School Size and Student Outcomes in Kentucky's Public Schools

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Foreword

The authors of the report would like to thank staff of the Kentucky Department of Education, especially Lisa Gross and Kevin Hill; Leigh Troutman of the Kentucky Department for Libraries and Archives; Walt Spencer, Assistant Superintendent of the Henderson County School District; and David Baird, retired superintendent of the Eminence Independent School District. Among LRC colleagues, staff of the LRC Library and Office of Education Accountability were especially helpful.

Robert Sherman
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Legislative Research Commission
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Contents

List of Tables

List of Figures

Summary

In November 2005, the Program Review and Investigations Committee directed that staff address the question of how school size affects student achievement in Kentucky. This report does that primarily through a statistical analysis of the effect of size of school enrollment on Commonwealth Accountability Testing System scores and attendance, dropout, and retention rates.

In the 2005 school year, there were more than 1,200 public schools of regular instruction in Kentucky. The average school had 525 students, but enrollment per school ranged from fewer than 100 students to more than 2,000.

The number of students in primary, middle, and high schools of regular instruction in Kentucky has declined. In 1987, there were more than 636,000 students. That number dropped by more than 16,000 students by 2004. Among school types, the number of students in primary and high schools declined. The number of students placed in middle schools increased by 50 percent from 1987 to 2004.

Overall, there were 93 fewer schools in 2004 than in 1987, a decline of 7 percent. Among types, the number of primary and high schools decreased, but there was a 25 percent increase in the number of middle schools.

The sizes of typical primary and high schools have remained stable since 1987. The average primary school has approximately 400 students. The average high school has approximately 800 students. Since 1987, for each type there has been a decline in the number of relatively smaller and larger schools and an increase in the medium-sized schools. In other words, primary schools are becoming more alike in terms of size, as are high schools.

Middle schools are the one type in which the average size has been increasing. Over the 1987 to 2004 period, the size of the average middle school increased from 500 to 600 students. As with the other school types, there were fewer relatively small middle schools in 2004 than in 1987. Unlike the other types, the number of medium-sized schools increased, but so did the number of large schools.

Compared to neighboring states, Kentucky ranks near the center both in terms of average school size and the percentage of students in relatively large schools.

Staff reviewed the research literature on the effect of school size. The primary purpose was to use the expertise of earlier researchers as a guide for doing the statistical analysis of Kentucky schools. The substantive findings of that review were that education researchers are increasingly reaching the conclusion that students are better served by small- to medium-sized schools. Students in these schools outperform larger schools on many measures of schooling outcomes. Small schools typically have higher graduation and attendance rates and report lower incidences of misconduct and violence. Based on

previous research, small- and medium-sized schools appear to be particularly beneficial to disadvantaged students.

The results differed for the statistical analysis of the effect of school size for Kentucky students. In examining students' scores on the CATS assessments, staff found that generally the scores of students enrolled at larger schools were typically as high or higher than the scores of students enrolled at smaller schools. Scores for middle and high school students were generally higher for those enrolled at larger schools. Scores for elementary school students attending relatively large schools were generally as high or higher than for those attending smaller schools. There was some evidence to suggest that performance was higher at smaller schools than at schools that were somewhat larger.

While the results suggest that performance is typically higher at larger schools, the reason for this is not entirely clear. The differences in performance may be the result of advantages larger schools can provide such as a wider range of classes. Teachers and administrators of larger schools may also have found ways to address the negative aspects of attending a larger school, such as creating the smaller learning communities. The differences in performance might also reflect the choices of students and their parents. High-performing students may seek out large schools in order to take advantage of the wider ranges of classes. Schools with high scores could also attract more students, so that performance affects size. Ultimately, the performance differences across different school sizes may reflect these types of choices and other factors that are not necessarily related to how well students learn at a school of a particular size.

School Size and Student Outcomes in Kentucky's Public Schools

An Overview of School Size and This Report

The average Kentucky school has 525 students, but enrollment per school ranges from fewer than 100 to more than 2,000 students.

In the 2005 school year, there were nearly 646,000 students in more than 1,200 public schools of regular instruction in Kentucky. The average school had 525 students, but enrollment per school ranged from fewer than 100 students to more than 2,000 (Commonwealth. Department. "Enrollment").

Earlier research favored large schools, more recent research favors small schools. More often that not, researchers have found smaller schools to have academic, social, attendance, and safety and discipline benefits.

Given the variation in enrollments and the importance of education, determining whether school size affects outcomes for students is important. Education researchers have long been concerned with this question, but their findings have changed over time.

> The earlier the research, the more likely that it favors large schools; the more recent the research, the more likely that it favors small schools (or calls into question the interpretations of earlier research) (Gregory. "High School" 2-3).

The question is why smaller schools would be better. Summarizing the research as of 2002, McAndrews and Anderson identified what were thought to be the key advantages of small schools:

- The academic benefits were that administrators of small schools could more easily change curricula and teaching as needed; there could be more interaction between teachers and students; and student academic accountability could be increased because it was easier for teachers to be aware of student performance.
- The social benefits were that students had a greater sense of belonging in small schools; faculty were more aware and involved in the school; and students could more easily be involved in school activities because there was less competition.
- The attendance benefit was that staff at smaller schools could more easily recognize students and encourage them to stay in school.
- The safety and discipline benefits were that parents would be more likely to be involved in smaller schools, and strangers to the school could be more easily identified (1).

In applying past research to Kentucky, it should be kept in mind that schools are not always smaller by choice, there is no consensus as to what constitutes a small or large school, and ongoing changes may be mitigating the impact of school size.

In discussing the effects of school size for Kentucky students, several cautions should be kept in mind. First, a distinction must be made as to whether a school is small by intent. "Much of the enthusiasm for small schools focuses on those small schools that *want* to be small, are staffed by innovative faculty and importantly, are often schools of choice" (Ready 1995). That is a different situation from the situation at a school that is small because it is in a school district in which the student population is declining.

Second, there is no consensus in the research on school size as to what constitutes a small, medium, or large school. Sizes of schools vary by jurisdiction. What are considered small or large schools in one state may not be so defined in others. Nationally, nearly half of high school students are in schools of at least 1,500 students (U.S. Department. "Smaller"). As of 2004, in Kentucky there were only 15 high schools with at least 1,500 students and their total enrollment was less than 15 percent of all the state's public high school students (calculated using the Common Core Data from the U.S. Department of Education's National Center for Education Statistics).

Third, it is possible that relatively recent changes may mitigate the effects of school size. The No Child Left Behind Act of 2001 emphasized the national focus on school accountability. For Kentucky, this was nothing new. Under the Commonwealth Accountability Testing System (CATS), schools are held accountable based on assessments of students. Assessment results are not the only way to monitor the progress of students. However, the availability of detailed CATS results for each student means that accountability in all types of schools may be easier to achieve than before. Also, all students at a particular grade level are given the same assessments and are to be taught the same core content. The core content may not constitute the whole curriculum, but schools will have less freedom to establish their own curricula than before. This may reduce any differences in schools based on size of enrollment.

One potential advantage of larger schools is that they can offer a wider range of classes and services. Innovations among some smaller schools indicate that there are ways around this possible limitation.

One potential advantage of larger schools is that they can offer a wider range of classes and services. Innovations among some smaller schools indicate that there are ways around this possible limitation. For example, a group of schools in North Dakota hired guidance counselors, an art teacher, and a Spanish language teacher who rotated among member schools (Nachtigal).

In Kentucky, the Eminence Independent district has a high school (grades 5 to 12) with approximately 500 students. The school offers and transports seniors and juniors to advanced placement classes at Jefferson Community College in Shelbyville (Baird).

Recent advances in technology should help small schools overcome potential limitations on programs. Schools are increasingly offering distance learning courses (Gregory. "Small"). Through the Kentucky Virtual High School, high school and middle school students can choose from among more than 50 courses that may be taken online (Commonwealth. Department. "Kentucky Virtual")

Some larger schools are trying to become more like smaller schools by creating smaller learning communities within the physical structure of the larger school. The freshman academy, in which 9th graders are kept together, is an example.

Some larger schools are trying to become more like smaller schools by creating smaller learning communities within the physical structure of the larger school. The freshman academy, in which 9th graders are kept together, is an example. Several high schools in Kentucky have received grants from the U.S. Department of Education to implement various forms of smaller learning communities (Southwest).[1] The awards run through the 2006 school year.

Approaches vary according to the degree of independence from the host school. One strategy involves creating schools within schools, which maintain their own programs and personnel but are operationally tied to the host school.

