distinction designation if it earned a green value-added score, exceeding expected growth rates. In addition, a school must be proficient or better for at least 94% of state indicators, or obtain a PI index of at least 100. Finally, an Excellent with Distinction school must demonstrate Adequate Yearly Progress goals (ODE, 2005).

**Excellent designation.** A school must be proficient or better for at least 94% of state indicators, or obtain a PI index of at least 100 to be awarded an Excellent designation. In addition, although Excellent designation schools typically meet Adequate Yearly Progress goals, failure to meet AYP for three consecutive years will constitute a drop to the Continuous Improvement designation. Finally, a school may move up a designation, from Effective to Excellent by obtaining a green value-added designation (ODE, 2005).

**Effective designation.** A school is classified as Effective if it obtains between 73 and 93.9 percent of state indicators or it has a score of 90 to 99.9 points on the Performance Index. A school may move up a designation or down a designation based upon their value-added score. Failure to meet AYP for three consecutive years will also constitute a drop to the Continuous Improvement designation (ODE, 2005).

**Continuous Improvement designation.** A school may earn the Continuous Improvement designation through several different channels. A school will earn a Continuous Improvement classification by obtaining between 50 and 74.9 percent of state indicators or by scoring 80 to 89.9 points on the Performance Index. A school may move up a designation or down a designation based on value-added scores, but may not earn a designation below Continuous Improvement if AYP is met, regardless of low performance on state indicators or PI. A Continuous Improvement classification occurs when an Excellent or Effective school fails to meet Adequate Yearly Progress goals for three consecutive years. The final means of acquiring a Continuous Improvement designation is for a school under Academic Watch to demonstrate a 10-point increase on the Performance Index. The increase in points must be earned within the previous two years; 3 of the 10 points must be gained in the current year (ODE, 2005).
**Academic Watch designation.** Academic Watch can also be acquired by several different means. A school will be subject to Academic Watch from earning between 31 and 49.9 percent of state indicators or by scoring between 70 and 79.9 points on the Performance Index. Any school that receives this designation has failed to meet Adequate Yearly Progress goals. Additionally, a school may move up a designation or down a designation based on their value-added score. Finally, a school classified in Academic Emergency may improve one designation to Academic Watch by demonstrating a 10-point increase on the Performance Index. The increase in points must be earned within the previous two years and 3 of those points must be gained during the current academic year (ODE 2005).

**Academic Emergency designation.** The sixth and final report card classification is Academic Emergency. In order for a school to receive this designation, it must have failed to meet Adequate Yearly Progress goals, earned lower than 30.9 percent of state indicators, scored lower than 69.9 points on the Performance Index, and it must have received a red or yellow value-added designation (ODE, 2005). See figure 3 for a chart depicting LRC designations.
<table>
<thead>
<tr>
<th>Indicators Met</th>
<th>Performance Index Score</th>
<th>AYP Status</th>
<th>Preliminary Designation</th>
<th>Did the Preliminary Designation increase or decrease based on the AYP Status?</th>
</tr>
</thead>
<tbody>
<tr>
<td>94% - 100%</td>
<td>100 to 120</td>
<td>Met or Not Met</td>
<td>Excellent</td>
<td>IF YES STOP HERE No additional change to the designation can occur based on the value-added calculation</td>
</tr>
<tr>
<td>75% - 93.9%</td>
<td>90 to 99.9</td>
<td>Met or Not Met</td>
<td>Effective</td>
<td>Above expected growth for at least 2 consecutive years</td>
</tr>
<tr>
<td>0% - 74.9%</td>
<td>0 to 89.9</td>
<td>Met</td>
<td>Continuous Improvement</td>
<td>Below expected growth for at least three consecutive years</td>
</tr>
<tr>
<td>50% - 74.9%</td>
<td>80 to 89.9</td>
<td>Not Met</td>
<td>Continuous Improvement</td>
<td>Otherwise no effect on rating</td>
</tr>
<tr>
<td>31% - 49.9%</td>
<td>70 to 79.9</td>
<td>Not Met</td>
<td>Academic Watch</td>
<td>Above expected growth for at least 2 consecutive years</td>
</tr>
<tr>
<td>0% - 30.9%</td>
<td>0 to 69.9</td>
<td>Not Met</td>
<td>Academic Emergency</td>
<td>Below expected growth for at least three consecutive years</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preliminary Designation</th>
<th>Amount of growth using value-added calculation</th>
<th>Final Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>Above expected growth for at least 2 consecutive years</td>
<td>Excellent with Distinction</td>
</tr>
<tr>
<td>Effective</td>
<td>Below expected growth for at least three consecutive years</td>
<td>Effective</td>
</tr>
<tr>
<td>Continuous Improvement</td>
<td>Otherwise no effect on rating</td>
<td>Excellent</td>
</tr>
<tr>
<td>Continuous Improvement</td>
<td>Above expected growth for at least 2 consecutive years</td>
<td>Effective</td>
</tr>
<tr>
<td>Academic Watch</td>
<td>Below expected growth for at least three consecutive years</td>
<td>Continuous Improvement</td>
</tr>
<tr>
<td>Academic Emergency</td>
<td>Otherwise no effect on rating</td>
<td>Continuous Improvement</td>
</tr>
</tbody>
</table>

