The Impact of Increased Funding for the Mississippi Adequate Education Program (MAEP) on State Assigned School Accreditation Levels

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ABSTRACT

State funding mechanisms are subject to intense political and economic scrutiny. The question asked most often tends to be, is the public getting sufficient return on their investment? Accountability standards arising from the No Child left Behind Act (NCLB) have sharpened the focus of this question to whether the students and schools are meeting established benchmarks. A study of the impact of funding levels in the Mississippi state funding mechanism [Mississippi Adequate Education Program (MAEP)] attempted to determine whether recent increases in these funding levels impacted the state accreditation (based on student performance) of the schools in Mississippi. Results show that while the number of lower achieving schools has been greatly reduced, funding level is inversely related to accreditation level. Low performing schools require greater levels of funding to redress academic deficits and move to higher levels of accreditation while higher performing school require comparatively less funding to achieve and/or maintain a higher level of accreditation.

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INTRODUCTION

Gauging the effect of funding level on school performance is at best a problematic issue considering the numerous variables which affect school performance **and has lead to extensive debate. Odden, Goetz, and Picus posit that two issues have been central to the debate stating that "The historical issue has been the inequities related to wide variations in expenditures per pupil across districts both within and between states (Odden and Picus, forthcoming). Another issue has been whether money matters, whether higher spending districts provide their students educational advantage with the greater resources or, conversely, whether lower spending districts shortchange the educational opportunities of their students (Hanushek 2006)"** (Odden, 2009)**. Production function research over the past two decades has lead to varying conclusions. In early work**, Hanushek argue**s** that "detailed research spanning two decades and observing performance in many different educational settings provides strong evidence that expenditures are not systematically related to student achievement." (Hanushek E. A., The Impact of Differential Expenditures on School Performance, 1989). In rebuttal to Hanushek, Hedges, Laine and Greenwald analyzing the same data c**o**me to a completely different conclusion, "The analyses, *sic*, clearly show systematic positive patterns in the relations between educational resource inputs and student outcomes." (Hedges L. V., 1994). In later work Hanushek and Rivkin reiterate the conclusion that funding level, level of resources, and/or inputs have little or no effect on student performance (Hanushek & Rivkin, The Identification of School Resource Effects, 1996). Verstegen and King hold that these same criteria do in fact have an impact on student achievement, stating that *sic* "resource

inputs make a difference in improving educational outcomes for students." (Verstegen & King, 1998). **Hanushek later reiterated his position in addressing the trend in increasing resource allocations stating that** "**By concentrating on inputs and ignoring the incentives within schools, the resources have yielded little in the way of general improvement in student achievement."** (Hanushek E. A., The Failure of Input-Based Schooling Policies, 2003)**. More recently, Hanushek and Raymond continue to question the efficacy of increased spending as a mean of enhancing student achievement outcomes stating that " Much of earlier educational policy, both at the federal and state level, concentrated on providing greater resources – especially for the education of disadvantaged students. But student outcomes proved noticeably impervious to these policy initiatives."** (Hanushek E. A., 2005)**. Most recently, Hanushek argues in addressing policy shifts based on suits that lead to court mandated movement away from an emphasis of equity (equalization of spending) to adequacy (spending sufficient to produce high level student outcomes) that "Yet although these suits were motivated by the possibility of an inferior education for disadvantaged students, until recently almost no subsequent analysis investigated whether or not student outcomes were more equal after spending was equalized. In fact, the few investigations have not supported equalization in student outcomes."** (Hanushek E. (., 2006)**. Hill summarizes the current view of the issue when he relates that "Though no one seriously argues that more spending could never lead to school improvement, there is reason to fear that without changes in the way funds are spent, Americans could end up with a more expensive, but not necessarily more effective or equitable, system of public education."** (Hill) **While the emphasis has shifted from equity to adequacy** the debate is ongoing. This

