

# **The No Child Left Behind Act: Have Federal Funds Been Left Behind?**

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## **Abstract**

The federal No Child Left Behind Act (NCLB) imposes new requirements on state education systems and provides additional education funding. This paper estimates education cost functions, predicts the spending required to support NCLB standards, and compares this spending with the funding available through NCLB. This analysis is conducted for Kansas and Missouri, which have similar education environments but very different standards. We find that new federal funding is sufficient to support very low standards for student performance, but cannot come close to funding high standards without implausibly large increases in school-district efficiency. Because of the limited federal funding and the severe penalties in NCLB when a school does not meet its state's standards, states have a strong incentive to keep their standards low. NCLB needs to be reformed so that it will encourage high standards.

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## 1. Introduction

The No Child Left Behind Act of 2001 (NCLB) both imposes mandates on states and gives them more federal education funding. NCLB is therefore not an *unfunded* mandate, but the money it provides may not be sufficient for states to fully achieve the standards it sets. Using data from Kansas and Missouri, this paper estimates education cost functions, calculates the extra costs required to meet the NCLB standards, and compares these extra costs to the increases in federal funding.

The movement toward accountability systems in elementary and secondary education began well before NCLB was passed. Indeed, accountability was a major component of education reform in most states during the 1990s (Ladd 2001). By 2001, over 40 states had school report cards, over half had school performance ratings, and a large number provided some type of assistance or sanction for low-performing schools (Meyer et al. 2002). When NCLB was signed into law in January 2002, the federal government became seriously involved for the first time in setting broad parameters, implementation timelines, and sanctions for state accountability systems (Erpenbach, Forte-Fast, and Potts 2003).<sup>1</sup>

States began implementing NCLB in 2002 during a period of serious fiscal difficulties (NCSL 2003). Not surprisingly, therefore, the costs associated with such a far-reaching program and whether it was fully funded became a major concern (NCSL 2004). With the exception of a few studies (Driscoll and Fleeter 2003; Imazeki and Reschovsky 2004b, 2006), most estimates of the impact of NCLB are far from precise or complete (GAO 2003; Hoff 2004; Mathis 2003). Despite the uncertainty surrounding the costs of implementing NCLB (Robelen 2005), states, such as Utah and Connecticut, have begun to react to the fiscal implications of NCLB by passing legislation to ignore provisions of NCLB that require state funding, or by suing the federal government for inadequate funding (Archer 2005; Sack 2005). In a recent survey of state

education officials, over two-thirds cited adequacy of federal funding for NCLB as a moderate or serious challenge, which has affected their ability to assist schools not making adequate yearly progress (Center on Education Policy 2006). The limited growth in the education funding in the President's 2007 Budget (OMB 2006) has raised additional concerns about whether resources will be available to implement the continued increase in standards required under NCLB (Klein 2006b).

With reauthorization scheduled for next year, key components of NCLB will undergo intense scrutiny (Klein 2006a; Davis 2006a). Now is an opportune time to examine the adequacy of NCLB funding and to explore the fiscal implications for states of full compliance. Building on the work of Driscoll and Fleeter (2003) and especially Imazeki and Reschovsky (2004a, 2006), the objective of this paper is to examine whether NCLB is under-funded by estimating the required spending by school districts to comply with NCLB standards and comparing spending needs with funding levels in Title 1, which contains the funding provisions of NCLB. Specifically we estimate cost functions for Kansas and Missouri, and use the results to predict the spending required to provide students the opportunity to reach NCLB standards. Due the lack of consensus on the fiscal responsibility of the federal government (Robelen 2005), we develop several alternative estimates of the Title 1 funding gap. Kansas and Missouri provide a particularly interesting case study, because both states share many similarities in their education environment, but differ significantly in the stringency of their accountability standards.

## **2. Education Accountability and NCLB**

While the merits of education accountability systems have been debated extensively in the academic literature (Ladd 2001; Hanushek and Raymond 2001), the implications of the different choices for school finance systems have received much less attention.<sup>2</sup> In this section we discuss the key decisions in designing an education accountability system, the accountability

design in NCLB, and the fiscal implications of accountability.

## **2.1 Design of Education Accountability Systems and NCLB**

Education accountability is an application of performance management to education. Key choices in the design of a performance management system include deciding on: 1) accountability for whom; 2) accountability for what (i.e. performance measures); and 3) the consequences of success or failure. Education accountability systems focus on holding either students or school personnel (teachers and administrators) accountable. Students are held accountable for passing a certain set of classes or for reaching a certain score on specified tests. Students who fail to meet the standards may not be allowed to graduate from high school or might receive a different type of high school degree.

School or school-district accountability systems hold school personnel accountable for student performance, usually measured by test scores or graduation rates, while other systems hold them accountable for the change, or value-added, in student test scores (Hanushek and Raymond 2001; Ladd and Walsh 2002; Figlio 2004; Sanders 2000; Kane and Staiger 2002). Programs differ in the extent to which they consider the impact on the standards of factors outside the control of school district personnel, such as concentrated poverty. For example, some systems set standards for a district relative to other schools with approximately the same poverty rate and enrollment. The consequences for failing to meet standards range from bad publicity to financial penalties to opportunities for students in failing schools to go elsewhere or even to state takeover (Meyer et al. 2002).

Because NCLB requires states to implement a school accountability system based on the absolute test scores of their students, this law has weakened the incentives for states to develop school accountability systems based on value-added measures of student performance. So long as NCLB is in place in its current form, it will be difficult for states to implement value-added accountability standards in addition to the standards mandated by NCLB.

All accountability systems require that performance can be tangibly measured on a regular basis. NCLB is explicit about assessment measures. States are required to implement math and reading exams in 3<sup>rd</sup> through 8<sup>th</sup> grades and in at least one grade in high school by 2005-06, and science exams once in elementary, middle, and high school by 2007-08. In addition, districts are required to report participation rates on the exams and graduation rates from high school. Moreover, NCLB requires districts to collect and report assessment information by racial, socio-economic, and special needs groups.

NCLB sets as its target that *all* students reach proficiency on these measures by 2013-14. States are provided a fair amount of discretion in defining the level of performance that is “proficient,” and in setting intervening performance targets for the years leading up to 2013-14. Thus, states have an incentive to set low proficiency levels and to backload the required proficiency improvements over the 12-year period (Kim and Sunderman 2004; Ryan 2003). To highlight differences in the stringency of accountability standards, Figure 1 compares the intermediate targets and actual performance levels for Kansas and Missouri. In 2002, Kansas set the proficiency level for its students at about 50 percent compared to 13 percent in Missouri.<sup>3</sup> While for both states the average student was well above these targets through 2004, the average proficiency rate in Missouri was less than 40 percent of the rate in Kansas.

Since the proficiency rate target is set at 100 percent for all states in 2014, this implies a much faster improvement in performance will be required in Missouri than in Kansas. When standards went up by 44 percent between 2004 and 2005 in Missouri, average student performance went from 72 percent above the standard to 25 percent above (Table 1). Of even more concern is that performance in large central cities went from 12 percent below the standard in 2004 to 34 percent below the standard in 2005.<sup>4</sup> Only 15 percent of students in large central cities reached proficiency in 2005.

As implemented, NCLB requires states to make adequate yearly progress (AYP) until

2014. Rules for determining AYP have evolved over the last five years, and states are now allowed several paths to establishing AYP, which don't require reaching the interim performance targets (U.S. Department of Education 2005; Center on Education Policy 2006; Erpenbach, Forte-Fast, and Potts 2003). Schools can be classified as making AYP if the growth in student performance is at least 10 percent more than last year ("safe harbor"), if performance falls within a "confidence interval" of the target, or some combination of these two (U. S. Department of Education 2005, 2006; Goldschmidt et al. 2005). The combination of safe harbor provisions and confidence intervals increases the complexity of determining AYP (Hoxby 2005), and can significantly reduce the performance improvement required of a school below the performance targets. In certain situations, a school below the performance standards can still make AYP without any improvement in performance (Center on Education Policy 2006).