Figure 3: 2007 – 2008 Local Report Card designations

Consequences of Local Report Card designations can be severe. Low classifications can be met with critical changes in curriculum and administration. While the objectives behind Local Report Card measures are intended to improve quality of instruction, considerable limitations exist in this evaluation system.
Local Report Card Limitations

The profound reliance on criterion-referenced state assessments as a means of measuring instructional effectiveness is a significant weakness of the Local Report Card designations. Although not the exclusive basis of evaluation, performance on the Ohio Achievement Assessments largely determines the status of any particular school within the state, impacting scores in all components of the Local Report Cards. The dependence on such a measure results in considerable limitations.

Demographics. Demographics and their impact on student achievement continue to be a controversial topic in education. According to Tate (2008) it is of the utmost importance to account for the demographic variables of an area when considering the education processes and outcomes. Whereas, Burris and Welner (2005) support the idea that all students are capable of high levels of achievement regardless of demographic variables, as long as high-track curriculum is provided.

Students are not randomly assigned to schools, therefore extraneous variables, such as demographics, must be taken into consideration when using value-added and Performance Index Scores (Doran, 2003). While the PI scores do take into account different demographic variables, it has been suggested that average scores from criterion-referenced tests will generally follow a normal curve, hence not providing an accurate picture of student progress (Mathis, 2005). The current method of determining a school’s designation involves the use of simple statistics, which are descriptive, but not informative and have the potential to punish schools for not reaching proficiency levels when they are indeed making progress. Value-Added scores are now thought to more reliably assess school quality, when combined with additional valid indicators (Doran, 2003).

Average academic performance may be potentially influenced in varying degrees by a number of demographic factors (i.e., percentage of minority students, socio-economic status, student-to-teacher ratio, per-pupil spending, and percentage of students with a disability). For instance a large presence of minority students in the population may tend to adversely affect performance levels and growth rates. The reasons for this
phenomenon were examined by Haycock (2001) and Burris & Welner (2005), they suggest that a lack of societal and teacher expectations for minority student groups can cause these students to be placed in low-track class sequences and achieve at lower levels and rates than their non-minority peers. Another demographic consideration is the socio-economic status of the school district population. This variable is usually represented in terms of the number of students on free or reduced lunch as designated by the Federal Poverty Guidelines. These children have historically exhibited lower reading abilities than students who come from more affluent homes (Bracey, 2003; Plisko, 2003; Lyon 1999). Other demographic considerations include student to teacher ratios and money spent per pupil within a school or district (Clark, 2003; Finn, Gerber, & Boyd-Zaharias, 2005). High student to teacher ratios decrease the ability of a teacher to attend to any one student individually, and may therefore influence lower levels of achievement. Lower funding levels may adversely affect resources and staff available to help students achieve. No Child Left Behind Act (NCLB) requires that all students participate in state achievement tests, aside from a small population of students with severe disabilities which are put on alternate assessment (NCLB, 2001). Requiring students with disabilities to take the high stakes assessments may result in not meeting proficiency scores for a multitude of reasons (i.e. testing environment, test format, etc.). Therefore, schools with a significant population of special education students may be adversely affected on the OAA/OGT and subsequently the LRC designation.

