**Research Brief**

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**The Mississippi Statewide Accountability System:**

**Using the Right Microscope**

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**Abstract**

The purpose of this research brief is to investigate the relationship between accountability scores and other select variables. Data submitted by public school districts to the MS Department of Education were accessed and analyzed to investigate the relationship. Findings support a statistically significant relationship between accountability scores and percentage of funds spent on instruction, general administration, operations, percentage of highly qualified teacher, composite language, composite math, free and or reduced lunch, attendance, and percentage of black students. Interestingly, as accountability scores improved, school districts tended to spend more on instruction, less on general administration and operations, have a higher percentage of qualified teachers, have higher language and math scores, have a lower percentage of students receiving free or reduced lunch, have better attendance, and have a lower percentage of black students. Results from the regression analysis revealed that a high percentage of the variance for accountability score can be explained by the percentage of students receiving free or reduced lunch, indicating that accountability score might be an index of poverty. Implications for policy were discussed.

**Introduction**

This research brief is the third in a series of briefs examining academic performance in Mississippi. Previous briefs investigated the relationship between highly qualified teachers and students’ academic performance; differences between rural and urban school districts relative to language and math scores; and the relationship between academic performance, and how school operating budgets are distributed across various budget categories. This research brief explores the relationship between district accountability scores and select variables. At issue is the prudency of using accountability scores to make determinations of accreditation when an analysis of data suggests that the accountability score is an index of poverty. Because the accountability score is indexed to poverty, and school districts have no control over poverty, assigning a low accountability score (e.g., D or F) will not in itself improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction. Therefore, is the accountability score microscope a prudent approach to determining academic performance? That is the central research question this brief seeks to examine.

**Background/Context for Research**

The Elementary and Secondary Education Act of 1965 (ESEA), and its amendment by the No Child Left Behind Act of 2001 (NCLB), established requirements for State Education Agencies (SEAs). However, SEAs can request flexibility from implementing specific requirements NCLB by submitting comprehensive State-developed plans designed to improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction. Mississippi’s first comprehensive State-developed plan, known as the Mississippi Performance-Based Accreditation System, was developed and tested in 1987. This plan was designed to improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction. The plan morphed into the Mississippi Statewide Accountability System,[[1]](#footnote-1) and it assigns an accountability label or rating to a school or district based on: 1) The overall level of academic performance as measured by the Quality of Distribution Index (QDI), which used data from standardized test: MCT2 (grades 3-8), SATP, and MAAECF; 2) the degree to which a school or district met its expected performance as measured by Growth Composite Value, which reflected test gains across time; and 3) the degree to which students successfully completed high school.

The instrument for assessing academic performance has changed several times. In 2013-2014, students took MCT2; in 2014-2015, they took PARCC; and in 2015-2016, they took MAP.[[2]](#footnote-2) Thus, the Growth Composite Value is not strong because the test was changed. Despite this fact, once the scores for academic achievement; subgroup achievement; college, career, or high school readiness; attendance rate; and graduation rate have been generated, they are combined into a single score. This score is used to make classification determinations of district/school accreditation status: Accredited with Distinction, Accredited, Provisional, and Unaccredited.[[3]](#footnote-3)

 Multiple correlates of students’ academic performance have been established; namely, physical fitness, school structural characteristics, student effort, peer associations, parental involvement, teacher quality, and poverty[[4]](#footnote-4), [[5]](#footnote-5), [[6]](#footnote-6), [[7]](#footnote-7). Students from low-income families consistently, regardless of ethnicity or race, score well below average. Children who lived in persistently poor families scored 6 to 9 points lower on assessment tests than children who were never poor[[8]](#footnote-8). Since poverty is a variable, which school districts cannot be changed by school policy, an accountability measure that is not insulated from the effects of poverty could be viewed as not being a fair measure of how well a district or local school is doing. This research brief seeks to provide evidence regarding the prudency of using such a measure to judge the educational performance of a school district.

**Methods**

**Research Design**. A correlation research design was used. This design explores the relationship between variables. While the design does not support the establishment of causation, the predictive relationship between two or more variables can be determined.

**Description of Sample.** Data from 142 school districts (which excludes 6 districts) in Mississippi were collected from the Mississippi Department of Education’s website. Total enrollment for the 2013-2014 school year was 492,586 students. Of those students, 49% (243,845) were Black, 46% (224,505) were White, 3% (14,844) were Hispanic, 1% (4,938) were Asian, 1% (3,173) were Multiracial, and <1% (1,281) were Native American. The 142 school districts included in this study were divided into two groups representing rural and urban areas. These two groups were then compared against each other across selected variables.