divergence of opinions certainly raises many more questions than it provides answers. Others, such as Lockwood and McLean (Lockwood & McLean, 1993) postulate that there exists a threshold level of funding below which funding increases have little impact on student achievement but above which achievement increases accelerate before eventually plateauing. Lockwood and McLean's position would seem to align with the conventional wisdom that some baseline funding level is necessary to provide at least a basic education. **And, this position aligns well with the more optimistic position espoused** by **Odden, Goetz, and Picus in discussing the amount of funding necessary to reach adequacy employing the recommendations developed using the evidence based approach** that **"The central finding from our analysis is that overall and on average our nation is very close to providing adequate school funding using the core recommendations from the evidence-based approach to school finance adequacy.** (Odden, 2009)**. Odden, Goetz and Picus estimate the dollar figure to reach adequacy based on the evidence-based model to be $9.391** (Odden, 2009)**. Even with the increases in funding examined here, Mississippi falls woefully short of approaching the expenditures per pupil forwarded by Odden, Goetz, and Picus**. **This shortfall raises the question of whether Mississippi's state funding formula, the Mississippi Adequate Education Program (MAEP), provides sufficient funding to provide an adequate education or perhaps, more appropriately whether the funding levels provided are moving the schools in Mississippi toward adequacy as reflected by improved student achievement given the funding constraints endemic to the State of Mississippi. As Odden, Goetz and Picus note, *sic* "the costs of adequacy vary from state to state …"** (Odden, 2009)**. Whether the issue is equity or adequacy, it is** nonetheless still important to examine the impact of

increased funding on school performance as funding levels rise. To do less would seem to void the trust educators ask of legislators and the general public when seeking additional funding.

MISSISSIPPI ADEQUATE EDUCATION PROGRAM

The Mississippi Adequate Education Program (MAEP) was adopted by the Mississippi Legislature in 1997 (Mississippi, 1997) with the intent of providing the funding necessary to allow Mississippi's schools to improve the overall performance of students and thereby improve the state accreditation standing of the schools in each school district. As stated in the statute, *sic*, "Mississippi Adequate Education Program (MAEP) shall mean the program to establish adequate current operation funding levels necessary for the programs of such school district to meet at least a successful Level III rating of the accreditation system as established by the State Board of Education using current statistically relevant state assessment data" (Mississippi, 1997). This analysis deals with the impact of MAEP funding levels on accreditation levels (academic ranking).

While the intent of MAEP has always been clear, the funding of the program has created political and economic dilemmas. In Mississippi, as in all states, there has been and continues to be intense pressure to fund needed state programs including education. Division of scarce state fiscal resources engages both the political process and the economic realities within a state. The answer in Mississippi was to phase in full funding of MAEP over an extended period of time with funding increasing as economic conditions allowed (and the political climate dictated). Since its inception in 1997 these two factors have allowed MAEP to be fully funded three times

Fiscal Year 04 (FY 04), FY 08, and FY 09 (Ivey, 2008). However, even at less than full funding MAEP has provided additional monies for districts in Mississippi.

FUNDING LEVEL INCREASES

These funding level increases can be clearly seen in the steady increase in the MAEP base student cost (BSC) allocation over time. Base student cost is the dollar amount per student allocated per the MAEP formula. It is derived from the expenditures of Level 3 (Successful Districts) (Bounds, Mississippi Adequate Education Program (MAEP) Explanation, 2008) The BSC has increased from $2,345 in FY 03 (fiscal year 03 - the 2002-2003 school year) to $4,675 in FY 09 (the 2008-2009 school year) and is projected to rise to $4,753 for FY 10 (as estimated by the Mississippi State Department of Education (Bounds, FISCAL YEAR 2010 BUDGET REQUEST, ppt, 2008). See Table 1 for a listing of MAEP Base Student Cost (BCS) allocations 2002 - 2003 through 2009 - 2010. With these substantial increases in funding has come the expectation that more schools exhibit improved student performance on the state testing program upon which individual school accreditation and academic ranking is based.