Henderson County High School, which has more than 2,000 students, is an example of a larger school using the school within a school concept. There are four units within the school, each with its own principal, secretary, and guidance counselors. One unit is a vocational school. Incoming students are assigned randomly to one of the three other units. For each student, most classes will be taken within the assigned unit for as long as he or she is at Henderson. More specialized classes are taken by students from across units (Spencer).

Despite the growing interest in small learning communities, the practice is recent enough that there is no more than anecdotal evidence as to their effectiveness. Researchers tend to agree, however, that the success of schools within schools and similar

[1] The high schools are Barren County; Holmes (Covington); Apollo (Daviess County); Daviess County; Bryan Station, Henry Clay, Lafayette, Paul L. Dunbar, and Tates Creek (Fayette County); Johnson Central; Knox Central; Lincoln County; and Ohio County.

arrangements depends on their ability to create cohesive and autonomous learning communities (Ready).

The statistical analysis done for this report suggests that students' scores on Commonwealth Accountability Testing System (CATS) assessments for middle and high school students are generally higher at larger schools. Scores for elementary students at larger schools are as high or higher than those at smaller schools. High schools with 300 or fewer students do have significantly lower dropout rates than do other schools.

The statistical analysis to be discussed later in this report indicates that, taking other factors into account, students' performances on CATS assessments do differ depending on the size of the school in which they are enrolled. In Kentucky, students do not necessarily perform better in smaller schools though. Scores for elementary students are generally as high or higher at the largest schools than at the smallest schools. For middle school students, their scores are higher at the larger schools. Students' scores at high schools with 300 or fewer students are higher than those of students in schools of 301 to 900 students. However, students in the largest high schools score as well or better on assessments than do students at the smallest schools. High schools with 300 or fewer students do have significantly lower dropout rates than do other schools.

Description of This Study

In 2005, the Program Review and Investigations Committee directed that staff address the question of how school size affects student achievement in Kentucky. This report does that primarily through a statistical analysis of the effect of size of school enrollment on CATS scores and attendance, dropout, and retention rates.

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Staff reviewed the research literature on the effect of school size. The primary purpose was to use the expertise of those who study school size as a guide for doing the statistical analysis of Kentucky schools. An overview of the literature is presented here as a guide to understanding the potential links between school size and student achievement.

The statistical analysis for the report covers the school years 2001 to 2005. Staff also analyzed data on school size to provide an overview of school size in Kentucky and to help identify any trends in enrollment. Because the data were collected from different sources, there will be inconsistencies in comparing some tables and figures to others. This does not affect the substance of the analysis, but issues with data and measurement will be noted as appropriate.

The most important data issue is that, with the exception of one section, this report covers students in what are defined in Kentucky as "A1" schools (Commonwealth. Department. "Requesting"). An

intuitive definition of an A1 school is that it is not an alternative, special education, or vocational school. The purpose for concentrating on traditional schools is that the main objective for this study is to determine any impact of school size on student achievement. Because traditional schools vary significantly in size, there is a meaningful question as to whether different-sized schools produce different results. Schools of the other types are relatively small. There may be different levels of success among these schools, but if school size does not vary significantly, then it cannot be a major factor in explaining the differences.

In doing the report, Program Review staff interviewed staff from the Kentucky Department of Education and local school districts. Data were compiled from the Kentucky Department of Education and the U.S. Department of Education's National Center for Education Statistics.

Appendix A contains detailed results of the statistical analyses. Appendix B shows the enrollment in each Kentucky public school of regular instruction as of the 2005 school year.

Public Schools in Kentucky

This section provides an overview of school size in Kentucky, over time and compared to neighboring states. The number of schools declined significantly during the 1950s and 1960s. Over the same period, the size of the average school increased significantly. The number of schools has since continued to decrease but at a much lower rate. The decrease in the number of schools partly reflects the fact that Kentucky's total enrollment in public schools of regular instruction has declined. Over recent decades, the average school size has increased, but not at the same pace as earlier.

Trend

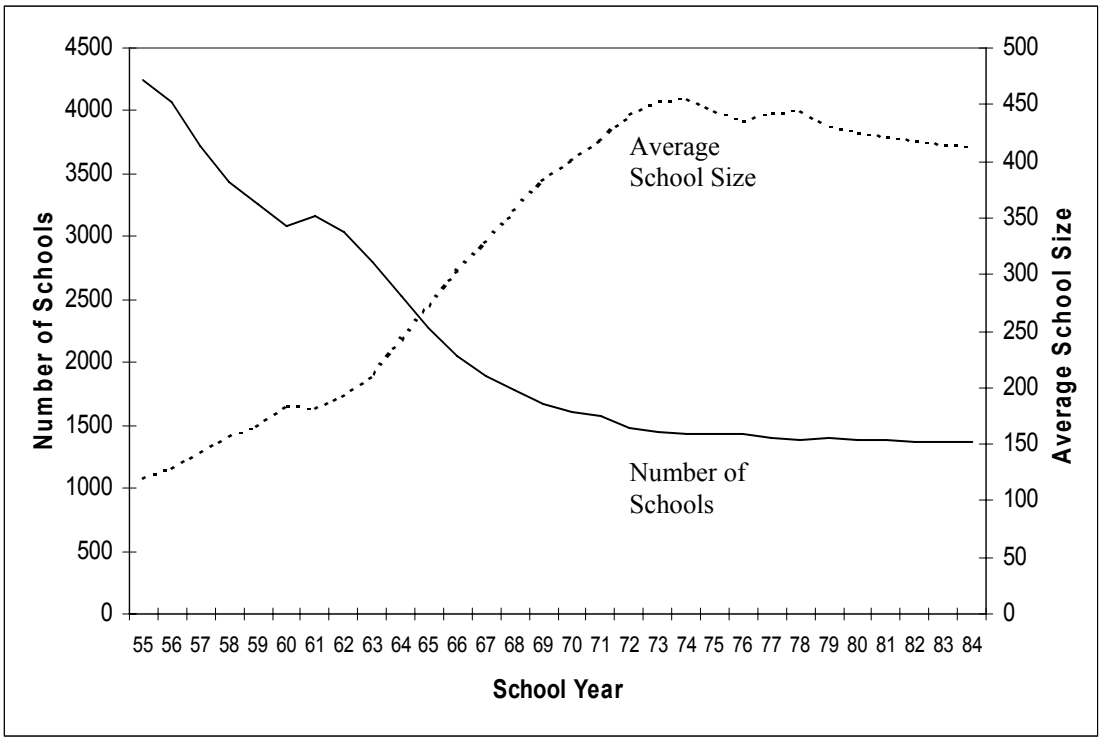
From the 1950s to the 1980s, the number of schools in Kentucky declined from more than 4,200 to fewer than 1,400. The size of the average school increased from 119 students to more than 400 students. Most of the decrease in the number of schools and increase in average size occurred in the 1950s and 1960s.

Figure A shows the trends in the number of public schools and average school size in Kentucky for 30 school years from the 1950s to the 1980s.[2] As shown on the left axis and the solid line, the number of schools in Kentucky declined by two-thirds over this

[2] The data for this time period cover all schools, not just the traditional schools discussed elsewhere in the report. If the analysis could have been limited to traditional schools, the number of schools would have been lower and the average size higher. Because the data are consistent over the time period, the basic trend is accurate.

period. In 1955, there were more than 4,200 schools.[3] In 1984, there were fewer than 1,400, a decrease of two-thirds. As shown on the right axis and dotted line, the average size of schools increased by more than 300 percent over this period. In 1955, the typical school had 119 students. In 1984, the average school had more than 400 students.

Figure A
Number of Public Schools and Average School Size in Kentucky, 1955 to 1984



Source: Commonwealth. "Biennial Report," various years; Commonwealth. Department. Bureau, various years.

The figure shows that most of the decrease in the number of schools and average size occurred in the 1950s and 1960s. Enrollment by school varied in the 1970s and 1980s, but the average school size was almost identical in 1971 and 1984. There were 212 fewer schools in 1984 than in 1971, but this change is much smaller than the previous decrease of more than 2,600 schools.

[3] School years will be referred to by the ending year. School year 1955 begins in 1954 and ends in 1955.

More precise data are available for more recent years, which allows for a focus on traditional schools by type. Table 1 indicates the change in the number of primary, middle, and high schools and students from 1987 to 2004.[4]

Table 1
Changes in Numbers of Schools and Students by Type of School, 1987 and 2004

	School Year			
Schools	**1987**	**2004**	**Change**	**% Change**
Primary	883	761	-122	-14%
Middle	185	231	46	25%
High	243	226	-17	-7%
Total	1,311	1,218	-93	-7%
Students				
Primary	351,900	302,697	-49,203	-14%
Middle	91,183	136,673	45,490	50%
High	193,624	180,775	-12,849	-7%
Total	636,707	620,145	-16,562	-3%

Source: Calculated by staff from Common Core of Data of the U.S. Department of Education's National Center for Education Statistics.