**Operational Definition.** Every school in the United States is located in either a rural or an urban area as classified using Metropolitan Statistical Areas (MSA). An MSA is a county or group of contiguous counties that contains at least one city with a population of 50,000 or more, or includes a Census Bureau-defined urbanized area of at least 50,000 with a population of at least 100,000. MSAs are defined by the [Office of Management and Budget](https://en.wikipedia.org/wiki/Office_of_Management_and_Budget) (OMB) and used by the [Census Bureau](https://en.wikipedia.org/wiki/United_States_Census_Bureau) and other federal government agencies for statistical purposes.[[9]](#footnote-9)

**Procedure.** Secondary data were accessed from the Mississippi Department of Education, the National Center for Education Statistics, and the Children’s First Annual Report 2012-2013. Student achievement was measured using the Mississippi Curriculum Test, 2nd Edition Mathematics and Language scores for grades 3-8 (2013-14 school year).

**Results**

Table 1 shows descriptive statistics for selected variables. Between groups analysis (urban versus rural school districts) revealed significant differences for accountability scores (*p* = .007), percentage of budgeted funds expended for other instructional (*p* = .021), general administration (*p* = .0001), operations (*p* = .004), and composite language (*p* = .028). Composite math approached significant (*p* = .06). Thus, urban schools received significantly higher accountability scores (*Murban* = 3.07 versus *rural =*2.27); spent a higher percentage of their budgeted funds on other instructional items (*Murban* = 17.3% versus *rural =*15.5%); and reported higher language and math scores. Rural school districts spent a higher percentage of their budgeted funds on general administration (*Mrural* = 5.69% versus *urban =*3.89%) and operations (*Mrural* = 6.97% versus *urban =*6.04%). Thus, urban school districts while receiving higher accountability scores and reporting higher language and math scores tended to spend a higher percentage of their operating budget on other instructional services. Rural school districts (while associated with lower accountability, language, and math scores) tended to spend a higher percentage of their operating budget on general administration and operations. Urban and rural school districts did not differ significantly regarding the percentage of their budgets spent on total expenditures per student, instructional, school administration services; and the percentage of their budgets spent on highly qualified teachers.

 Table 2 shows the correlation matrix. Accountability scores correlated significantly with the percentage of funds spent on instruction (*r* = .30), general administration (*r* = -.46), and operations (*r* = -.42). Accountability scores also correlated significantly with percentage of highly qualified teacher (*r* = .43), composite language scores (*r* = .84), composite math scores (*r* = .80), percentage receiving free and or reduced lunch (*r* = -.78), school attendance rates (*r* = .32), and percentage of black students (*r* = -.71). Thus, as accountability scores improved, school districts tended to spend more on instruction, less on general administration and operations, have a higher percentage of qualified teachers, have higher language and math scores, have a lower percentage of students receiving free or reduced lunch, have better attendance, and have a lower percentage of black students.

These variables, composite language and math excluded, were placed in a stepwise regression analysis with accountability scores as the dependent variable. Three prediction models emerged from the analysis. The first model contained free or reduced lunch and it explained 60% of the change in accountability scores, *r2 =* .60, *F*(1, 106) = 158.92, *p* =.0001. The second model included free or reduced lunch and percentage of black students, and it explained 63% of the change in accountability scores, *r2 =* .63, *F*(2, 105) = 88.21, *p* =.0001. Finally, the third model contained free or reduced lunch, percentage of black students, and attendance, and it explained 66% of the change in accountability scores, *r2 =* .63 (66%???), *F*(3, 104) = 66.78, *p* =.0001. Thus, ~~the~~ accountability scores appear to be an index of poverty since a high percentage of its variance can be explained by free or reduced lunch.

**Table 1**

**Descriptive Statistics**

 **Std.**

**Variable N Mean Deviation Sig.**

Accountability Score

 Urban 13 3.07 .95

 Rural 124 2.27 .99 .007b

Expenditures/Student ($)