In our analysis of the funding impacts of NCLB, we use the intermediate performance targets set for each year, rather than the requirements to make AYP. First, the requirements to make AYP, which can vary significantly across states and even across schools, are difficult to duplicate. Second, all of these accommodations are just postponing the ultimate requirement of reaching 100 percent proficiency by 2014, which has not been relaxed by the U.S. Department of Education (2005). If schools are going to have a reasonable probability of getting close to this standard, then they need to make significant improvements in the intervening years.

The penalty component of NCLB uses high stakes and punitive consequences for schools receiving Title 1 funding and not making AYP.

In the first year of "failure," schools are supposed to receive "technical assistance." After two years, students in failing schools are allowed to choose another public school (including a charter school) within the same district. After three years, the students who have not already departed for greener pastures can receive tutoring (at public expense) from an outside provider, public or private. Those schools that fail for four consecutive years must replace school staff, and those that fail for five years in a row must essentially surrender control to the state government, which can in turn reopen the school as a charter school, turn over management to a private company, or take over the school itself (Ryan 2003, p. 10)

Schools in the 2006-07 school-year will for the first time face closure or reorganization if they have not made adequately yearly progress. The stringency of these sanctions is likely to create a significant response in many schools. Some of the responses are likely to be exactly what was intended, such as a focus on tested subjects especially math and reading (Davis 2006b), while other responses may be undesirable, such as test score inflation (Koretz 1996) or actual cheating (Jacobs and Levitt 2003).

## **2.2 Education Accountability and State Budgets**

The passage of NCLB during a period of fiscal strain in many states has raised the issue of the implementation, and whether NCLB is an under-funded mandate (National Education Association 2004; Peterson and West 2004; Peyser and Costrell 2004; Mathis 2003). Existing studies on this topic differ widely in terms of what costs are included and how these costs are calculated (Hoff 2004; Robelen 2005). The potential costs of implementing an education accountability system can be broadly divided into three categories: the cost of the testing system, the costs of enforcing the consequences, and the required changes in the school finance system to support the accountability system selected.

The first of these costs is probably the easiest to calculate and the least expensive to implement. Most states had math and reading exams in place before passage of NCLB, and a few states, such as Texas, had exams from 3<sup>rd</sup> through 8<sup>th</sup> grade and a student-level database. Hoxby (2002) estimated that costs for test development, implementation, and reporting range between \$5 and \$25 per student. The GAO (2003) estimated that states' costs for implementing the NCLB testing requirements are \$400 million per year, or approximately \$10 per student tested. Driscoll and Fleeter (2003) estimate NCLB costs in Ohio of approximately \$14 per student for test development and administration.

The costs of enforcing the consequences of success or failure for schools are more

difficult to calculate. For schools that fail, NCLB requires the districts to develop school improvement plans, provide funding for supplemental services, or provide access to another school in the district. Ultimately, states may be required to reconstitute or takeover schools. Another type of enforcement requirement is requiring districts to hire only highly qualified teachers. Driscoll and Fleeter (2003) estimate that Ohio's costs to comply with the requirement for highly qualified teachers are approximately \$40 per student.

The costs state and local governments must pay to reach their standards are difficult to estimate and may be large, especially in states that set high standards, such as Missouri. Any cost calculation is bound to be controversial because scholars do not agree either on the best way to determine the amount of money needed to reach any given student performance level using current best practices or on the extent to which an accountability program can boost the efficiency with which schools or school districts operate. If an accountability system can succeed in significantly raising school efficiency, then the cost of reaching any given standard obviously will be lower than if only small efficiency improvements are possible. Reflecting different perspectives on efficiency, national estimates of the costs for states to implement NCLB range from \$8 billion (Peyser and Costrell 2004) to \$150 billion (Mathis 2003).

Another important issue for evaluating either a state accountability system or NCLB is that districts with a high concentration of disadvantaged students cannot be expected to achieve the same level of student performance as other districts unless they receive additional resources. Under NCLB, schools with many disadvantaged students generally face harsher sanctions than other schools (Kim and Sunderman 2004), which can potentially lead to a number of perverse incentives (Ryan 2003). Depending on assumptions about inefficiency, the potential cost increases to state governments to provide adequate resources to high-need districts could be large enough to dominate other types of costs. In a recent analysis for Ohio, Driscoll and Fleeter (2003) estimate that "intervention costs" represent over 95 percent of additional costs from

NCLB and average \$760 per student. In a study on costs of implementing NCLB in Texas, Imazeki and Reschovsky (2006) estimate that meeting AYP associated with a passing rate of 70 percent would require \$4.4 billion of additional spending, or \$1,064 per pupil.

### **3.0 Costing Out NCLB**

Several approaches for estimating the cost of reaching a given student performance standard have been developed (Downes 2004; Baker 2006), and studies of this topic have been carried out in at least 30 states (Hoff 2005).<sup>5</sup> We use the so-called cost function method to estimate the spending required to meet NCLB standards. In this section, we will discuss data and measures used in the cost function, present cost function results, and estimate the cost of meeting NCLB standards in Kansas and Missouri.

#### **3.1 Data Sources and Measures**

Applied to education, the term cost represents minimum required spending, based on current best practices, for the students in a district to reach a given performance level. Because we have data on spending, not costs, the cost function approach must control for school district efficiency; that is, we must recognize that not all districts use current best practices. To model the relationship between spending, student performance, and other important characteristics of school districts, a number of education researchers have employed one of the tools of production theory in microeconomics, cost functions.<sup>6</sup> A cost function for school districts relates five factors to spending per pupil: student performance; the price of school resources, such as teacher salaries; the district's enrollment; student characteristics that affect educational performance, such as poverty; and factors that affect school district efficiency.

The cost function estimates in this paper are based on three years of data for three pre-NCLB years (1999-2000 to 2001-2002) for school districts in Kansas and Missouri plus either two years (Kansas) or three years (Missouri) after the passage of NCLB.<sup>7</sup> Most of the data are

supplied by the state education departments in Missouri and Kansas. This section is organized by major category of variables, and summary statistics are reported in Table 2.

*District Expenditures.* The dependent variable used in the cost function is district operating expenditures per pupil. In Kansas, our measure includes expenditures for six functional areas: instruction, student support, instructional support, school administration, general administration, operations and maintenance, and other.<sup>8</sup> Our measure for Missouri is current expenditures, which excludes capital spending and debt service.

*Student Performance.* For Kansas, most of the measures used to determine AYP are also key measures in the state accountability system, Quality Performance and Accreditation (QPA). We use the share reaching proficiency on criterion-referenced exams in math and reading in three grades (grades 4, 7, 10 for math, and grades 5, 8, and 11 for reading). The QPA also includes a proxy measure for the cohort graduation rate.<sup>9</sup> To construct an overall measure of student performance, we took a simple average of these seven measures. For Missouri, the key exam scores used to assess AYP are proficiency rates for three math and three reading exams (grades 3, 7, and 11 for communication arts, and grades 4, 8, 10 for math). Our measure of performance is an average of these scores.

*Student Enrollment Measures.* Our enrollment measure for Kansas is the enrollment measure in the General State Aid formula, namely, fulltime equivalent students (FTE), which equals total enrollment from 1<sup>st</sup> to 12<sup>th</sup> grades plus half of total enrollment in kindergarten and pre-kindergarten programs. For Missouri we constructed a rough measure of average daily membership by averaging enrollment in September and January. Enrollment appears in our estimated cost models as a set of enrollment-class dummy variables.