From 1987 to 2004, the number of students in Kentucky's public schools of regular instruction declined by 3 percent. The number of primary and high school students decreased, but the number of students in middle schools increased by 50 percent.

First, it should be noted that the number of students in traditional primary, middle, and high schools has declined. In 1987, there were more than 636,000 students. That number dropped by more than 16,000 fewer as of 2004, a 3 percent decease. Among school types, the number of students in primary and high schools declined. The number of students placed in middle schools increased by 50 percent.

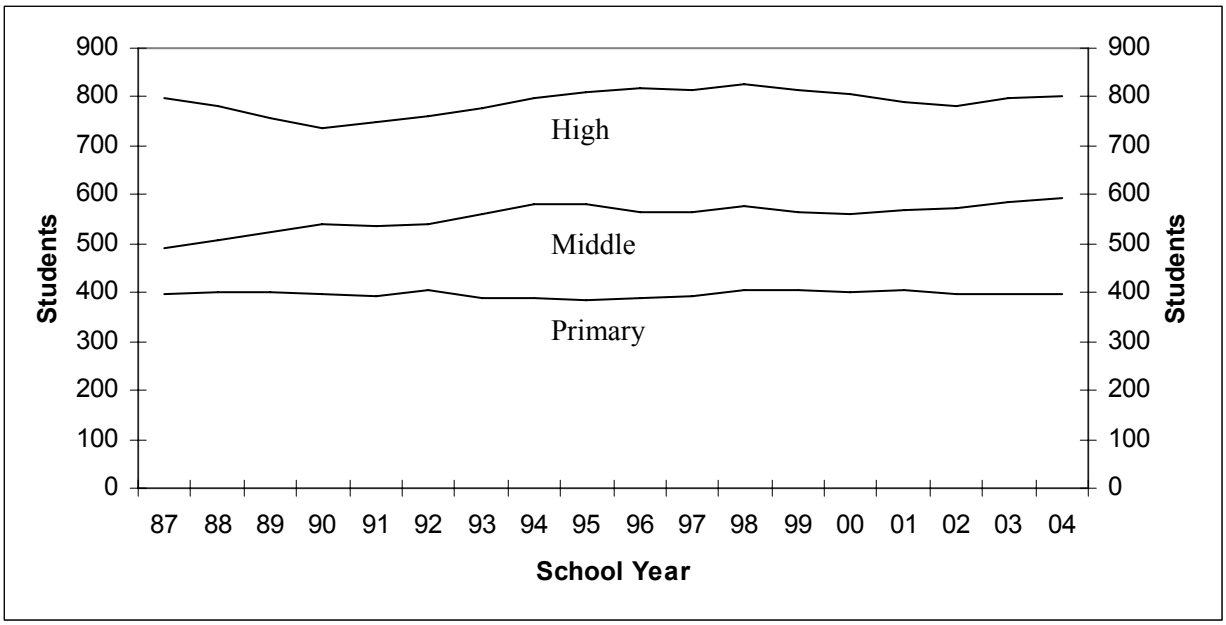
From 1987 to 2004, the total number of schools decreased by 7 percent. The number of primary and high schools went down; the number of middle schools went up.

Overall, there were 93 fewer schools in 2004 than in 1987, a decline of 7 percent. Among types, the number of primary and high schools decreased, but there was a 25 percent increase in the number of middle schools.

[4] Data on schools by type are from the Common Core of Data of the U.S. Department of Education's National Center for Education Statistics. The center classifies a primary school as one in which the lowest grade is grade 3 or lower and the highest grade is up to 8. A middle school is one in which the lowest grade is 4 to 7 and the highest grade is 4 to 9. A high school is one in which the lowest grade is 7 to 12 and the highest grade is 12. Schools that do not fit into these categories are classified as "other." Because there was no obvious way to classify these schools, they are not included in the tables showing students and schools by type. According to the U.S. Department of Education's data, in the 2004 school year there were nine schools with 4,222 students not included in the primary, middle, or high school categories in Kentucky.

Given that the number of middle school students increased twice as much as the number of middle schools, the average middle school enrollment must be increasing. Figure B indicates this.

Figure B
Average Sizes of Primary, Middle, and High Schools in Kentucky, 1987 to 2004



Source: Calculated by staff from the Common Core of Data of the U.S. Department of Education's National Center for Education Statistics.

From 1987 to 2004, the average primary school remained stable at approximately 400 students. The average high school remained stable at approximately 800 students. The typical middle school increased from 500 to 600 students.

Over the 1987 to 2004 period, the size of the average middle school increased from 500 to 600 students. The sizes of the typical primary and high schools have remained stable. The average primary school has approximately 400 students. The average high school has approximately 800 students.

Table 2 shows the change in the number of schools of different sizes from 1987 to 2004. The general patterns among primary and high schools were similar. For each type, there was a decline in the number of relatively smaller and larger schools and an increase in the medium-sized schools. Among primary schools, the number of schools with fewer than 300 students and 500 or more students decreased. The number of schools with 400 to 599 students went up.

From 1987 to 2004, there was a decline in the number of relatively smaller and larger primary and high schools. Among middle schools, the number of smaller schools declined too, but the number of moderate-sized and larger schools increased.

The number of high schools with fewer than 600 students decreased. High schools with 1,200 or more students also declined. The number of high schools with 600 to 899 students was up 16 percent. Schools with 900 to 1199 students also increased.

The pattern among middle schools was different. As with the other school types, there were fewer relatively small schools in 2004 than in 1987. The number of schools with fewer than 300 students declined by one-third. As for the other types, the number of schools in the medium categories increased. The difference is that the number of relatively large schools grew as well. The number of schools with 700 to 799 students was up by more than half. The number of schools with 800 or more students increased by almost 80 percent.

Table 2
Enrollments in Primary, Middle, and High Schools of Different Sizes, 1987 and 2004

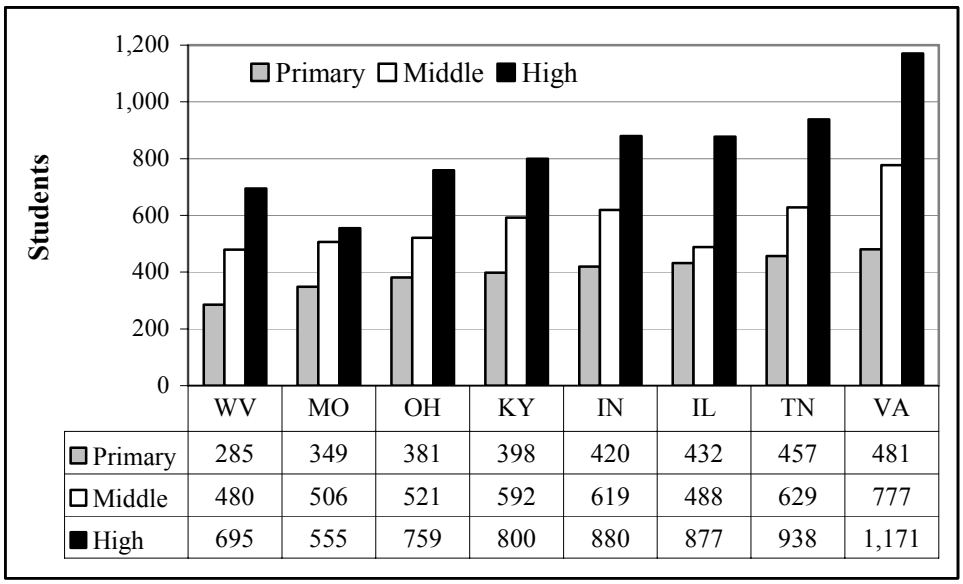
	School Year			
Enrollment	**1987**	**2004**	**Change**	**% Change**
Primary Schools				
199 or fewer	142	100	-42	-30%
200-299	194	141	-53	-27%
300-399	141	145	4	3%
400-499	136	161	25	18%
500-599	123	131	8	7%
600-799	116	71	-45	-39%
800 or more	31	12	-19	-61%
Middle Schools				
299 or fewer	45	30	-15	-33%
300-399	32	31	-1	-3%
400-499	27	29	2	7%
500-599	19	31	12	63%
600-699	18	36	18	100%
700-799	20	31	11	55%
800 or more	24	43	19	79%
High Schools				
299 or fewer	35	23	-12	-34%
300-599	62	55	-7	-11%
600-899	57	66	9	16%
900-1,199	43	46	3	7%
1,200-1,499	26	21	-5	-19%
1,500 or more	20	15	-5	-25%

Source: Calculated by staff from the Common Core of Data of the U.S. Department of Education's National Center for Education Statistics.