Table 1

Mississippi Adequate Education Program Allocations **Base Student Cost (BSC)** **2002-2003 - 2009- 2010 ***		
Fiscal Year	**School Year**	**State Base Student Allocation***
FY 03	2002 – 2003	$2,345
FY 04	2003 – 2004	$2,547
FY 05	2004 – 2005	$3,889
FY 06	2005 – 2006	$4,193
FY 07	2006 – 2007	$4,367
FY 08	2007 – 2008	$4,574
FY 09	2008 – 2009	$4,675
**FY 10	2009 – 2010	$4,753

***(Bounds, FISCAL YEAR 2010 BUDGET REQUEST, ppt 2008)
****Estimated**

MISSISSIPPI SCHOOL ACCREDITATION SYSTEM

Mississippi schools are assigned a numerical accreditation level (academic ranking) on a scale of 1 to 5 with 1 being the lowest score and 5 being the highest score (Bounds, Mississippi Public School Accountability Standards 2008, 2008). Each category is assigned a descriptor as well. The descriptors are: Level 1, Low-Performing; Level 2, Under-Performing; Level 3, Successful; Level 4, Exemplary; and, Level 5, Superior Performing. Scores on the Mississippi Curriculum Test (MCT), which is aligned to federal No Child Left Behind (NCLB) standards and the Mississippi Subject Area Testing Program (SATP), which like the MCT is aligned to

NCLB standards, determine the level assigned to each school**.** Table 2 shows the number of schools assigned to each level for school years 2002 – 2003 through 2006 – 2007 (the last year for which levels rankings are available). Rankings have been frozen as Mississippi transitions from the current testing program (MCT and SATP) to a new, more rigorous testing program, MCT2 and SATP2).

Table 2

State Assigned School Accreditation Levels

2002 – 2003 – 2006 -2007

Accreditation Level	**02-03***	**03-04****	**04-05*****	**05-06******	**06-07*******
Level 1 Low-Performing	31	8	8	3	11
Level 2 Under-Performing	104	76	73	70	96
Level 3 Successful	218	300	319	293	313
Level 4 Exemplary	218	222	214	212	215
Level 5 Superior Performing	150	232	224	211	257

* (Johnson, Superintendent's Annual Report to the Legislature 2002-3003)
** (Johnson, Superintendent's Annual Report to the Legislature 2003-2004)
*** (Bounds, Superintendent's Annual Report to the Legislature 2004-2005)
**** (Bounds, Superintendent's Annual Report to the Legislature 2005-2006)
***** (Bounds, Superintendent's Annual Report to the Legislature 2006-2007)

PER PUPIL EXPENDITURES

MAEP is the primary state school funding mechanism in Mississippi and has been the centerpiece of the state's school reform efforts. Ideally, the effect of MAEP would be to spur spending on instruction which should lead to greater emphasis of teaching and associated instructional services and thereby increased student performance. Table 3 depicts the average state spending level for instruction for the school years 2002 – 2003 through 2006 – 2007. It should be noted that these figures exceed the base student cost (BSC). This is due to the state formula providing additional per pupil funds for specific areas such as special education and to local funds which contribute to the final amount shown. While the percentage increase in MAEP base student cost over this five year period (approximately186 %) is not mirrored exactly by the increase in instructional spending per pupil (approximately148 %) the trend is clear.

Table 3

			2002-2003 - 2006- 2007 **Average Expenditure Per Pupil for Instructional Costs in ADA**
Fiscal Year	**School Year**	**Base Student Cost**	**State Average Per Pupil Expenditure**
FY 03	2002 – 2003 *	$2,345	$3,758.52
FY 04	2003 – 2004 **	$2,547	$3 ,934.00
FY 05	2004 – 2005 ***	$3,889	$4,244.20
FY 06	2005 – 2006 ****	$4,193	$5,372.61
FY 07	2006 – 2007 *****	$4,367	$5,570.00

* (Johnson, Superintendent's Annual Report to the Legislature 2002-3003)
** (Johnson, Superintendent's Annual Report to the Legislature 2003-2004)
*** (Bounds, Superintendent's Annual Report to the Legislature 2004-2005)
**** (Bounds, Superintendent's Annual Report to the Legislature 2005-2006)
***** (Bounds, Superintendent's Annual Report to the Legislature 2006-2007)