Cost functions have commonly included three types of student need measures: child poverty, limited English proficiency (LEP), and special education. The poverty measures used most often in state aid formulas are the percent of students receiving free lunch (Kansas) or

percent receiving subsidized lunch (Missouri).<sup>10</sup> While the accuracy and reliability of these measures has been challenged, especially for secondary students, they generally track closely with the child poverty rate produced by the Census Bureau.<sup>11</sup> Nationally, there is some descriptive evidence suggesting that student performance in high poverty inner city schools is significantly worse than high poverty rural schools (Olson and Jerald 1998). To examine whether this may be the case, we created an additional poverty variable, which is the percent free (or subsidized) lunch students multiplied by pupil density (pupils per square mile). The higher the pupil density, the more urbanized we would expect the school district to be.

Unfortunately, there is not a consistent source of LEP data across states or even across school districts within some states. In Missouri, LEP measures are not used in the state aid formula, and consistent data are not collected. An alternative variable from the Census is the percent of students who live in a household where English is not spoken well at home, which is consistently lower than LEP rates calculated by states. This variable was not statistically significant and was dropped. In Kansas, the LEP measure in the state aid formula is flawed, so we used data on the bilingual headcount reported to Kansas State Department of Education.<sup>12</sup>

Measures of special education students are more problematic, because of the potential for over-classification of special education students to increase state aid (Cullen 2003). To avoid this potential endogeneity, we removed spending on special education from our dependent variable and did not include the share of special education students as an explanatory variable.

*Teacher salaries.* Teacher salary is the most important resource price affecting school district spending. In addition, teacher salaries are typically highly correlated with salaries of other certified staff, so that teacher salaries serve as a proxy for all staff salaries. To develop a comparable salary measure across districts, data on individual teachers is used to predict what teacher salaries would be in each district if teachers had average experience and education.<sup>13</sup>

*Efficiency-Related Measures.* Some school districts may have higher spending relative to

their level of student achievement not because of higher costs, but because of inefficient use of resources. In addition, some districts may choose to focus on subject areas, such as art, music, and athletics, that may not be directly related to improving test score performance in math and reading or improving the graduation rate. As in any other study of production and cost, inefficiency can only be defined with respect to the production of certain, specified outputs. Once measures of student achievement have been selected, additional spending by a district relative to the spending by comparable districts with the same achievement levels is an indication of inefficiency, regardless of whether it represents wasteful spending, such as luxury vacations for school officials, or spending on programs to promote other types of student achievement.

The problem, of course, is that efficiency cannot be measured directly. Our approach is to include in the cost model variables that have a conceptual link to efficiency and that have been found to be significant in previous cost/efficiency studies, namely, fiscal capacity and factors affecting voter involvement in monitoring local government (Leibenstein 1966; Niskanen 1971). Research on New York school districts indicates that taxpayers in districts with high fiscal capacity (property wealth, income and state aid) may have less incentive to put pressure on district officials to be efficient, or may be more apt to spend money on non-tested subjects (Duncombe and Yinger 2000).<sup>14</sup> In addition, voters might have more incentive and capacity to monitor operations in school districts with relatively more college educated adults, more elderly residents, a larger share of households that own their own homes, or where the typical voter pays a larger share of school taxes (median housing price over per pupil property values).<sup>15</sup>

### **3.2 Cost Function Estimates**

The cost function for school districts in Kansas and Missouri are estimated using log-linear multiple regression techniques. Because spending, performance, and salaries may be set simultaneously in the budgeting process, we treat student performance and teacher salaries as endogenous variables using an instrumental variable method (two-stage least squares).<sup>16</sup>

Hypothesis testing is done with robust standard errors.

The cost function results in Table 3 indicate that the relationships between the different variables and per pupil spending fit expectations and are generally statistically significant.<sup>17</sup> To start, a one percent increase in student performance is associated with a 0.50 percent increase in per pupil expenditures in Kansas, and a 0.35 percent increase in Missouri.

Turning to the cost variables, we find that a one percent increase in teacher's salaries is associated with a 0.68 percent increase in per pupil expenditures in Kansas and a 0.86 percent increase in Missouri. The coefficients on the poverty variables and the bilingual variable for Kansas have the expected positive sign and are statistically significant. The density-poverty interaction is also positive but is not significant at conventional levels. In the case of Missouri, the subsidized lunch and its interaction with density are both statistically significant with the expected sign. These results correspond to an average poverty weight, defined as the percent increase in spending for a child in poverty, of 55 in Kansas and 70 in Missouri, with higher weights in central cities. Weights of this type often appear in state aid formulas (Duncombe and Yinger 2005). The implied weight for a bilingual student in Kansas is 16.

As expected, the operating costs are higher for smaller school districts. As shown in Table 3, school districts in Kansas with 100 or fewer students (the omitted category) are almost 57 percent more expensive to operate than districts with 1,500 to 5,000 students, and in Missouri they are 64 percent more expensive than districts with 2,500 to 5,000 students. For both states, economies of scale are largely exhausted by the time a district reaches about 2,500 pupils.

Several efficiency variables also prove to be important. Income and state aid have the expected positive sign and are statistically significant in both states. As expected, the tax-share variable has a negative coefficient in both states, but it is significant only in Missouri. In addition, efficiency in Kansas declines with property values and increases with the share of adults who have a college education. Efficiency in Missouri also increases with the share of

adults who are age 65 or older.

The year dummy variables capture changes in spending over time holding student performance and cost factors constant. One possible interpretation of these variables, therefore, is that they capture changes in efficiency in the average school district. In both states, we find that spending decreases with time, a sign of increasing efficiency. This decrease is 8.0 percent in Kansas over a four-year period, which corresponds to an efficiency improvement of about 2.0 percent per year (with compounding), and 3.9 percent in Missouri over a five-year period, which corresponds to an annual efficiency improvement of 0.77 percent. These year variables are not statistically significant, however, so this is, at best, only weak evidence of efficiency gains.

These cost results can also be translated into cost indexes, which indicate how much more district needs to spend than the average district to reach the same performance level (Duncombe and Yinger, 2005). In Kansas and Missouri, large central cities have the highest costs due to both high poverty and above average wage costs. We estimate that to reach the same performance standard as the average district, these cities would need to 9 percent more in Kansas and 14 percent more in Missouri. Costs in some rural districts (rural metro in Kansas, and rural non-metro in Missouri) are about 7 percent more than in the average district, due primarily to their small size. The lowest costs are in suburban districts (urban fringe or medium cities), because of below average poverty and economies of size.<sup>18</sup>

### **3.3 Predicting the Cost to Meet NCLB Standards**

The cost function results can also be used to estimate the amount each school district must spend to reach a particular performance standard, holding its efficiency constant at its current level. As discussed previously we use the intermediate targets under NCLB, not the requirements to make AYP. For this study we look at projected spending to meet standards in 2007, 2009, and 2011. While the 100 percent standard in 2014 is clearly unrealistic, schools might be expected to reach standards as high as those set for 2011. Table 4 reports required

spending increases by Census district type based on the standards set by Kansas and Missouri and our estimated cost functions.

A comparison of the required spending increases highlights the difference in standards between the two states. To meet 2007 NCLB standards, spending in the average district (weighted by enrollment) will not have to increase at all in Kansas but will have to increase 16.8 percent in Missouri. By 2011, the spending increase in Kansas would need to be 10 percent compared to 46 percent in Missouri. In both states, the estimated required spending increases for the large central cities are particularly large. In Kansas these increases range from 9 percent in 2007 to 22 percent in 2011 and in Missouri from 52 percent in 2007 to 90 percent in 2011. One of the key differences between Kansas and Missouri is for rural districts. In Kansas, rural districts are favored in the formula (Duncombe and Johnston 2004), thus, on average they do not need a spending increase to reach 2007 standards, and need only a 6 percent to 9 percent increase to meet the 2011 standards. In Missouri, where the aid formula does not make significant adjustments for economies of size, the projected spending increase to meet the 2011 standards ranges from 40 to 48 percent.