A Comparison to Neighboring States

Another way to put Kentucky's enrollment in perspective is to make comparisons to other states. Figure C shows the average enrollment in 2004 by type of school for Kentucky and seven neighboring states.

Figure C
Average Size by Type of School in Kentucky and Seven Neighboring States, 2004 School Year



	WV	MO	OH	KY	IN	IL	TN	VA
Primary	285	349	381	398	420	432	457	481
Middle	480	506	521	592	619	488	629	777
High	695	555	759	800	880	877	938	1,171

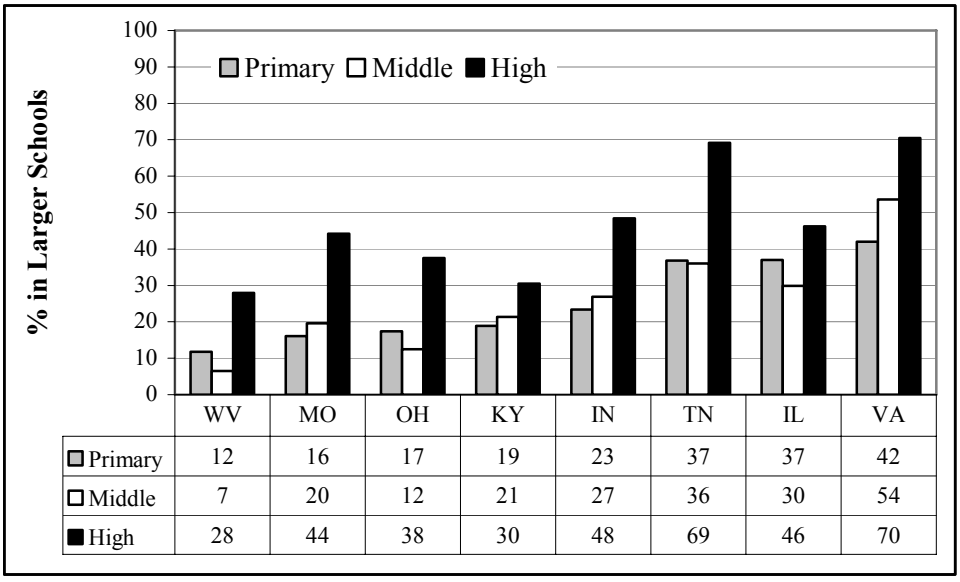
Source: Calculated by staff from the Common Core of Data of the U.S. Department of Education's National Center for Education Statistics.

Compared to its neighboring states, Kentucky ranks in the middle in terms of average primary, middle, and high school size and in the percentages of students in larger schools of each type.

As shown in the figure above, Kentucky ranks in the middle compared to the neighboring states; three states have relatively smaller schools, four states have relatively larger schools. For all three types of schools, West Virginia's and Missouri's are significantly smaller than Kentucky's. For all three types, Virginia's schools are significantly larger than Kentucky's. The average Virginia high school is nearly 50 percent larger than Kentucky's. (In 2004, there were only 45 high schools in Kentucky that were larger than the Virginia average.) The difference is not as extreme, but the average high school is also larger in Indiana, Illinois, and Tennessee than in Kentucky.

Another way to analyze schools is to look at the distribution of students among different sizes of schools. For Kentucky and the neighboring states, staff calculated the percentage of students in relatively large schools. For each type of school, "larger" was defined as approximately 50 percent more students than the Kentucky average.[5] Figure D shows the results.

Figure D
Percentages of Students in Larger Schools by Type of School in Kentucky and Seven Neighboring States, 2004 School Year



	WV	MO	OH	KY	IN	TN	IL	VA
Primary	12	16	17	19	23	37	37	42
Middle	7	20	12	21	27	36	30	54
High	28	44	38	30	48	69	46	70

Larger schools are primary schools with at least 600 students, middle schools with at least 900 students, and high schools with at least 1,200 students.
Source: Calculated by staff from the Common Core of Data of the U.S. Department of Education's National Center for Education Statistics.

Kentucky ranks in the middle by this measure of school size as well. In the 2004 school year, 19 percent of Kentucky's primary school students were in schools with enrollments of at least 600. Twenty-one percent of middle school students were in schools with at least 900 students. Among high school students, 30 percent were in schools with at least 1,200 students.

For primary schools, Kentucky's percentage in relatively large schools is comparable to Missouri, Ohio, and Indiana. The percentages are significantly higher in Tennessee, Illinois, and Virginia. Among middle schools, only West Virginia and Ohio have significantly lower percentages of students in larger schools.

[5] For primary schools, the Kentucky average enrollment is approximately 400, so "larger" is defined as 600. For middle schools, the Kentucky average is 600, so "larger" is defined as 900. For high schools, the Kentucky average is 800, so "larger" is defined as 1,200.

In Kentucky and West Virginia, 30 percent or less of high school students are in schools of at least 1,200 students. The percentages in the other states range from 38 (Ohio) to 70 (Virginia).[6]

Previous Research on School Size

Findings

Most of the research focusing on academic achievement finds that larger schools have a negative impact on learning, particularly for disadvantaged students.

School Size and Academic Achievement. Most of the research focusing on academic achievement finds that larger schools have a negative impact on learning, particularly for disadvantaged students. Disagreement among researchers can be attributed in part to their different approaches. For example, school size appears as a secondary control variable in some studies; others treat size as the central feature of interest. Some researchers view size as an independent factor influencing student outcomes; others theorize about its interaction with other factors, such as students' socioeconomic characteristics and race. Research designs also vary according to the level of analysis. Some studies use student-level data, others focus on schools or districts, still others combine the different levels. Finally, studies differ according to statistical models used and variables used to measure educational quality and different family, student, school, and district characteristics.

Research concerned with the issue of school size typically takes one of two approaches. One set of studies evaluates the effects of school size as one of several other school characteristics of interest. One example is a study that found that size has a negative impact on student achievement in central city and elementary schools. Another found that increased school size had a slight adverse effect on all students, but was particularly harmful for African American students.

Research concerned with the issue of school size typically takes one of two approaches. One set of studies evaluates the effects of school size together with other school characteristics. Because school size is not the primary interest, the models tend to be too general to address complexities that may influence the size-achievement relationship. Such works tend to find a weak negative relationship, if any, between school size and achievement. Representative studies include Harnisch, Fowler and Walberg, Caldas, and Summers and Wolfe.

Among these studies, Caldas and Summers and Wolfe are considered key. Caldas attempted to determine which family, student, and school characteristics affected learning in Louisiana's public schools. School size and achievement appeared unrelated in a general model, even after accounting for demographic and

[6] The percentage of students in relatively small schools is another way to look at the distribution. Typically, the results were approximately the reverse of those shown here. A state with a relatively high percentage of students in large schools would have a low percentage in small schools. Ohio is the exception. Most Ohio middle school students are not in large or small schools, but in schools close to the average size.

socioeconomic characteristics. However, when schools were differentiated by grade-span configuration and community type, Caldas found that size had a negative impact on student achievement in central city and elementary schools. The average elementary school size in the sample was 565 students; the average central city school was 675 students. Still, the combined effect of size and other school characteristics is small (6.5 percent of explained variance) compared to the effect of student background characteristics (68 percent of explained variance).

Summers and Wolfe also explored the effect of various school characteristics on student outcomes. The authors hypothesized that the influence of school characteristics on student achievement hinged on students' social backgrounds. Specifically, the authors tested whether race and income interacted with school variables to produce a stronger positive or negative effect on learning. Achievement gains of Philadelphia elementary school students, as they progressed from grades 3 to 6, served as the dependent variable. They found that increased school size had a slight adverse effect on all students but was particularly harmful for African American students. The interaction between race and school size has been corroborated by Eberts, Kehoe, and Stone; and Lee and Smith.

The second approach to studying school size consists of work that specifically focuses on how school size affects student outcomes. One such study found that learning deteriorated significantly in schools enrolling more than 800 students.

The second approach to studying school size, which is more likely to be of practical significance, consists of work that specifically focuses on how school size affects student outcomes. These studies are more in agreement in their findings that larger size affects achievement negatively. Eberts, Kehoe, and Stone; Friedkin and Necochea; and Bickel and Howley found that poor and marginal students fared considerably worse in large schools. Lee and Smith, in contrast, observed that even the students from lower socioeconomic strata learned less in very small high schools (defined as schools enrolling less than 300 students), cautioning against an indiscriminate movement toward very small schools.