 Urban 13 9,154 1,389.21

 Rural 129 9,307 1,381.62 .638 b

Instructionala

 Urban 13 66.9 3.07

 Rural 129 66.4 3.66 .534c

Other Instructionala

 Urban 13 17.3 2.58

 Rural 129 15.4 2.97 .021c

General Administrationa

 Urban 13 3.89 1.47

 Rural 129 5.56 1.88 .0001c

School\_Administrationa

 Urban 13 6.00 .58

 Rural 129 5.73 .99 .242c

Operationsa

 Urban 13 6.04 .81

 Rural 129 6.97 1.19 .004c

Highly Qualified Teachersa

 Urban 13 97.87 1.30

 Rural 129 96.86 2.87 .386c

Composite Language

 Urban 13 151.17 2.10

 Rural 129 149.49 2.86 .028b

Composite Math

 Urban 13 153.15 2.28

 Rural 129 151.59 3.11 .061b

Graduation Ratea

 Urban 13 77.88 6.65

 Rural 129 73.70 9.43 .123c

Black\_Studentsa

 Urban 13 44.16 28.64

 Rural 129 54.60 30.93 .242c

aPercentage of Operational Budget

bt-test

cMann-Whitney U Test

**Table 2**

**Correlation Matrix**

**Variables 1 2 3 4 5 6 7 8 9 10 11 12 13**

1. Accountability Score ----
2. Instructional .30b ----
3. Other Instructional .05 -.74b -----
4. General Administration -.46b -.45b -.09 ----
5. School Administration .11 -.18a .10 -.31b ----
6. Operations -.42b -.30b .-19b .25b -.02 ----
7. Highly Qualified Teachers .43b .23b -.01 -.41b .25b -.37b ----
8. Composite Language .84b .28b .13 -.51b .13 -.45b .46b ----
9. Composite Math .80b .26b .10 -.45b .10 -.40b .45b .93b ----
10. Free or Reduced Lunch -.78b -.37b .01 .48b .07 .43 -.55 -.80 -.76 ----
11. Daily Attendance .32b -.03 .03 .12 -.16 -.04 -.03 .24b .27b -.36b ----
12. Black Students -.71b -.43b .10 .54b -.18a .34b -.51b -.68b -.66b .63b -.01 ----
13. Graduation Rate .68b .17 .06 -.30b .04 -.21b .33b .59b .57b -.58b .23b -.54b ----

a*p* = .05

b*p* = .01

**Discussion**

 The Mississippi Statewide Accountability System’s primary goal is to improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction. Yet, implementation of its objectives has heightened disparities to the point where a strong correlation exists between the accountability score assigned to school districts, and the variables of free or reduced lunches, academic achievement, and percentage of African American students enrolled in the district. The accountability score, which was designed to highlight weaknesses and evaluate a districts’ performance, is a strong predictor of free or reduced lunches and percentage of African American students enrolled in the district. Thus, the accountability score can be used as an index of poverty. The research literature is very clear about the relationship between poverty and academic performance.

 Given the role that poverty is playing in Mississippi school districts, and given the fact that poverty reduction is beyond the school districts’ purview, using the accountability score to make classification determinations of accreditation is not advisable because the current analysis suggests that the accountability score is an index of poverty. Assigning a low accountability score to a school (e.g., D or F) will not improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction because the accountability score is an index poverty (60% of the change in the accountability score can be explained by free or reduced lunch), and school districts have no control over poverty.

 On the other hand, Research brief #2 documented a relationship between how a school district spends its budgeted funds and academic performance. Districts that spent a higher percentage of funds for general administration displayed lower language and math scores. The same was true for other instructional expenses. Thus, examining how a district budgets and expends its funds appears to be a more appropriate microscope upon which to judge a district’s performance.

**Policy Implications**

 In keeping with the goal of providing empirically-based recommendations, several key findings are particularly relevant from a policymaking perspective. The first key finding is the relationship between how funds are spent and academic performance. Academicians, researchers, and policymakers have long recognized the linkage between instructions and student outcomes. The findings from this study also confirm a linkage existing between how funds are spent and its possible linkage to higher test scores. Spending less on general administration, and more on the “Instructional” budget categories (e.g., instruction and other instructional services) appears to be supported by this study’s findings.

 Another key finding from this analysis concerns the relationship between the accountability score and measures of poverty (e.g., free or reduced lunch). Existing state policies mandate the assignment of an accountability score. Negative consequences occur if a district fails to provide information critical to their accountability score being determined. Yet, if the district provides the information, and poverty characterizes its enrollment, the assigned accountability score will affirm the presence of poverty by registering an “F” or a “D”. This assignment will negatively impact the district’s overall academic standing. However, what it is really reflecting is the effects of poverty on the district’s overall performance.

 As stated in the introduction section, the intent of this research brief is to inform multiple stakeholders, school officials, and other policymakers regarding the relationship between the accountability score and selected variables. One of the purposes of this brief is to help identify potential policy areas that could infuse more fairness into Mississippi Statewide Accountability System. Assigning low accountability scores to under-performing school districts will not improve educational outcomes for all students, close achievement gaps, increase equity, and improve the quality of instruction, especially when free or reduced lunches can explain 60% of the change in accountability score. The following provides a summary of the key policy recommendation derived from this brief’s analysis:

* Policymakers should consider replacing the current accountability score with a measure that does not reflect poverty since poverty is beyond the purview of school district.

 The above policy recommendation is based upon an examination of the statistical linkages between accountability score and select variables. They provide empirical evidence that policymakers can use to inform their decision making as related to improving student academic performance in urban and rural school districts, and evaluating a school districts’ overall performance. As mentioned in the methods section of this brief, while correlation does not necessarily support causation, it can help establish predictive relationships between two or more variables.

 There are many factors that can impact academic performance, and this research brief helps identify some of those factors. Also, there are different approaches to evaluating school districts’ performance relative to educating children. This research brief documents that the accountability score is one approach, which does not control for the effects of poverty on academic performance. As such, school districts with higher poverty levels are disadvantaged before they step into the evaluation chamber.

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Understanding the Mississippi Statewide Accountability System. [↑](#footnote-ref-1)
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9. Nussle, Jim (Nov 20, 2008). ["Update of Statistical Area Definitions and Guidance on Their Uses"](http://www.whitehouse.gov/sites/default/files/omb/assets/omb/bulletins/fy2009/09-01.pdf) (PDF). Office of Management and Budget. pp. 1–2 [↑](#footnote-ref-9)