ANALYSIS

Considering the purpose of MAEP and the expectations generated by the increased funding levels, the question becomes, have more schools exhibited improved student performance on the state testing program upon which individual school accreditation is based? An examination of the number of schools accredited at each level by year is depicted in Table 2. **The study does not treat the issue of comparison of schools that have consistently been accredited at or above Level 3 to those below Level 3 but rather examines the movement of districts from Level 1 or 2 to Level 3 or higher. This comparison limits the study by raising the question of whether schools consistently accredited at Level 3 or above should be**

compared to those striving to achieve Level 3 or above accreditation. While the comparison is also open for debate, the data indicate that there has been movement both from Levels 1 and 2 to Level 3 and above and movement of schools among and between all accreditation levels. Tables 1 and 2 clearly depict the movement trends. The null hypothesis here would be that the level of funding had no effect on the number of schools accredited at a given level (Level 1 – 5). As a directional hypothesis, the hypothesis would be that the level of funding would decrease the number of schools accredited as Level 1 or Level 2 and increase the number of schools accredited as Level 3 or above.

Between school year 2002-2003 and school year 2005 - 2006 school year, the number of Level 1 schools decreased dramatically from 31 to 3. And, even though the number of Level 1 schools increased from 3 to 11 between school year 2005-2006 and school year 2006-2007, when the 2006-2007 school year is compared to the 2002-03 school year there is a 281% decrease in the number of Level 1 schools. Comparisons of the number of schools accredited for each level for the same time period yields the following results: a 108% decrease in the number of Level 2 schools; a 69% increase in the number of school accredited as level 3; a 1% decrease in the number of schools accredited as Level 4; and, a 58% increase in the number of schools accredited as Level 5. Looking at the goal of MAEP to decrease the number of Level 1 and Level 2 schools a comparison shows that Level 1 and Level 2 schools accounted for 18.72% of the total number of schools assigned a ranking in 2002-2003 and that percentage steadily decreases in each succeeding year (10.02% for 2003-2004, 9.67% for 2004-2005, 9.25% for 2005-2006) until the 2006-2007 school year when the percentage increased to 12%. **The**

question might be asked as to whether sufficient time has elapsed subsequent to the funding increases to allow low performing schools (Levels 1 and 2) to remediate the student performance issues upon which accreditation is based. This question is open for debate but given the five year time span one would anticipate some improvement. It is difficult to dismiss these changes as unrelated to increased funding. A times series statistical analysis shows, however, that there was no statistically significant difference in the number of schools accredited at any level (Level 1 through Level 5) in the period from 2002-2003 to 2006-2007. **It should be noted, however, that schools ranked at Level 3 or higher, by definition, meet the adequacy standard set by the state.** Nonetheless, the importance of the general trend (an overall decrease in the number of Level 1 and Level 2 schools) helps define the level of success of increased funding for MAEP as a matter of practical importance.

CORRELATIONS BETWEEN FUNDING LEVEL AND ACCREDITATION RANKING

An ancillary question often seen when examining school funding levels is the relationship between school funding level and accreditation (student achievement) level. Here again the impact of the numerous intervening variables which affect student performance and, therefore, school accreditation status cannot be underestimated. This question is often addressed as the relationship between either total expenditures per pupil in average daily attendance (ADA) or the relationship between instructional expenditures per pupil in ADA.

A compilation of the results examining the relationship between funding level as expressed as total expenditure per pupil in ADA and accreditation status for each year school 2002-2003 through 2006-2007 is shown in Table 4. A standard Pearson Correlation was

employed to produce the correlations shown. With the exception of the correlation for the 2005-2006 school year which is significant at the .05 level, each of the correlations is statistically significant at the .01 level. The trend of the correlations is in opposition to the findings based on the number of schools by category in accreditation ranking.