Each of these factors, considered individually, have a degree of influence on overall performance levels in a school or district. However, it is difficult to consider each of them in isolation as they can also be interdependent. High-poverty areas may have difficulty allocating enough funds per pupil to purchase supplies, hire teachers and staff, etc., which in turn can affect teacher to student ratios. To further confuse matters, studies that are focused on a single demographic variable often report conflicting results on the importance of that variable as compared to another. Haycock (2001) and Burris & Welner (2005) report that the most important issue is the percentage of minority groups, whereas Bracey (2003) and Plisko (2003) argue that the importance of socio-economic status is supreme when considering achievement discrepancies.
In light of these findings, the assertion can clearly be made that demographic variables are highly likely to influence overall academic achievement in schools. As previously mentioned, No Child Left Behind now mandates the measurement of academic achievement levels via the indicators and indices that comprise Local Report Card designations. These designations claim to control for demographic sub-groups. However these subgroups are specified almost exclusively along ethnic domains (children with disabilities and economically disadvantaged students, and gifted students are amongst the only sub-groups that are unique in this regard). Since the consequences of LRC designations are so significant to the funding of a district and ultimately the availability of positions for school staff members, it is paramount that the influence of demographics on these designations is understood. Schools will be unduly penalized or rewarded for factors that are outside of its control if the appropriate demographic considerations are not in use. In addition since demographic variables tend to act on each other in various ways, it is more helpful to understand how these factors influence LRC designations as a group, rather than one by one.

One of the first steps toward understanding this relationship is to ascertain how well these demographic factors influence, or predict, an LRC designation for a school. Empirical data in the literature supports the concept that demographic variables influence the overall academic achievement for a school. The hypothesis of this study maintains that these same demographic variables (i.e., percentage of minority students, socio-economic status, student-to-teacher ratio, per-pupil spending, and percentage of students with a disability) will predict the LRC designation for any particular school.

LRC designations and demographic information will be obtained through the Ohio Department of Education website. The following demographic factors will be collected for each school: student to teacher ratio, per pupil spending, percentage of minority students, percentage of students on free/reduced lunch, and percentage of special education students.
Purpose

Although Local Report Card status is allocated with the objective of measuring school effectiveness, several limitations exist in this system. The objective of this study is to determine whether Ohio's Local Report Card accurately measures the level of growth and performance of each school's students. The relationship between demographics and LRC designation will be examined in order to consider the influence that student to teacher ratio, per pupil spending, percentage of minority students, percentage of students on free/reduced lunch, and percentage of special education students have on school effectiveness ratings.

METHOD

Data Sources and Procedures

The data collected will be obtained from existing public resources. Local Report Card designations and demographic data for schools throughout the state are accessible through the Ohio Department of Education website, the Family Educational Rights and Privacy Act (FERPA) allows for disclosure of this data without consent. Each variable can be collected using the Power User Reports found on the site. The information will be collected in excel data base form, which will subsequently be put into SPSS to run the analyses. No identifying student information will be collected or disseminated as a result of school participation in this study; therefore approval from the Institutional Review Board will not be necessary.

Measurements

For each elementary building, the average student to teacher ratio, average per pupil spending, percentage of students who receive free/reduced lunch, the percentage of minority students, and percentage of students with disabilities will be collected from the schools. The final measure examined in this study will be each selected school’s LRC designation. As detailed in the literature review, each year a school may earn the following designations: Excellent with Distinction, Excellent, Effective, Continuous Improvement, Academic Watch, and Academic Emergency.
Class size: Data will be collected for each building that indicates the average student to teacher ratio in the classroom.

District Funding: Data will be collected for each building that indicates the average amount of money spent per pupil.

Minority status: Data will be collected for each building that indicates the percentage of students who have a minority status.

SES status: Data will be collected for each building that indicates the percentage of students who qualify for free and reduced lunch program.

Disability status: Data will be collected for each building that indicates the percentage of students who have an Individualized Education Plan.

*Hypothesis*

The following hypothesis will the examined in this study:

Research Question 1: What is the relationship between the set of demographic characteristics of a school (percentage of minority students, level of socio-economic status, student-to-teacher ratio, per-pupil spending, and percentage of students with a disability) and the local report card designation?