#### **4.0 Determining Whether Title 1 Is Under-funded**

Title 1 has been the principal federal compensatory aid program for the last four decades. Over the last decade significant changes have been made to the accountability provisions of the act, but only modest changes have been made to the funding formula itself. In this section, we discuss changes in Title 1 funding, and examine whether Title 1 is under-funded.

##### **4.1 Changes in Title 1 Funding**

Whether Title 1 funds are adequate depends on the base for comparison. Appropriations for Title 1 have been between 65 percent and 75 percent of the original authorization, which has prompted some to claim a funding gap (NEA 2004). On the other hand, Title 1 funding

increased significantly after 2001, which has been used as evidence that it is not under-funded (Peterson and West 2004; Peyser and Costrell 2004). In Kansas, while average state aid per student went down 10 percent in real terms during the 2001-2004 period, real federal aid per student went up by 40 percent and Title 1 funding by 45 percent. Even with the significant increase, Title 1 funds represent a small share (4.5 percent) of total education aid (federal plus state). In Missouri, real state aid remained constant over the 2001-2005 period, but both Title 1 funding and total federal aid per student grew by about 40 percent in real terms. Title 1 plays a larger role in Missouri than in Kansas, but even in Missouri it accounts for only 7.6 percent of aid.

The distribution formula for Title 1 has been criticized for not targeting funds adequately to schools serving low-income children (Robelen 2001). The poverty thresholds for a school to receive Title 1 funds are quite low (2 percent for the Basic Grant and 15 percent for the Concentration Grant), and the distribution of Title 1 funds within school districts often gives short shrift to the poorest schools (Roza and Hill 2004). NCLB improves the focus on high-poverty schools, because all the additional Title 1 grants give more money to schools with concentrated poverty (Center on Education Policy 2004). To be specific, we find that between 2000 and 2005 NCLB increased the correlation between Title 1 aid per pupil and the child poverty rate from 0.56 to 0.66 in Kansas and from 0.62 to 0.66 in Missouri.

#### **4.2 Determining Whether NCLB Is Under-Funded**

The debate over the adequacy of Title 1 funding hinges on two key questions: How much will NCLB increase school district efficiency in producing student performance increases? What is the federal responsibility for funding the accountability provisions of NCLB? While testing and administrative costs associated with NCLB are not inconsequential, they are relatively small, and fairly predictable. Costs associated with providing students the services and support to meet the higher standards are potentially much larger, and their magnitude depend crucially on the

efficiency improvements generated by NCLB. Only two studies we are aware of have done detailed estimates of costs of meeting NCLB adequacy standards (Driscoll and Fleeter 2003; Imazeki and Reschovsky 2006).

The federal responsibility with regard to funding NCLB is clearly a matter of debate. Section 9527(a) of NCLB can be interpreted as protecting states and districts from implementing any provisions of NCLB that are unfunded.

Nothing in this title shall be construed to authorize an officer or employee of the Federal Government to mandate, direct, or control a State, local educational agency, or school's curriculum, program or instruction, or allocation of State or local resources, or mandate a State or any subdivision thereof to spend any funds or incur any costs not paid for under this act.

A group of school districts and the State of Connecticut have each filed suits arguing that this provision prevents the U.S. Department of Education (DOE) from requiring compliance with NCLB requirements that are not fully funded by federal aid (Hendrie 2005). In contrast, DOE argues, in part, that states bear the primary responsibility for funding education and that they can avoid NCLB requirements by declining federal aid to education. Title 1 was designed only to supplement state compensatory education, says DOE, and the federal government has no obligation to fully fund the costs of meeting these requirements.<sup>19</sup>

While courts may ultimately decide the issue, we build on the cost-function approach of Imazeki and Reschovsky (2006) to examine several scenarios with regard to the fiscal responsibility of the federal government. Assuming broad federal responsibility, Title 1 funds can be compared to the projected spending to meet NCLB standards. Narrowing the focus to only the post-NCLB responsibility, the increase in Title 1 funds since 2001 can be compared to the increase in spending associated with the higher performance standards. If Title 1 is viewed as just a compensatory education program, Title 1 funds could be compared to costs associated with bringing low-income children up to the standard. Finally, the increase in Title 1 funds

could be compared to the increase in costs associated with raising performance of low-income children from their current levels up to NCLB standards in a particular year.

Tables 5 and 6 provide estimates of the four scenarios. We assume no increase in real dollars in Title 1 funding after 2005, based on the relatively small increases in Title 1 funding in 2006 and in the President's 2007 Budget (OMB 2006). For the second and third scenarios, some districts already spend enough to meet the new standards, so we indicate (in parentheses) the percent of districts needing funds and the share of the needed funds supplied by Title 1.

If the federal fiscal responsibility is to fund a significant share of the spending required to meet NCLB standards, then Title 1 funding is clearly inadequate in both Kansas and Missouri. Title 1 funds as a percent of the projected spending ranges from 3.0 percent (2007) to 2.6 percent (2011) in Kansas and 2.9 percent to 3.6 percent in Missouri (first panel of Tables 5 and 6). Title 1 funding covers a larger share of spending in large central cities, but still represents a small fraction of the estimated spending to meet NCLB standards.

If the increase in Title 1 funds since 2001 is compared to the increase in spending to move to NCLB standards in 2007, 2009 or 2011, the Title 1 funding shares are considerably higher (panel 2). In Kansas, this share is 65.2 percent in 2007 but drops to 20.9 percent in 2011. The comparable shares in Missouri are 15 percent and 3.9 percent. The highest shares are for the large and small towns in Kansas, where the increase in Title 1 funds provides more than enough money to meet 2007 standards. Even for these districts, however, the Title 1 funding share is below 35 percent by 2011.

An alternative way to look at federal responsibility is to focus on the compensatory education objective of Title 1, by comparing Title 1 funds with the funds needed for compensatory purposes. Panel three compares Title 1 funds to the total spending needed to bring low-income students up to a given standard. The share of compensatory education costs covered by Title 1 funds is only about 8 percent in Kansas in all three years and only about 5 percent in

Missouri. Increases in Title 1 cover a larger share of the added spending districts must make to support low-income children. As shown in panel 4, the increase in Title 1 in Kansas more than covers the added costs of disadvantaged students in 2007 and 2009, but by 2011 Title 1's share drops to 60.5 percent. In Missouri, with its higher standards, Title 1 covers 30.3 percent of these added expenses in 2007, but this percentage declines to 6.2 by 2011.

#### **4.3 School-District Efficiency Increases Required to Meet NCLB Standards**

If the new federal funds provided through Title 1 are not sufficient to bring a district up to the NCLB standards, then the only way school officials can reach these standards on their own is to become more efficient. Of course, they also might receive additional assistance from local voters, in the form of higher property taxes, or from their state, in the form of more state education aid. Without outside help, however, increased efficiency is school officials' only option. Additional perspective on the impact of NCLB can be obtained, therefore, by determining the increase in efficiency that is required for school districts to reach the NCLB standards after accounting for their increased federal aid.

Recall that spending equals costs divided by efficiency. We can observe current spending and we can forecast the spending required to meet a NCLB standard assuming efficiency does not change. Then we can calculate the percentage change in efficiency that is required to bring spending required to meet the NCLB standard down to the sum of current spending plus the increase in Title 1 funding.<sup>20</sup> A district that was able to change its efficiency this much could meet the NCLB standard without any additional help from its voters or its state.