Eberts, Kehoe, and Stone developed a framework to describe linkages between school size, administrative leadership, and the availability of human resources as they related to student achievement. Gains in math achievement for a national sample of elementary students served as the dependent variable. The authors found that while learning declined somewhat moving from small (200 students) to medium (400 to 600 students) schools, it deteriorated significantly in schools enrolling more than 800 students. The authors also found that the effect of school size

differed by students' race. The larger the school, the worse the performance of African American students (20).

Friedkin and Necochea found that smaller schools resulted in better performance in schools and districts serving predominantly impoverished students. More well-off students performed somewhat better in large schools.

Friedkin and Necochea theorized about the intermediary role of socioeconomic status in the relationship between school size and outcomes. They tested the theory on primary and secondary schools and school districts in California using student achievement on a battery of state-mandated achievement tests as the dependent variable. The results were that smaller schools resulted in better performance in schools and districts serving predominantly impoverished students. More well-off students performed somewhat better in large schools. The positive effect of small schools was substantial in low socioeconomic systems. The positive effect of large schools was not as large in more affluent communities.

Bickel and Howley replicated Friedkin and Necochea's approach in Arizona, California, Georgia, Ohio, Montana, Texas, and West Virginia. For the most part, they confirmed that the influence of a school system's size varied according to the community's socioeconomic level. The most consistent pattern emerging from this multi-state investigation was that the relationship between community socioeconomic status and student achievement weakened in small settings. The "equity effect" was particularly evident in small schools within small districts, whereas achievement appeared least equitable in larger schools within larger districts.

Lee and Smith found that moderately sized schools (600 to 900 students) are optimal for all students, regardless of their socioeconomic statuses and races.

Lee and Smith's study is unique in that the authors attempted to estimate an optimal high school size for students of different socioeconomic statuses and races. They used national panel data on high schools and examined how size, defined in terms of eight school size categories, affected the change in student achievement as they progressed from grades 8 through 12.

The authors found that an optimal schools size exists and that it does not vary by socioeconomic status or race. Lee and Smith observed that the highest math scores were found in schools that enrolled between 600 and 900 students, regardless of students' background characteristics. The study revealed that size was a more important learning determinant in schools enrolling greater numbers of disadvantaged students. According to their model, student achievement also suffered when enrollments were too low. Poorer students scored considerably worse in large schools enrolling more than 1,200 students and in schools with fewer than 300 students.

Lee and Smith's study has been criticized. Andrews, Duncombe, and Yinger suggested that the model was flawed because it failed to include school-level resources, such as student-teacher ratio or teacher quality (261).

Research investigating the effects of school size favors smaller schools for positive nonacademic outcomes such as increased student participation, higher attendance rates, less student misconduct, and greater parental interest and involvement.

School Size and Nonacademic Outcomes. Research investigating the effects of school size on educational outcomes other than achievement is consistent. Controlling for various school-level and environmental factors, evidence favors small size on measures of nonacademic outcomes. As with achievement, poor and marginal students appear to reap the greatest benefits from reduced school size (Cotton).

Research links greater student extracurricular participation to smaller schools (Cotton). Barker and Gump explained the phenomenon by positing that although large schools typically offer greater diversity of activities compared to small schools, the competition for the same opportunities is greater in larger institutions. Hence, students in large institutions are less likely to participate in school functions such as the football team, senior play, and yearbook. Small schools, by contrast, have a greater number of open positions per student that need to be filled and subsequently greater participation levels. Opportunity for participation is related to other educational outcomes.

The conditions in smaller schools appear particularly conducive to positive student attitudes and morale, mainly due to opportunities for active participation (Lindsay). By going from the passive role of a spectator to the active role of a participant, students develop a greater commitment to and personal identity within the school (Pittman). This leads to students' greater sense of cohesion and concern for others (Lindsay).

Lindsay found that small schools foster higher attendance rates. Likewise, Kuziemko observed that size has a strong negative influence on attendance of elementary students in Indiana. Moreover, when students move from large to small secondary schools, their attendance appears to improve (Cotton). As with extracurricular participation, attendance has been positively linked to other desirable outcomes, including achievement and graduation rates, and negatively to dropout rates and disciplinary problems (Slate).

Fetler linked higher dropout rates to lower achievement. Pittman and Haughwout demonstrated that school size influences dropout rates indirectly, through social climate, which grows less favorable

with size. They calculated that increasing high school enrollment by 400 students leads to a 1 percent rise in dropout rates (343).

Numerous studies report higher incidences of student misconduct in large high schools (Cotton). Haller observed that truancy and disorder increase with school size and that increased truancy resulted in lower achievement. Harnisch demonstrated that the reverse was also true. Schools with fewer disciplinary problems showed greater gains in achievement.

Evidence suggests that parental interest and involvement in the schooling process enhances educational outcomes (Slate). Such involvement tends to be higher in smaller schools (Walberg).

Small schools appear either comparable or superior to their larger counterparts on various college preparedness measures, including entrance exams, acceptance rates, grade point averages, and completion.

The instructional advantages of large schools have been thought to positively influence college readiness in the past. Just as with high school achievement, however, evidence does not support this assumption. Small schools appear either comparable or superior to their larger counterparts on various college preparedness measures, including entrance exams, acceptance rates, grade point averages, and completion (Cotton).

Use of Previous Research as a Guide

The more practical purpose for reviewing research on the effects of school size was to provide guidance for studying school size in Kentucky.

The more practical purpose for reviewing research on the effects of school size was to provide guidance for studying school size in Kentucky. In one sense, the guidance provided was helpful. The statistical analysis of the effect of school size on student achievement for this report builds on the work of other researchers.

When studying any one factor affecting student achievement, it is critical to control for other factors as well. For example, if students in smaller schools are more likely to come from more affluent backgrounds, then looking at school size alone would be incorrect. A finding that smaller schools lead to better test scores could have little or nothing to do with school size but to the fact that more affluent students typically do better. Previous research on school size was used to help determine the other factors that must be controlled to isolate the effects of school size in Kentucky.

The research on school size was not helpful in clarifying how to meaningfully categorize schools based on their enrollments. There is no consensus among researchers as to what constitutes small, medium-sized, and large schools.

The research on school size was less useful in clarifying how to meaningfully categorize schools based on their enrollments. There is no consensus among researchers as to what constitutes small, medium-sized, and large schools. What one researcher terms large another researcher may interpret as small. In her review of 27 primary research documents, Cotton encountered a significant

spread, as well as overlap, between numerical definitions of small and large. The range for small schools was 200 to 1,000 students. The range for large schools was 300 to 5,000 students. Partly, this reflects that the studies covered all kinds of schools, and it is generally accepted that high schools can be larger than elementary schools. But there appears to be no consensus on classifications of size within types of schools either.

Differences in the Performance of Students on CATS Assessments in Schools of Different Sizes

Kentucky schools were assigned to one of seven categories based on size.

To evaluate whether differences in sizes of school enrollments affect students' academic performance in Kentucky, staff analyzed school-level and student-level CATS scores from school years 2001 through 2005. Schools were grouped into seven categories based on size following the analysis conducted by Lee and Smith. The categories and the number of schools in each category for 2005 are shown in Table 3.[7] The number of schools did change somewhat over the years considered, as some schools closed and new schools opened. The number of schools will also not necessarily match the total number of schools in Kentucky, as some were excluded from the analysis due to missing information.

Table 3
School Size Categories, 2005

Size of School (Number of Students)	Number of Schools
300 or fewer	224
301 to 600	572
601 to 900	239
901 to 1,200	71
1,201 to 1,500	30
1,501 to 1,800	14
More than 1,800	8

Source: Staff analysis of data provided by the Kentucky Department of Education.

[7] Because the largest elementary and middle schools are smaller than the largest high schools, there are fewer size categories for elementary and middle schools. There are four categories of elementary schools; the top category is 901 to 1,200 students. There are five categories of middle schools; the top category is 1,201 to 1,500 students.

Student-level Performance

Students' scores on the CATS assessments were compared across different-sized schools.

Under CATS, two different types of tests are administered. There is a nationally norm-referenced test (NRT), which is designed to allow for comparisons of achievement among students. The NRT assesses students in reading, math, and language arts. The Kentucky Core Content Test (KCCT) is a criterion-referenced test designed to evaluate students against a standard of performance. KCCT is used to assess students in reading, math, science, social studies, arts and humanities, practical living and vocational studies, and writing (Commonwealth. Legislative).