Hypothesis 1: No relationship exists between the set of demographic characteristics of a school (percentage of minority students, level of socio-economic status, student-to-teacher ratio, per-pupil spending, and percentage of students with a disability) and the local report card designation.

*Analysis*

In this study, the relationship between each individual demographic variable and the LRC designation will be evaluated using a correlational analysis. The variables that are found to have a significant relationship will then be evaluated using a logistic regression analysis to examine the extent to which each variable predicts the LRC designations.

The data for students with disabilities and minorities was obtained in the form of percentage of each group of students that comprised the school population. The
percentage of students who receive free/reduced lunch in each building was used as a proxy for percentage of economically disadvantaged students, as the higher numbers of students receiving free/reduced lunch indicates lower socio economic status of the student population for the building. The data for per pupil spending was collected as a monetary number for each building. The data for student to teacher ratio was collected as an average per district; this data was not available at the building level. The value for each district was assigned to each building.

Results

Multiple statistical analyses were conducted to examine the relationships between the five demographic variables and local report card (LRC) designations. Each variable was examined to determine its strength and the direction of the bivariate relationship with the LRC designations. A Pearson Product-Moment correlation coefficient analysis using a .05 alpha level was used to assess the bivariate relationship with the local report card designation. The results of the correlational analysis displayed in Table 1 demonstrate all variables have a relationship ranging from weak to moderate with the LRC designation with the exception of student to teacher ratio. Therefore, student to teacher ratio will be eliminated from the remainder of the analysis, as the correlational analysis shows that it has no significant relationship with the LRC designation.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Students with Disabilities</th>
<th>Economically Disadvantaged Students</th>
<th>Minority Students</th>
<th>Per Pupil Spending</th>
<th>Student to Teacher Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRC</td>
<td>-.281**</td>
<td>-.722**</td>
<td>-.496**</td>
<td>-.239**</td>
<td>-.035</td>
</tr>
<tr>
<td>Students with Disabilities</td>
<td>--</td>
<td>.252**</td>
<td>.090**</td>
<td>.184**</td>
<td>-.386**</td>
</tr>
<tr>
<td>Economically Disadvantaged Students</td>
<td>--</td>
<td>.560**</td>
<td>.195**</td>
<td></td>
<td>.035</td>
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<tr>
<td>Minority Students</td>
<td>--</td>
<td>.158**</td>
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<tr>
<td>Per Pupil Spending</td>
<td>--</td>
<td>--</td>
<td></td>
<td>-.077**</td>
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</tr>
</tbody>
</table>

** p < .01

It should be noted that two variables, percentage of economically disadvantaged students and percentage of minority students, had significantly stronger correlations than the other two variables with significant relationships, percentage of students with disabilities and per pupil spending. However, each variable has a statistically significant correlation with the LRC designation. Further analysis is needed to determine the predictive strength of each variable when predicting LRC designations.

A logistic regression analysis was conducted to predict local report card designation using percentage of minority students, level of socio-economic status, per-pupil spending, and percentage of students with a disability as predictors. The local report card designations were reduced to two categories. Category one was the passing classifications: excellent with distinction, excellent, and effective. The remaining
category was the classifications considered to be failing: continuous improvement, academic watch, and academic emergency.

A test of the full model against a constant only model was statistically significant, indicating that the predictors, as a set, reliably distinguished between the passing and failing designations of the LRC (chi-square = 1120.658, p<.000 with df = 4). The Model Summary, shown in Table 5, provides information on the usefulness of this model. The Cox & Snell R Square (.446) and Nagelkerke R Square (.623) values suggest that 44.6% to 62.3% of the variation found in the dependent variables can be explained by this set of independent variables.