Because the Kansas NCLB standards are low, the required efficiency improvement in Kansas also is relatively low. The average district would not have to improve its efficiency at all to reach the 2007 standard in Kansas, and the required efficiency improvement is 2.6 percent to reach the 2009 target and 7.8 percent to reach the 2011 target. As discussed earlier, we find some weak evidence of efficiency improvements in Kansas school districts over time. The most

favorable possible interpretation of these results is that, in the average district, efficiency increased about 2 percent per year between 2000 and 2004. If efficiency improvements at this rate were to continue, it would take another four years, that is, until 2008, to reach the efficiency level required for the 2011 standards. Under very optimistic assumptions, in other words, the average school district in Kansas might be able to meet the state's 2011 standard without any additional funding. These optimistic assumptions do not bring all districts up to the standard, however. As shown in the first panel of Figure 2, 10 percent of school districts could not reach even Kansas's low 2011 standard without an increase in efficiency of 5 percent or more.

Our results for Missouri are quite different. Because of Missouri's relatively high NCLB standards, efficiency in the average district would have to increase 20.1 percent to meet the 2007 standard, 36.5 percent to meet the 2009 standard, and 50.0 percent to meet the 2011 standard. Our cost model finds possible efficiency improvements in Missouri as in Kansas during the 2000-2005 period, but they are very small, less than 1 percent per year, and are not statistically significant. Assuming that this is, indeed, an efficiency effect and that it can be sustained, it would take 53 years—until 2058—for the average district to reach the efficiency level required to meet the 2011 standard.

The second panel of Figure 2 shows that in Missouri, as in Kansas, the required average efficiency change greatly understates the required efficiency change in some districts. We estimate that 25 percent of districts could not reach the 2011 standard without an efficiency boost of at least 58.6 percent, and 10 percent could not reach this standard with out a boost of 72.7 percent or more. There is no evidence that increases of this magnitude are possible.

## **5.0. Conclusions and Policy Recommendations**

With the passage of the No Child Left Behind Act, the federal government became seriously involved for the first time in regulating state accountability systems. This paper uses

education cost functions to estimate the spending required to support NCLB standards in Kansas and Missouri and compares this spending with the funding available through NCLB. These states have similar education environments but very different standards.

Given the controversy over the scope of federal responsibility for funding NCLB, we examine several scenarios. We find that the increase in Title 1 aid falls far short of the spending increases required to meet 2011 state NCLB standards. In fact, this aid covers only 20.9 percent of the required spending per pupil in Kansas and only 3.9 percent in Missouri. We also find that the increase in Title 1 does not cover the added costs associated with helping children in poverty. Based on the 2011 state NCLB standards, Title 1 increases cover 60.5 percent of these additional costs in Kansas and only 6.2 percent of these costs in Missouri. Overall, therefore, recent increases in Title 1 funding levels do not come close to covering the costs of implementing NCLB without unprecedented improvements in school district efficiency.

Our results differ for Kansas and Missouri largely because Kansas has a much lower standard for student performance. This finding reveals that NCLB creates an unpleasant choice for states. One choice is to avoid the NCLB sanctions by setting low standards for student performance. The other choice is to avoid NCLB sanctions by setting high standards and significantly raising state and/or local taxes to ensure that these high standards can be reached. According to our analysis, the funding provided by the federal government falls far short of the amount needed to support high standards, even with significant increases in school-district efficiency. The severity of the NCLB sanctions therefore undermines the approach many states, including Missouri, were using before NCLB, namely, to set high standards and to phase them in, using relatively weak sanctions, over a long period of time.

The impact of these incentives can be seen in Missouri, where, in January 2006, the Missouri State Board of Education approved new cut-offs for the state tests that “should result in more students scoring at the ‘proficient’ and ‘advanced’ levels” (Missouri Department of

Elementary and Secondary Education, MDESE, 2006). In 2005, 30 percent of students reached proficiency in reading and 25 percent in reading; under the new standards these percentages are expected to rise to 44 and 43 percent, respectively. The news release announcing these changes declared that the cut-offs are

critical because federal law (No Child Left Behind) requires all children to be proficient in reading and math by 2014. Public schools that do not make satisfactory progress toward these goals face penalties. The federal law also allows each state to set its own definitions of proficiency (MDESE 2005).

Thus, the problem with NCLB is not that it is an under-funded mandate. A state can meet the NCLB mandates with existing Title 1 funds if it sets its student-performance standards low enough. Instead, the problem with NCLB is that it gives states a strong incentive to dumb their standards down. This incentive undermines the main purpose of NCLB which is “to ensure that all children have a fair, equal, and significant opportunity to obtain a *high-quality* education and reach, at a minimum, proficiency on *challenging* State academic achievement standards and state academic assessments” (NCLB, Section 1001; emphasis added). This perverse incentive could be eliminated, of course, by more federal funds, so it is accurate to say that NCLB does not provide the funding needed to meet its own objectives. Because NCLB does not actually set standards, however, we cannot measure the degree to which it is under-funded in this sense.

Any re-authorization of NCLB should remove the perverse incentive at the heart of the current legislation. States should not be rewarded, in the sense of avoiding NCLB sanctions, for setting low standards. This is not an easy problem to solve, because it is difficult to compare student performance standards across states. Nevertheless, some type of inter-state comparison is essential. One possibility is to calibrate state standards based on their correlation with National Assessment of Education Progress test scores, the only national tests currently available for a random sample of students in each state. More specifically, a revised NCLB could give the Secretary of Education authority to rank state standards and establish a process that would allow

states to appeal their rank. States with stricter standards could then be given either more funding or lower sanctions when they fail to meet their standards.

Another possible reform in NCLB is to weaken the sanctions considerably so that no state is pushed to lower its standards. This is, of course, what NCLB already does in the short run. For now the NCLB sanctions are based on AYP, not on actual test scores, and, as discussed earlier, the definition of AYP is so flexible that states can avoid NCLB sanctions in the short run, at least in many cases. The current system only postpones the day of reckoning, however, because states are still expected to bring all their schools up to their specified standards by 2014. Shifting to a (hopefully simplified) version of AYP as the ultimate target would greatly lessen the pressure for high-standard states to lower their standards.

Another serious problem in NCLB is that it does not adequately recognize the relatively high costs of educating children from low-income families. There is some irony here because Title 1 is an act dedicated to “improving the academic achievement of the disadvantaged.” Nevertheless, we find that the extra funds provided by NCLB would not be sufficient to meet the educational needs of low-income students even if these funds were exclusively devoted to these students, which they are not. Moreover, NCLB places more requirements on schools with disadvantaged students than on other schools. Although the objective of these requirements, namely, to ensure that all children are brought up to the standards, is laudable, their consequence is that schools with disadvantaged students are more likely than other schools to be sanctioned for reasons that are outside their control. To avoid this profoundly unfair situation, NCLB needs to increase the extent to which its funds are directed toward disadvantaged students and/or reward states that provide the additional funds that schools with disadvantaged students require.

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## Notes

<sup>1</sup> To receive federal Title 1 funding (for compensatory education) states needed to submit an accountability plan by January 2003 to the U.S. Department of Education based on results for the 2002-03 school year. The first round of consequences applied to the 2003-04 school year.

<sup>2</sup> For an overview of the link between accountability and finance, see Figlio (2004). An example of an empirical evaluation of this link is in Duncombe and Yinger (2000).

<sup>3</sup> The NCLB standards in Figure 1 are average proficiency rates on 3 math and 3 readings exams. Kansas also uses a graduation rate standard of 75 percent, which is why the combined index is less than 100 percent. Both states also include participation rates in exams and attendance rates in their standards, but we ignore these rates because they are already high in most districts.