Table 4

Correlation between Accreditation Status and Total Expenditure Per Pupil in ADA by District 2002-2003 - 2006-2007		
Fiscal Year	**School Year**	**Correlation**
FY 03	2002 - 2003	Correlation - 0.251 Significance Level ..000 01 (2-tailed)
FY 04	2003 – 2004	Correlation - 0.292 Significance Level .000 .01 (2-tailed)
FY 05	2004 – 2005	Correlation - 0.355 Significance Level ..000 01 (2-tailed)
FY 06	2005 – 2006	Correlation - 0.065 Significance Level .030 .05 (1-tailed)
FY 07	2006 - 2007	Correlation - 0.162 Significance Level .000 .01 (2-tailed)

Results of the analysis of the relationship between funding level as expressed as expenditures per pupil in ADA for instruction and accreditation status for each year school 2002-2003 through 2006-2007 is shown in Table 5. Again, a standard Pearson Correlation was employed to produce the correlations shown. And, once more, with the exception of the correlation for school year 05-06, which is significant at the .05 level, each of the correlations is statistically significant at the .01 level. This correlational trend is also in opposition to the findings based on the number of schools by category in accreditation ranking.

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Table 5

Correlation between Accreditation Status and Expenditure Per Pupil in ADA for Instruction by District 2002-2003 - 2006-2007		
Fiscal Year	**School Year**	**Correlation and Statistical Significance Level**
FY 03	2002 – 2003	Correlation - 0.102 Significance Level .003 01 (2-tailed)
FY 04	2003 – 2004	Correlation - 0.139 Significance Level .000 .01 (2-tailed)
FY 05	2004 – 2005	Correlation - 0.174 Significance Level .000 01 (2-tailed)
FY 06	2005 – 2006	Correlation - 0.067 Significance Level .027 .05 (1-tailed)
FY 07	2006 – 2007	Correlation - 0.115 Significance Level .001 .01 (2-tailed)

These two sets of correlations suggest that higher spending is not related to higher student performance as measured by schools ranking (level of accreditation ranking) in the Mississippi accreditation system. And in fact suggests, given that all of the correlations are negative and statistically significant, that funding level is inversely related to achievement. As funding level increases accreditation status tends to decrease. This anomaly is no doubt due to the

confounding of the intervening variables associated with student performance the most prominent of which is socio-economic status is *sic*, "exogenous, i.e., outside the control of school districts and require community-wide strategies" (Nyhan, 1999). Furthermore, the use of available funds is also important (Verstegen & King, 1998). Simply put, the level of funding, while important in relation to student performance and, therefore in this case, accreditation level, is matched in importance by the resources provided by those funds and the use of those resources to impact instruction and thereby student achievement.

CONCLUSIONS

Adoption and implementation of the Mississippi Adequate Education Program for all the political turmoil it has produced at times is still clearly, based on the results shown in this analysis, paying dividends. The number of Level 1 and Level 2 schools has been reduced with the inherent implication that student achievement has therefore improved. **Returning to the question posed in the introduction of whether Mississippi's state funding formula, the Mississippi Adequate Education Program (MAEP), provides sufficient funding to provide an adequate education or perhaps, more appropriately whether the funding levels provided are moving the schools in Mississippi toward adequacy as reflected by improved student achievement the answer would appear to be yes given the reduction in the number of Level 1 and Level 2 schools and the increase in student performance that entails.** Nonetheless, if Mississippi is to move from its long held position at or near the bottom of many educational rankings, the state must continue to increase the investment made in the children of the state. Given the comparatively low funding levels in Mississippi compared to other states

(Education, 2008), it may be that the funding threshold suggested by Lockwood and McLean has not yet been reached in Mississippi (Lockwood & McLean, 1993). Certainly, the level of funding suggested by Oden, et. al. ($9391) to reach adequacy based on national per pupil spending level has not been reached in Mississippi. And, given the suggestions of Hanushek, Odden and others, as to the importance of how additional funding is spent as well as the amount it is equally important for research and work to be undertaken which will identify within the

schools in Mississippi those factors under the control of the schools which can be added, modified and/or enhanced to produce higher levels of student achievement.

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