Table 2

<table>
<thead>
<tr>
<th>Step</th>
<th>-2 Log likelihood</th>
<th>Cox &amp; Snell R Square</th>
<th>Nagelkerke R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1270.213*</td>
<td>.446</td>
<td>.623</td>
</tr>
</tbody>
</table>

The Wald test was conducted within the logistical regression analysis; results show that all four variables contribute significantly to the LRC designations. As shown in Table 6, the percentage of economically disadvantaged students had a negative impact on LRC designation. As the percentage of economically disadvantaged students increased, the probability of a school receiving a passing certification decreased ($B = - .064, p < .05$). The percentage of students with a disability also had a negative impact on LRC designation. As the percentage of students with a disability increased, the probability of a school receiving a passing certification decreased ($B = -.030, p < .05$). The percentage of minority students also had a negative impact on LRC designation. As the percentage of minority students increased, the probability of a school receiving a passing certification decreased ($B = -.021, p < .05$). Per pupil spending had a small positive impact on LRC designation. As per pupil spending increases, the probability of a school receiving a passing certification will be increased ($B = .00004, p <.05$).
Table 3

*Logistic Regression Analysis Using All Significant Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>Df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.345</td>
<td>.258</td>
<td>429.115</td>
<td>1</td>
<td>.000</td>
<td>209.547</td>
</tr>
<tr>
<td>% Economically Disadvantaged</td>
<td>-.064</td>
<td>.004</td>
<td>326.433</td>
<td>1</td>
<td>.000</td>
<td>.938</td>
</tr>
<tr>
<td>% Disability</td>
<td>-.030</td>
<td>.010</td>
<td>8.788</td>
<td>1</td>
<td>.003</td>
<td>.970</td>
</tr>
<tr>
<td>% Minority</td>
<td>-.021</td>
<td>.003</td>
<td>55.321</td>
<td>1</td>
<td>.000</td>
<td>.979</td>
</tr>
<tr>
<td>Per Pupil Spend</td>
<td>.000</td>
<td>.000</td>
<td>5.513</td>
<td>1</td>
<td>.019</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*Discussion*

As long as No Child Left Behind continues to hold schools in the state of Ohio accountable for providing an equal and appropriate education to all students, the state of Ohio will continue to publish a Local Report Card. The LRC is thought to accurately rate the effectiveness of every school. The purpose of this study was to evaluate the degree to which five demographic variables are predictive of a school’s LRC designation. If the demographic variables were found to not be predictive of LRC designation, the validity of the LRC would increase. In a time of high stakes testing and accountability, the validity of the LRC is critical to ensure that school districts are not penalized due to variables beyond their control.

Results of this study indicate that three of the five variables examined, the percentage of students with a disability, percentage of economically disadvantaged students, and percentage of minority students, have a negative impact on the LRC designation. As the percentages of these students increase in schools, the probability of schools receiving passing certifications on the LRC will likely decrease. These findings are supportive of past research of Haycock (2001), Burris & Welner (2005) which examined lower achievement rates among students from minority groups, as well as the work of Bracey (2003), Plisko (2003), and Lyon (1999) which examined the lower achievement rates among students from low socio-economic status homes.
Per pupil spending was found to have a statistically significant positive impact on the LRC designation; however the practical importance is minor. This indicates that as spending increases, so will the LRC designation. However, the effect of per pupil spending as evaluated in the study is minimal. Factors that were not considered in this study that may have an effect on LRC designation are how money is delegated to each building, who makes the spending decisions, and where the money is being spent. Discretionary expenditures on instructional materials, curriculum, school supplies, and building maintenance can have a wide-ranging impact on the variables that affect LRC designation. Evaluating these questions may prove beneficial for identifying how to most effectively spend money in schools to create better student outcomes.

Student to teacher ratio was not found to have a significant relationship with the LRC designation; therefore this variable was not examined further in the study. Prior findings had suggested that higher student to teacher ratios would result in less attention to individual students which would potentially result in lower achievement. This study did not disprove these findings; it simply did not find a correlation at a statistically significant level to justify further examination of the variable. Despite the lack of correlation between student to teacher ratio and LRC designation, the prior research of Finn, Gerber, and Boyd-Zaharias (2005) supports lower student to teacher ratios, when possible, to increase individualized support and ensure a more complete understanding of material.

Three demographic variables to have been found to have a significant negative impact on a school’s LRC designation. These variables, low socio-economic status, minorities, and number of students with disabilities, have been found to have a negative effect on LRC designation. However, a cause and effect relationship has not been established. Further inquiry into the causations in warranted.