<sup>4</sup> The Census classification for the large central cities was modified to include only the cities with above-average costs (St. Louis, Kansas City, Hickman Mills, and Center). The other districts (Park Hill, and Northern Kansas City) are included in the category for medium cities.

<sup>5</sup> Hanushek (2005a and 2005b) claims that these methods are not scientific because they cannot be replicated. Baker (2006) and Duncombe (2006) show how these studies can be assessed on reliability and validity criteria and find that cost function studies perform reasonably well on several criteria. Hanushek (2005a) also criticizes the cost-function approach for failing to remove inefficiency from spending, but he does not acknowledge studies that do exactly this, including Duncombe and Yinger (1997, 1998, 2000, 2005), Duncombe, Lukemeyer, and Yinger (2003), and Imazeki and Reschovsky (2004a) and Reschovsky and Imazeki (2003, 2006).

<sup>6</sup> Cost function studies have been conducted for New York (Duncombe and Yinger 1998, 2000, 2005; Duncombe, Lukemeyer, and Yinger 2003), Arizona (Downes and Pogue 1994), Texas (Imazeki and Reschovsky 2004a, 2004b, 2006; Gronberg, et al. 2004), and Wisconsin (Reschovsky and Imazeki 1998).

<sup>7</sup> There are about 300 school districts in Kansas and 523 in Missouri. A few observations were missing for each state due mainly to missing student performance or teacher salary information.

<sup>8</sup> Spending on special education, transportation, vocational education, food service, and school facilities are excluded. The major source of spending data is the School District Budget mainframe data files maintained by KSDE.

<sup>9</sup> The graduation rate equals the number of graduates in a given year divided by total graduates plus dropouts in this year and the 3 previous years.

<sup>10</sup> Students are eligible for free lunch if their family income is 130 percent of the poverty line or less, while the threshold is 185 percent for subsidized lunch.

<sup>11</sup> The correlation between the share free lunch (Kansas) or subsidized lunch (Missouri) and the Census child poverty rate in 2000 is about 0.70 for both states. Due to variation in the subsidized lunch share across years in Missouri, we used the 2-year average in the cost model.

<sup>12</sup> For districts missing a bilingual headcount, we predicted the share of bilingual students based on a regression of this headcount on the Census measure of poor English spoken at home.

<sup>13</sup> Specifically, the natural logarithm of a teacher's salary is regressed on the logarithm of their total experience and indicator variables (0-1) for whether they had a masters, doctorate, or law degree (Kansas) or had a graduate degree (Missouri). We imputed salaries in a few cases using predicted salaries in adjacent years and statewide trends in average salaries.

<sup>14</sup> The aid measure is per pupil state aid over per pupil income (Duncombe and Yinger 1998).

<sup>15</sup> In both states, we dropped the variables for owner occupied housing and college education because they were not significant. In Missouri we included a variable for K12 districts (instead of K6). In Kansas we collapsed a few consolidating districts into the consolidated district and included a consolidation indicator variable in these cases.

<sup>16</sup> In both states, the instrument for salaries is an index of private wages in the district's labor

market. Other instruments in Kansas are values for performance, salaries, and other socio-economic characteristics in districts in neighboring counties, and in Missouri are characteristics of other districts in the same county or census region. Our instruments pass tests for over-identification (Wooldridge 2003) and weak instruments (Bound, Jaeger, and Baker 1995). A detailed list of instruments is available from the authors upon request.

<sup>17</sup> Hanushek (2005a) questions the predictive accuracy of cost models. We estimate the cost model using pre-NCLB data (2000 to 2002) and predict required spending for districts to reach the NCLB performance levels in 2004 (Kansas) and 2005 (Missouri). In the average district in both states, this prediction differs from actual spending by less than 0.5 percent. Details are available from the authors.

<sup>18</sup> Complete cost index results are available from the authors upon request.

<sup>19</sup> The suits are *Pontiac School District v. Spellings*, Case No. 2:05-CV-71535 (E.D. Mich 2005); *Connecticut v. Spellings*, Case No. 3:05-CV-1330 (D. Conn 2005). As of this writing, the district court ruled against the school districts in *Pontiac S.D.* They have appealed.

<sup>20</sup> Current spending,  $E(S)$ , equals cost to meet current performance,  $C(S)$ , divided by efficiency,  $e$ , which has a maximum of 1.0. Now let  $C(S^*)$  be the cost required to meet a standard,  $S^*$ . Then at the current efficiency level, spending required to meet the standard is  $C(S^*)/e = E(S^*)$ , which we can forecast based on our cost model. Let  $T$  be the increase in Title 1 funding. Then we want to solve for a new efficiency level,  $e^*$ , at which  $[C(S^*)-T]/e^* = E(S)$ . Now  $C(S^*)/e^* = [C(S^*)/e] [e/e^*] = E(S^*)[e/e^*]$ . So  $e^* = [E(S^*)e - T]/E(S)$ . Figure 2 reports  $(e^*-e)/e$ .

**Table 1. Percent Difference Between Average Student Performance and NCLB Standard by Census District Type**

<b>Census district type</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
<b>Kansas</b>				
<b>State Average</b>	24.44	33.32	26.31	
Large central cities	-8.54	0.52	-1.60	
Medium cities	43.48	51.15	40.12	
Urban fringe of large cities	38.85	45.25	37.08	
Urban fringe of medium cities	33.71	46.02	38.92	
Large town	14.44	26.47	20.32	
Small town	19.63	31.01	25.65	
Rural metro	31.64	40.76	30.88	
Rural non-metro	36.12	43.90	35.38	
<b>Missouri</b>				
<b>State Average</b>	90.00	75.60	71.60	24.84
Large central cities	-14.68	-18.83	-12.24	-33.61
Medium cities	126.79	109.31	106.50	47.59
Urban fringe of large cities	115.30	96.53	90.52	-12.60
Urban fringe of medium cities	101.00	87.27	79.42	-18.71
Large town	123.19	112.07	113.33	-6.74
Small town	85.42	71.98	67.89	-24.88
Rural metro	89.42	79.63	73.60	-17.82
Rural non-metro	76.15	61.66	55.03	-28.55

Note: Calculated as student-weighted averages.

**Table 2. Descriptive Statistics for Variables Used in Cost Model**

Variables	Kansas (2004)		Missouri (2005)	
	Mean	Standard Deviation	Mean	Standard Deviation
Per pupil spending	\$6,991	\$1,311	\$6,947	\$1,550
Performance measure	71.8	7.9	25.6	7.2
<b>Cost variables</b>				
Teacher salaries	\$39,427	\$2,950	\$27,460	\$3,290
Percent free lunch students	26.7	11.3		
Percent subsidized lunch students			46.1	16.0
Poverty variable multiplied by pupil density	5.1	22.5	16.6	70.9
Adjusted percent bilingual headcount	4.2	7.4		
Enrollment	1485.5	3834.2	1670.7	3568.4
<b>Enrollment categories</b>				
Under 100 students	0.013	0.115	0.050	0.219
100 to 150 students	0.040	0.197	0.047	0.211
150 to 250 students	0.110	0.314	0.132	0.339
250 to 500 students	0.301	0.459	0.203	0.403
500 to 1,000 students	0.254	0.436	0.238	0.427
1,000 to 1,500 students	0.087	0.282	0.093	0.291
1,500 to 2,500 students	0.087	0.282	0.089	0.285
2,500 to 5,000 students	0.060	0.238	0.085	0.280
5,000 to 15,000 students	0.030	0.171	0.041	0.198
Over 15,000 students	0.017	0.128	0.021	0.145
<b>Efficiency-related variables</b>				
Per pupil income	\$87,950	\$31,021	\$63,962	\$35,112
Per pupil property values	\$57,065	\$43,629	\$61,631	\$41,074
State aid ratio	0.08	0.10	\$0	0.06
Local tax share	1.62	0.88	1.23	0.49
College education variable (2000)	17.97	6.75	13.11	8.05
Percent of population 65 or older (2000)	16.84	5.47	15.19	4.25
Percent of housing units that are owner occupied (2000)	88.59	5.66	0.77	0.08
Sample Size	299		516	

Note: State aid variable is per pupil state aid divided by per pupil income. For Kansas, this variable also includes federal aid. Teacher salaries in Kansas are estimated for teacher with average experience and in Missouri based on teachers with 5 years or less of experience. Entries are unweighted district averages.