For the student-level analysis, individual scores on the norm-referenced test and each core content area of KCCT except writing were compared to see if students' scores were higher for certain-sized schools. Students being tested in an area of KCCT may receive different forms of the test. Each form is developed from a set of questions covering the core content. Together the forms are intended to cover the material in the entire core content, but each form covers only a portion. As a result, some forms may be more difficult than others. The raw scores are adjusted to account for the difficulty of each form. These scale scores, which range from 325 to 800, are used to calculate schools' accountability indices (Commonwealth. Department. "Kentucky Core"). The student-level analysis that follows compares the individual students' scaled scores. The following section briefly explains how the comparisons were made and the results that the comparisons provided. Appendix A explains the analysis in greater detail and shows the detailed results.

The performance levels of several racial groups across school size were also compared.

While schools of different sizes might provide different types of advantages or disadvantages to students, these advantages or disadvantages may not be the same for all students. In a 1996 study, Lee and Smith concluded that the effect of school size on performance varied across racial groups. To determine whether school size affects various racial/ethnic groups differently, the performance levels of groups were compared across schools of different sizes.

Factors that could affect students' scores, such as parent, student, and teacher characteristics, were accounted for in the analysis.

In addition to evaluating scores across various sized schools and racial/ethnic groups, the analysis accounted for other factors that could affect students' scores. These include the characteristics of students, teachers, and parents. The student characteristics consisted of whether the student participated in the Title I Migrant Program, the Extended School Services Program, or the Title I Basic Program; whether the student had an Individual Education

Program (IEP); whether the student had an educational disability; and whether the student received free or reduced lunch. Participation in these types of programs suggests or indicates that the student faces a barrier to learning. The programs were designed to identify the barrier and provide additional assistance to these students. According to the Kentucky Department of Education, the Title I Migrant program provides supplementary services to children who move frequently (Commonwealth. Department. "Title I, Part C"). The Extended School Service program is "designed to assist individual students who are having difficulty in one or more content areas" (Commonwealth. Department. "Extended"). The Title I Basic Program provides academic assistance to students who are at risk of failing (Commonwealth. Department. "Title I, Part A"). Schools develop IEPs for some students with disabilities. An IEP "describes services, objectives/benchmarks, modifications, and accommodations that will be provided" to the student (Commonwealth. Department. "What").

In a 1991 study, Fowler and Walberg found that the number of students per teacher and the education of the teachers affect student scores. Teachers with more training or with training in the relevant subjects might teach more effectively. To account for these factors, the analysis included the ratio of students to teachers, the percentage of teachers with master's degrees, the percentage of teachers certified in the subjects they teach, and the percentage of teachers with a major or minor in the subjects they teach at each school.

Past research has also concluded that parental influence is a significant contributor to a student's performance. For example, Schreiber found that parents' education was an indicator of a student's performance on math tests. No data are available indicating the level of parental involvement for each student. Schools do, however, report the number of hours that individuals volunteer at the school. While these data do not indicate whether an individual student's parents are involved, it does provide a measure of parental involvement for the school as a whole. Parents' income and education may also affect scores. Again, data on the income and education of the actual parents were unavailable. To account for the parents' characteristics, data from the 2000 Decennial Census were used. These data measure the general income and education of the population residing in the school district. Because this does not represent the actual income and education level of the parents, it will not completely account for parents' characteristics.

Results of the Student-level Analysis

The results show how students attending different-sized schools scored relative to students attending schools with 300 or fewer students.

The results of the student-level analysis are shown in Tables 4 through 8. Each table shows how specific groups of students enrolled in schools of various sizes performed relative to similar students who were enrolled in a school with 300 or fewer students. For example, Table 4 shows that 3rd-grade students who were enrolled in schools with 901 to 1,200 students scored approximately seven points higher on the NRT than 3rd-grade students who were enrolled in schools with 300 or fewer students. Therefore, in this analysis, the performance of students at schools with 300 or fewer students is the benchmark that other schools are compared against. Differences in performance are shown for the NRT and for the various assessments provided under KCCT.

Differences that were not statistically significant are shown as zeros. Negative values indicate the students scored lower than those in schools with 300 or fewer students. Positive values indicate the students scored higher.

Even among students with the same mastery of the core content, some difference are likely to occur. These differences may be due to chance occurrences, such as illness, that cause scores to differ. Therefore, differences between school size categories were evaluated to determine whether they were statistically significant.[8] Finding that a difference is not statistically significant suggests that the difference is likely due to chance. Differences that were not statistically significant are shown as zeros in the tables. Negative values indicate that the scores for students enrolled at schools of a particular size were lower than those of students in schools with 300 or fewer students. Positive values indicate that scores at the schools of a particular size were higher than those at schools with 300 or fewer students.

For all elementary students regardless of race, scores were highest at the smallest and largest schools. On the norm-referenced test and the practical living and vocational skills assessments, scores were highest at the largest schools.

Table 4 shows the results for all students. The results varied somewhat across the level of schools and the assessments. The scores of elementary students who were enrolled in the largest schools, 901 to 1,200 students, were generally similar to or higher than the scores of those in smaller schools. Students' scores on the NRT and the practical living and vocational skills component were higher in the largest schools. Students' scores in arts and humanities and math did not appear to vary across schools of different sizes. Students' scores for reading and science were somewhat lower in moderately sized schools, but were similar in the smallest and largest group of schools. The scores in social studies were highest for students in schools with 601 to 900 students.

[8] Statistical significance was evaluated at the 95 percent confidence level.

Table 4
Performance of All Students by Size of School
(Relative to the Average Performance of Students in a School of 300 or Fewer Students)

School Size / Grade	NRT	Reading	Science	Arts & Humanities	Math	Practical Living & Vocational Skills	Social Studies
				Elementary			
	3rd	**4th**	**4th**	**5th**	**5th**	**5th**	**5th**
301 to 600	1.01	0.00	-0.97	0.00	0.00	0.00	0.00
601 to 900	0.00	-1.16	-1.26	0.00	0.00	0.00	1.39
901 to 1,200	7.28	0.00	0.00	0.00	0.00	9.16	0.00
				Middle			
	6th	**7th**	**7th**	**8th**	**8th**	**8th**	**8th**
301 to 600	0.00	0.00	0.00	0.00	0.00	0.00	0.00
601 to 900	0.00	0.00	2.51	0.00	0.00	0.00	0.00
901 to 1,200	0.00	2.23	5.75	11.03	3.84	4.06	6.18
1,201 to 1,500	0.00	3.26	5.97	14.98	5.47	5.72	8.94
				High			
	9th	**10th**	**11th**	**11th**	**11th**	**10th**	**11th**
301 to 600	-2.84	-9.84	-4.61	-12.87	-3.98	-6.57	-9.40
601 to 900	-2.92	-7.38	-5.08	-10.81	-4.73	-5.12	-9.08
901 to 1,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,201 to 1,500	0.00	5.86	0.00	0.00	0.00	0.00	5.87
1,501 to 1,800	0.00	8.15	0.00	0.00	0.00	0.00	5.85
1,801 and larger	0.00	12.48	0.00	0.00	5.65	4.96	11.10

Note: Performance levels that were not statistically different from the average performance of similar students in a school of 300 or fewer students are shown as zero. Statistical significance was evaluated at the 95 percent level.
Source: Staff analysis of CATS Student Data Files provided by the Kentucky Department of Education.

For all middle school students, scores were typically higher at the largest middle schools.