These findings suggest that a relationship remains between demographic characteristics and LRC designation. Schools with high percentages of students with disabilities, minority groups, and low socio-economic status, are likely to receive a lower classification. One major issue in the determination of Adequate Yearly Progress is that if a student were from a low socio-economic status minority family, had a disability, and did not meet the proficient level of the OAA, the school would essentially be penalized
three times. The presence of one student embodying these aforementioned qualities would lower three separate subgroup scores.

Additionally, results suggest that students with disabilities have a negative impact on LRC designation. All students are required to take the OAA/OGT with the exception of students with severe disabilities. As stated previously, the strong reliance on criterion-referenced assessments is a significant weakness of the LRC. Expecting students with disabilities to obtain similar scores as those in the general education curriculum may be an unrealistic expectation. First, students with disabilities are taught using a specially designed curriculum to fit their specific needs. Second, accommodations are allowed to be used on the OAA for students who have disabilities; however the accommodations may not be consistent with the ones provided in the classroom. Finally, students with severe disabilities are subject to an alternate assessment of their academic progress. Based on the results of this study, the criteria for being subject to an alternate assessment may not be flexible enough. In order to preserve standardization across buildings and districts, students take the OAA in highly controlled environments. It may be beneficial for schools to standardize accommodations and supports provided in the classroom setting and align them with those provided during OAA assessments.

Although this is a preliminary study, the findings have significant implications for schools. It is important to consider how schools can utilize this data. Implementation of the Response to Intervention (RTI) model (Fuchs & Fuchs, 2006) is perhaps one of the best ways to mitigate these findings. Implementing Curriculum Based Measures across all schools would allow for early identification of students who are at-risk for developing academic problems. Once those students are identified, supplemental instruction, small group instruction, and interventions targeting specific areas of weakness can be implemented. The presence of these interventions will likely improve student outcomes. The resulting improvement will lead to more students meeting the proficiency standards on the OAAs. Ultimately, a positive impact on the LRC designation will be realized.

Community outreach programs and afterschool activities for students are important interventions for schools with culturally and socio-economically diverse populations. School buildings serving as community resource centers and providing services for families will contribute to a stronger school-home communication network.
The creation of environments that foster a sense of community and stress the importance of education contribute to the creation of a culture of learning in school and in the home. Increased emphasis on education has been found to decrease the achievement gap that has been examined by Burris & Welner (2005) and Haycock (2001).

An area that was not explored in this study was the factors causing the schools to fall into the continuous improvement classification. As stated in the literature review, a school may receive a classification of continuous improvement by several different means. If a school meets AYP, it cannot receive a classification below Continuous Improvement, regardless of low performance on state indicators or PI. In another scenario, a school classified as Excellent that fails to meet AYP three years in a row would fall to Continuous Improvement rather than drop to Effective. Essentially, a school may not be able to move to a higher designation due to an inability to meet sufficient criteria on the OAA’s, even though the school is meeting AYP, which implies a positive educational experience is occurring. This may be an area for future research.

The variance of disability categories across buildings and districts was not factored into this study, but may play a significant role in LRC designation. For instance, a school with a special education population consisting of primarily students classified under Other Health Impairment or Specific Learning Disability may produce higher OAA scores than a school with a special education population consisting primarily of students classified as Cognitively Disabled or Emotionally Disturbed. This may be an area in which further research could be conducted to further examine the validity of LRC designations.

Limitations

There are several limitations to this study. First, data available for LRC designations is categorical data not a numerical score. It was not possible to access the numerical score from which the designations are derived; therefore the precision with which this study was able to discriminate between classifications was limited. Second, data for student to teacher ratio was only available at the district level, not at the building level. Data for the other variables was available at building level. For the study, the student to teacher ratio was collected at district level, those numbers were then plugged
into each building in each district. It is not known how significantly this affected the outcome data.

**Conclusion**

The present study is a preliminary study in the area of demographics and LRC designation in Ohio. The results suggest that the current indicators and indices in place to control for the diverse demographics in schools are not effective, as four of the five demographic variables evaluated in this study were found to be predictive of LRC designations. If the controls were truly effective, the demographic variables would not have been found to be predictive. Further research needs to be conducted to validate the findings in this preliminary study as well as to develop a more valid approach to controlling for demographic variables impact on LRC designations.
References