**Table 3. Cost Function Estimates for Kansas and Missouri School Districts**

<b>Variables</b>	<b>Kansas (2000-04)</b>	<b>Missouri (2000-05)</b>
Intercept	-2.11360	-3.12886
Performance measure	0.50124 **	0.34902 *
<b>Cost variables</b>		
Teacher salaries	0.67969 **	0.86275 *
Percent free lunch students	0.00435 *	
Percent subsidized lunch students		0.0056882 *
Poverty variable multiplied by pupil density	0.00055	0.00029 *
Adjusted percent bilingual headcount	0.00158 **	
K12 districts (1=yes)		0.13245 *
Consolidated districts (1=yes)	0.21058 *	
<b>Enrollment categories</b>		
100 to 150 students	-0.12166 *	-0.16098 *
150 to 250 students	-0.22828 *	-0.30392 *
250 to 500 students	-0.36138 *	-0.42965 *
500 to 1,000 students	-0.42874 *	-0.51954 *
1,000 to 1,500 students	-0.50830 *	-0.59337 *
1,500 to 2,500 students	-0.56852 *	-0.64389 *
2,500 to 5,000 students	-0.56608 *	-0.70801 *
5,000 to 15,000 students	-0.51823 *	-0.69755 *
Over 15,000 students	-0.62161 *	-0.68095 *
<b>Efficiency-related variables</b>		
Per pupil income	0.13505 *	0.16824 *
Per pupil property values	0.05599 *	0.03582
Total aid/income ratio	0.78701 *	1.12644 *
Local tax share	-0.02146	-0.06610 *
Percent of adults that are college educated (2000)	-0.00423 *	0.20811
Percent of population 65 or older (2000)	-0.00209	-0.42237 **
Percent of housing units that are owner occupied (2000)	-0.00145	-0.15041
<b>Year indicator variables</b>		
2001	-0.01176	0.00548
2002	-0.00464	0.00579
2003	-0.04626	-0.00486
2004	-0.08047	-0.04526
2005		-0.03909
Sample Size	1463	3068

Note: Estimated with linear 2SLS regression with the log of per pupil operating spending (Kansas) or current spending (Missouri) as the dependent variables. Performance and teacher salaries are treated as endogenous with instruments based on variables for adjacent counties for Kansas, and for labor market areas for Missouri (see note 17 in the text). Robust standard errors are used for hypothesis testing (controlling for clustering at district level). The performance index, teacher salaries, per pupil income, per pupil property values and local tax share are logged. Spending and salaries are deflated using the CPI for urban wage earners. \* indicates statistically significant from zero at 5% level. \*\* indicates statistically significant from zero at 10% level.

**Table 4. Per Pupil Spending Increases Required to Support a Particular NCLB Standard by Census District Types**

	Actual Expenditures Per Pupil	Percent Increase in Predicted Spending to Reach NCLB Standard in		
		2007	2009	2011
<b>Kansas</b>				
<b>Total state</b>	\$6,118	-1.9	5.0	10.3
<b>Census district type</b>				
Large central cities	\$6,112	8.7	16.4	22.3
Medium cities	\$6,079	-7.5	-0.9	4.0
Urban fringe of large cities	\$5,535	-7.1	-0.5	4.5
Urban fringe of medium cities	\$5,615	-5.9	0.8	5.9
Large town	\$6,456	0.1	7.2	12.6
Small town	\$6,105	-0.9	6.2	11.5
Rural metro	\$7,029	-3.5	3.3	8.5
Rural non-metro	\$5,901	-5.4	1.3	6.4
<b>Missouri</b>				
<b>Total state</b>	\$7,130	16.8	32.6	45.6
<b>Census district type</b>				
Large central cities	\$9,813	52.0	72.6	89.5
Medium cities	\$6,858	7.7	22.3	34.3
Urban fringe of large cities	\$7,576	10.2	25.1	37.4
Urban fringe of medium cities	\$5,377	9.4	24.3	36.4
Large town	\$6,535	9.9	24.8	37.0
Small town	\$6,340	16.7	32.5	45.5
Rural metro	\$6,217	12.1	27.2	39.7
Rural non-metro	\$6,534	18.3	34.4	47.5

Note: Actual expenditures per pupil is for operating spending in Kansas for 2004, and for current expenditures in Missouri for 2005. Calculated as student weighted averages.

**Table 5. Title 1 Aid in 2004 as a Share of Required Spending, Spending Increase, and Spending to Support Children in Poverty in Kansas School Districts**

	<b>NCLB Standard in</b>		
	<b>2007</b>	<b>2009</b>	<b>2011</b>
	<b>Title 1 as Percent of Required Spending</b>		
<b>Total state</b>	3.0	2.8	2.6
<b>Census district type</b>			
Large central cities	5.9	5.5	5.2
Medium cities	2.3	2.2	2.1
Urban fringe of large cities	2.2	2.1	2.0
Urban fringe of medium cities	2.0	1.9	1.8
Large town	4.5	4.2	4.0
Small town	3.7	3.5	3.3
Rural metro	3.1	2.9	2.8
Rural non-metro	2.0	1.8	1.7
	<b>Title 1 Increase as Percent of Required Spending Increase</b>		
<b>Total state</b>	65.2 (33.4)	27.3 (71.3)	20.9 (88.7)
<b>Census district type</b>			
Large central cities	50.3 (100.0)	16.4 (100.0)	11.4 (100.0)
Medium cities	15.4 (33.3)	55.5 (66.7)	11.2 (66.7)
Urban fringe of large cities	47.5 (34.8)	12.0 (60.9)	8.5 (87.0)
Urban fringe of medium cities	27.2 (20.0)	39.2 (80.0)	26.0 (100.0)
Large town	105.1 (50.0)	21.9 (83.3)	14.8 (100.0)
Small town	135.6 (42.9)	22.5 (73.8)	34.5 (90.5)
Rural metro	45.4 (30.4)	32.7 (70.8)	22.0 (86.3)
Rural non-metro	55.5 (30.0)	18.8 (72.0)	12.8 (94.0)
	<b>Title 1 as Percent of Spending Required to Support Children in Poverty</b>		
<b>Total state</b>	8.3	7.8	7.4
<b>Census district type</b>			
Large central cities	8.0	7.4	7.1
Medium cities	8.9	8.3	7.9
Urban fringe of large cities	7.9	7.4	7.0
Urban fringe of medium cities	7.6	7.1	6.8
Large town	8.9	8.3	7.9
Small town	8.9	8.3	7.9
Rural metro	8.5	7.9	7.5
Rural non-metro	7.6	7.1	6.8
	<b>Title 1 Increase as Percent of Required Spending Increase to Support Children in Poverty</b>		
<b>Total state</b>	725.4 (29.6)	119.5 (75.7)	60.5 (96.6)
<b>Census district type</b>			
Large central cities	34.3 (100.0)	18.0 (100.0)	13.4 (100.0)
Medium cities	27.9 (33.3)	96.1 (66.7)	691.2 (100.0)
Urban fringe of large cities	6390.6 (30.4)	62.0 (73.9)	44.4 (91.3)
Urban fringe of medium cities	70.7 (20.0)	36.2 (60.0)	18.7 (80.0)
Large town	134.9 (50.0)	38.1 (83.3)	26.7 (100.0)
Small town	570.4 (35.7)	78.5 (78.6)	62.8 (100.0)
Rural metro	96.0 (27.3)	129.5 (75.8)	55.0 (96.3)
Rural non-metro	383.9 (26.0)	177.1 (74.0)	54.5 (98.0)