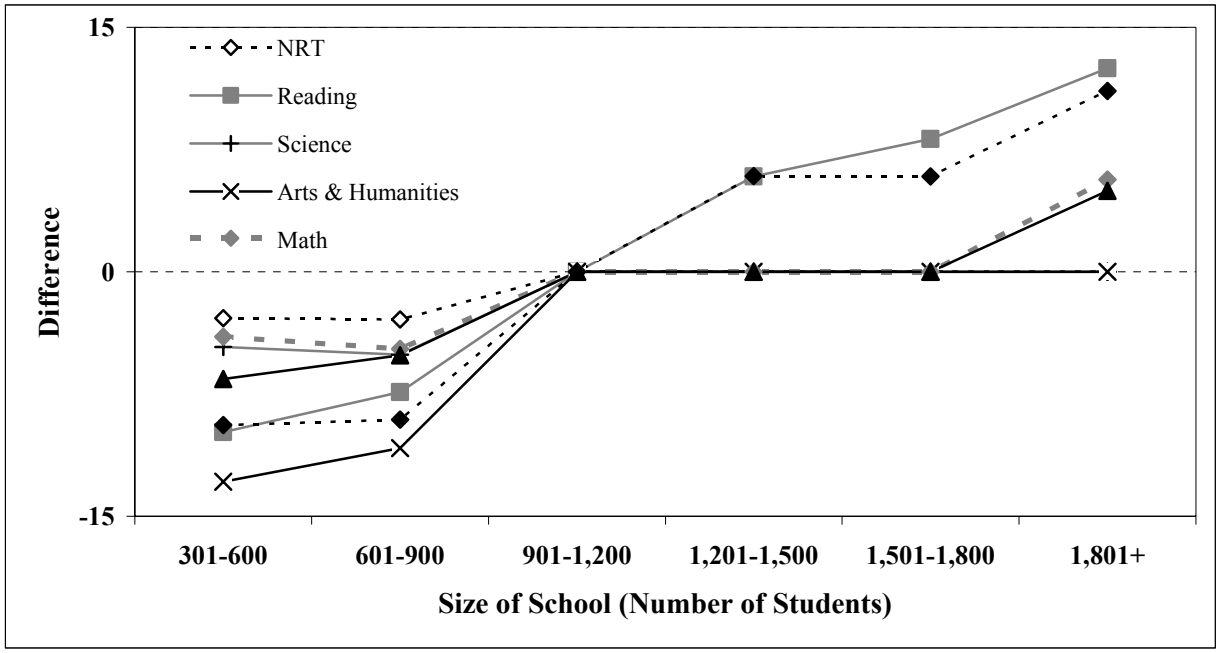
Among middle school students, the scores on the KCCT assessments were all higher for students at the largest schools, 1,201 to 1,500 students. The difference ranged from approximately 3 points on the reading assessment to 15 points on the arts and humanities assessment. Students' scores were also higher at schools with 901 to 1,200 students, but not quite as high as at the largest schools. Students' scores on the NRT did not appear to differ significantly across middle schools of different sizes.

The scores of high school students appeared to initially decrease as size increased, but this pattern did not continue. The largest schools had scores that were as high or higher than the smallest schools.

In high schools, students' scores initially decreased as school size increased but were higher in the largest schools. The scores of students in schools with 301 to 600 students and schools with 601 to 900 students were lower than the scores of schools with 300 or fewer students. For example, students' scores were approximately 10 points lower on the reading assessment in schools with 301 to 600 students. These results held across all of the assessments

analyzed. The results for high schools may indicate that small schools and large schools are both able to provide some advantages to their students, but how these advantages are provided may differ. In a recent study, Kuziemko discussed how students might be more involved in smaller schools, but how larger schools can provide greater resources such as specialized classes or lab equipment. Schools with 301 to 1,200 students might not be able to provide the close attention that small schools might offer or the resources that large schools might offer. The results for high school students are shown graphically in Figure E, which more clearly shows the dip in scores for students in moderately sized schools.

Figure E
Performance of High School Students by Size of School (Relative to the Average Performance of High School Students in a School of 300 or Fewer Students)



Note: Performance levels that were not statistically different from the average performance of similar students in a school of 300 or fewer students are shown as zero. Statistical significance was evaluated at the 95 percent level.
Source: Staff analysis of CATS Student Data Files provided by the Kentucky Department of Education.

Table 4 showed how students in general perform across schools of different sizes, but school size might have different effects on academic performance depending on the type of student. In a 1996 study, Lee and Smith concluded that the effect of school size on changes in academic performance varied across students from different racial or economic groups. The following sections compare the scores of several groups of students across schools of different sizes.

African American elementary students enrolled at moderately sized schools generally scored lower than those at smaller and larger schools.

African American Students. The results for African American students are shown in Table 5. African American elementary students who were enrolled in the largest schools performed as well as those in smaller schools. On the KCCT assessments, the scores at the moderately sized schools were typically lower than those at the smaller and the larger schools.

In middle and high schools, the scores of African American students did not differ with the size of the school they attended.

While scores for all middle and high school students were consistently higher among the larger schools, this did not hold for the scores of African American students. There were no statistically significant differences among the scores of African American students attending different-sized middle schools or among the scores of African American students attending high schools of different sizes.

Table 5
Performance of African American Students by Size of School
(Relative to the Average Performance of African American Students in a School of 300 or Fewer Students)

	NRT	Reading	Science	Arts & Humanities	Math	Practical Living & Vocational Skills	Social Studies
	Elementary						
School Size / Grade	3rd	4th	4th	5th	5th	5th	5th
301 to 600	0.00	-3.60	-4.50	-6.20	-4.70	0.00	-3.35
601 to 900	0.00	-3.40	0.00	0.00	-5.10	0.00	0.00
901 to 1,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Middle						
	6th	7th	7th	8th	8th	8th	8th
301 to 600	0.00	0.00	0.00	0.00	0.00	0.00	0.00
601 to 900	0.00	0.00	0.00	0.00	0.00	0.00	0.00
901 to 1,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	High						
	9th	10th	11th	11th	11th	10th	11th
301 to 600	0.00	0.00	0.00	0.00	0.00	0.00	0.00
601 to 900	0.00	0.00	0.00	0.00	0.00	0.00	0.00
901 to 1,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,501 to 1,800	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,801 and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Performance levels that were not statistically different from the average performance of similar students in a school of 300 or fewer students are shown as zero. Statistical significance was evaluated at the 95 percent level.
Source: Staff analysis of CATS Student Data Files provided by the Kentucky Department of Education.

For instances where the scores of Hispanic elementary students differed across school size, scores were higher at the moderately sized schools. Scores of Hispanic middle school students only differed with school size on the math assessment. There were no differences in the scores of Hispanic high school students attending different-sized schools.

Hispanic Students. Table 6 displays the results for Hispanic students. On some assessments, the scores of Hispanic elementary students were typically higher for those attending schools with either 301 to 600 students or 601 to 900 students. The scores for students attending the smallest schools, those with 300 or fewer, were similar to those attending the larger schools.

Among Hispanic middle school students, the scores on the math assessment were highest for those attending moderately sized schools. There were no other statistically significant differences in the scores of Hispanic middle school students. There were also no differences in the scores of Hispanic high school students across any of the assessments.

Table 6
Performance of Hispanic Students by Size of School
(Relative to the Average Performance of Hispanic Students in a School of 300 or Fewer Students)

	NRT	Reading	Science	Arts & Humanities	Math	Practical Living & Vocational Skills	Social Studies
	Elementary						
School Size / Grade	3rd	4th	4th	5th	5th	5th	5th
301 to 600	0.00	0.00	0.00	0.00	0.00	12.00	0.00
601 to 900	8.00	0.00	0.00	12.50	0.00	0.00	0.00
901 to 1,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Middle						
	6th	7th	7th	8th	8th	8th	8th
301 to 600	0.00	0.00	0.00	0.00	0.00	0.00	0.00
601 to 900	0.00	0.00	0.00	0.00	14.04	0.00	0.00
901 to 1,200	0.00	0.00	0.00	0.00	14.70	0.00	0.00
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	High						
	9th	10th	11th	11th	11th	10th	11th
301 to 600	0.00	0.00	0.00	0.00	0.00	0.00	0.00
601 to 900	0.00	0.00	0.00	0.00	0.00	0.00	0.00
901 to 1,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,501 to 1,800	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,801 and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Performance levels that were not statistically different from the average performance of similar students in a school of 300 or fewer students are shown as zero. Statistical significance was evaluated at the 95 percent level.
Source: Staff analysis of CATS Student Data Files provided by the Kentucky Department of Education.

Asian students attending large elementary schools scored lower on some assessments than Asian students attending smaller schools.

Asian Students. Table 7 shows the performance of Asian students by school size. The results do suggest somewhat different patterns for Asian students than for all students. While scores of all elementary students were typically higher at larger schools, the scores of Asian elementary students were often lower for those attending larger schools. For example, social studies scores among Asian elementary students at schools with 901 to 1,200 students were approximately 50 points lower than those of Asian elementary students at schools with 300 or fewer students.

Asian students attending large middle schools performed worse on some assessments than those attending smaller schools.

The results for Asian middle school students were mixed. On some assessments the Asian students at larger schools performed as well as those attending smaller schools, while on other assessments they performed worse.

On most assessments, there were no differences in the scores of Asian high school students.

On most assessments, there were no differences in the scores of Asian high school students attending different-sized schools. Differences did exist, however, on the reading assessment and the practical living and vocational skills assessment. For reading, scores were lowest for Asian students in school with 901 to 1,200 students. For practical living and vocational skills, scores were typically lower at the moderately sized schools.