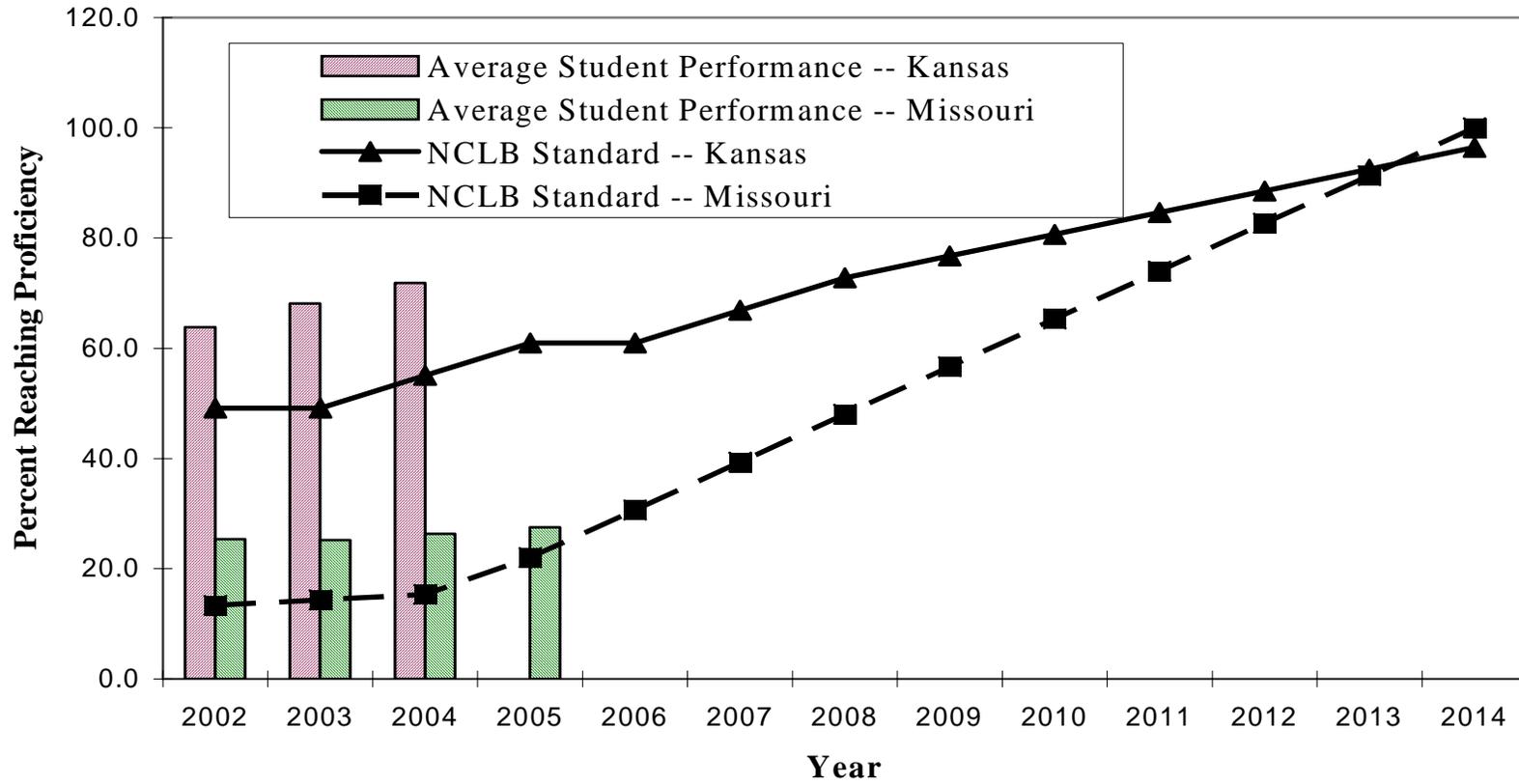
Note: Simple district averages. Share of districts needing extra funds is in parentheses.

**Table 6. Title 1 Aid in 2005 as a Share of Required Spending, Spending Increase, and Spending to Support Children in Poverty in Missouri School Districts**

Census District Type	NCLB Standard in		
	2007	2009	2011
	<b>Title 1 as Percent of Required Spending</b>		
<b>Total state</b>	3.6	3.2	2.9
<b>Census district type</b>			
Large central cities	2.5	2.2	2.0
Medium cities	2.3	2.0	1.8
Urban fringe of large cities	2.0	1.8	1.6
Urban fringe of medium cities	2.7	2.4	2.1
Large town	2.1	1.9	1.7
Small town	3.9	3.4	3.1
Rural metro	2.4	2.1	1.9
Rural non-metro	4.3	3.8	3.4
	<b>Title 1 Increase as Percent of Required Spending Increase</b>		
<b>Total state</b>	15.0(95.0)	6.0(99.2)	3.9(100.0)
<b>Census district type</b>			
Large central cities	3.1(100.0)	2.1(100.0)	1.7(100.0)
Medium cities	9.4(85.7)	3.0(100.0)	1.9(100.0)
Urban fringe of large cities	7.6(83.1)	4.1(94.9)	2.9(100.0)
Urban fringe of medium cities	11.8(91.7)	3.3(100.0)	2.2(100.0)
Large town	209.9(100.0)	4.9(100.0)	3.0(100.0)
Small town	13.1(95.8)	4.9(100.0)	3.4(100.0)
Rural metro	7.1(96.9)	3.3(100.0)	2.3(100.0)
Rural non-metro	16.8(97.0)	7.5(99.7)	4.7(100.0)
	<b>Title 1 as Percent of Spending Required to Support Children in Poverty</b>		
<b>Total state</b>	5.8	5.1	4.6
<b>Census district type</b>			
Large central cities	3.0	2.6	2.4
Medium cities	4.1	3.6	3.3
Urban fringe of large cities	4.5	4.0	3.6
Urban fringe of medium cities	5.1	4.5	4.1
Large town	4.5	4.0	3.6
Small town	6.1	5.3	4.9
Rural metro	4.7	4.1	3.8
Rural non-metro	6.3	5.5	5.0
	<b>Title 1 Increase as Percent of Required Spending Increase to Support Children in Poverty</b>		
<b>Total state</b>	30.3(96.9)	9.5(100.0)	6.2(100.0)
<b>Census district type</b>			
Large central cities	3.5(100.0)	2.4(100.0)	1.9(100.0)
Medium cities	21.7(100.0)	5.7(100.0)	3.6(100.0)
Urban fringe of large cities	24.4(86.4)	11.6(100.0)	6.3(100.0)
Urban fringe of medium cities	33.7(100.0)	6.5(100.0)	4.4(100.0)
Large town	35.4(100.0)	8.5(100.0)	5.4(100.0)
Small town	20.4(100.0)	7.7(100.0)	5.4(100.0)
Rural metro	20.2(100.0)	6.0(100.0)	4.1(100.0)
Rural non-metro	36.4(97.3)	10.5(100.0)	7.0(100.0)

Note: Simple district averages.

**Figure 1: Average Student Performance Compared to NCLB Standards, Kansas and Missouri**



**Figure 2: Distribution of the Percent Increase in Efficiency Required For Districts to Reach NCLB Standards in 2011**