Table 7
Performance of Asian Students by Size of School
(Relative to the Average Performance of Asian Students in a School of 300 or Fewer Students)

	NRT	Reading	Science	Arts & Humanities	Math	Practical Living & Vocational Skills	Social Studies
	Elementary						
School Size / Grade	**3rd**	**4th**	**4th**	**5th**	**5th**	**5th**	**5th**
301 to 600	10.27	0.00	0.00	0.00	13.00	0.00	0.00
601 to 900	0.00	0.00	0.00	0.00	0.00	0.00	0.00
901 to 1,200	0.00	0.00	0.00	-55.00	0.00	-66.00	-49.84
	Middle						
	6th	**7th**	**7th**	**8th**	**8th**	**8th**	**8th**
301 to 600	-20.00	0.00	0.00	0.00	0.00	0.00	0.00
601 to 900	-19.00	0.00	0.00	0.00	0.00	-28.00	0.00
901 to 1,200	-21.00	0.00	0.00	0.00	0.00	-30.00	0.00
1,201 to 1,500	-29.00	0.00	-19.00	0.00	0.00	-47.00	-27.00
	High						
	9th	**10th**	**11th**	**11th**	**11th**	**10th**	**11th**
301 to 600	0.00	0.00	0.00	0.00	0.00	-39.00	0.00
601 to 900	0.00	0.00	0.00	0.00	0.00	0.00	0.00
901 to 1,200	0.00	-40.00	0.00	0.00	0.00	-43.00	0.00
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	-39.00	0.00
1,501 to 1,800	0.00	0.00	0.00	0.00	0.00	-41.00	0.00
1,801 and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Performance levels that were not statistically different from the average performance of similar students in a school of 300 or fewer students are shown as zero. Statistical significance was evaluated at the 95 percent level.
Source: Staff analysis of CATS Student Data Files provided by the Kentucky Department of Education.

Scores were also compared across school size categories for students participating in free or reduced lunch programs. The results for students participating in these programs exhibited the most variation.

Students Receiving Free or Reduced Lunch. Scores were also compared across school size categories for students participating in free or reduced lunch programs. Some students who qualify may choose not to participate in the free or reduced lunch programs, so those participating may not fully reflect those eligible.

Table 8 indicates that the results for students participating in these programs exhibited the most variation. On some assessments administered to elementary students, scores were lower among those enrolled in moderately sized schools. Scores on the arts and humanities assessment, however, were lowest among the elementary students attending large schools. There were few differences among the scores of middle school students. Among high school students, scores were typically lower for those in schools with 301 to 1,200 students.

Table 8
Performance of Students Receiving Free or Reduced Lunch by Size of School
(Relative to the Average Performance of Students Receiving Free or Reduced Lunch in a School of 300 or Fewer Students)

	NRT	Reading	Science	Arts & Humanities	Math	Practical Living & Vocational Skills	Social Studies
	Elementary						
School Size / Grade	**3rd**	**4th**	**4th**	**5th**	**5th**	**5th**	**5th**
301 to 600	0.00	-1.21	-1.53	0.00	0.00	0.00	0.00
601 to 900	0.00	-2.35	-3.09	0.00	0.00	-3.49	0.00
901 to 1,200	0.00	0.00	0.00	-19.13	0.00	0.00	0.00
	Middle						
	6th	**7th**	**7th**	**8th**	**8th**	**8th**	**8th**
301 to 600	0.00	0.00	0.00	0.00	0.00	0.00	0.00
601 to 900	0.00	0.00	0.00	0.00	0.00	0.00	0.00
901 to 1,200	0.00	0.00	0.00	6.37	0.00	0.00	4.67
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	0.00	5.92
	High						
	9th	**10th**	**11th**	**11th**	**11th**	**10th**	**11th**
301 to 600	0.00	-8.89	0.00	-10.91	-5.11	0.00	-10.44
601 to 900	0.00	-8.29	-4.07	-9.89	-5.06	0.00	-10.47
901 to 1,200	0.00	-5.44	0.00	0.00	-6.09	0.00	-8.35
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,501 to 1,800	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,801 and larger	0.00	7.90	0.00	0.00	0.00	0.00	0.00

Note: Performance levels that were not statistically different from the average performance of similar students in a school of 300 or fewer students are shown as zero. Statistical significance was evaluated at the 95 percent level.
Source: Staff analysis of CATS Student Data Files provided by the Kentucky Department of Education.

School-level Performance

School-level performance was also compared across different-sized schools. In this analysis, performance was measured by the overall performance of the students within the schools.

School-level performance was also compared across different-sized schools. This analysis was similar to the student-level analysis. The performance levels compared are individual student's scores aggregated for the school. Students are assigned to performance levels based on their scores on each assessment. A student with a score that falls within a particular range would be classified as performing at the proficient level. The percentage of students within each performance level is multiplied by a weight and totaled to determine the school's academic index. Table 9 shows how the academic index is calculated for 4th-grade reading.

Table 9
Sample Calculation of a School's Academic Index for 4th -grade Reading

Performance Level	Weight	Distribution of Student Scores	Calculation	Weighted Score (Weight x Percent)
Novice Non-performance	0	5%	0 x .05	0
Novice Medium	13	10%	13 x .10	1.3
Novice High	26	15%	26 x .15	3.9
Apprentice Low	40	20%	40 x .20	8.0
Apprentice Middle	60	25%	60 x .25	15.0
Apprentice High	80	15%	80 x .15	12.0
Proficient	100	8%	100 x .08	8.0
Distinguished	140	2%	140 x .02	2.8
Academic Index				51.0

Source: Commonwealth. Department. "2004 CATS Interpretive Guide" 23.

There were no statistically significant differences in the performance of elementary schools. The smallest and largest groups of middle and high schools generally scored higher than the moderately sized schools.

Table 10 shows how school-level performance varied across different-sized schools. As with the student-level results, the figures show the difference between schools of a particular size and schools with 300 or fewer students. None of the differences for elementary schools was statistically significant. For middle and high schools, scores were typically lower for the moderately sized schools. There were no statistically significant differences, however, between the smallest group of schools and the largest group of schools.

Table 10
School-level Performance by Size of School
(Relative to the Average of Schools With 300 or Fewer Students)

	Norm-referenced Test			Kentucky Core Content Test						
	Reading	Math	Language	Reading	Science	Arts & Humanities	Math	Practical Living & Vocational Skills	Social Studies	Writing
	Elementary									
School Size / Grade	**3rd**	**3rd**	**3rd**	**4th**	**4th**	**5th**	**5th**	**5th**	**5th**	**4th**
301 to 600	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
601 to 900	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
901 to 1,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Middle									
	6th	**6th**	**6th**	**7th**	**7th**	**8th**	**8th**	**8th**	**8th**	**7th**
301 to 600	0.00	0.00	0.00	0.00	0.00	0.00	-2.27	0.00	0.00	0.00
601 to 900	-2.03	0.00	0.00	0.00	0.00	0.00	-3.81	0.00	0.00	0.00
901 to 1,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	High									
	9th	**9th**	**9th**	**10th**	**11th**	**11th**	**11th**	**10th**	**11th**	**12th**
301 to 600	0.00	0.00	0.00	0.00	0.00	-4.00	0.00	0.00	0.00	0.00
601 to 900	-2.80	0.00	0.00	0.00	-2.79	-6.05	0.00	0.00	0.00	-3.57
901 to 1,200	-4.17	-3.79	0.00	-3.52	-3.60	-6.54	-4.37	-3.25	0.00	-5.28
1,201 to 1,500	0.00	0.00	0.00	0.00	0.00	-6.11	0.00	0.00	0.00	-4.36
1,501 to 1,800	0.00	0.00	0.00	0.00	0.00	-5.97	0.00	0.00	0.00	0.00
1,801 and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Performance levels that were not statistically different from the average performance of similar students in a school of 300 or fewer students are shown as zero. Statistical significance was evaluated at the 95 percent level.
Source: Staff analysis of CATS Student Data Files provided by the Kentucky Department of Education.

The school-level analysis did not show that larger schools performed better, which the student-level analysis did show. This difference likely occurs because relatively small differences in student scores have little, if any, effect on school-level scores.

The results of the school-level analysis often differed from the student-level analysis. For example, elementary student-level scores did vary across school size, but no evidence of this difference was found in the school-level analysis. The method used to aggregate student-level scores may be the reason for these discrepancies. As individual scores are aggregated, some of the smaller differences are lost. For example, two students might both be considered distinguished even if there are several points between their scores. When aggregated at the school level, it only matters that they scored at the distinguished level, not that one scored higher. Therefore, both of these students make the same contribution to their schools' scores and any difference between them is lost. Given the lost precision inherent in the school-level

scores, some of the differences observed at the student level would not be observed at the school level.

While high schools with more than 300 students had higher dropout and retention rates than did high schools with 300 or fewer students, there was no strong relationship between these performance measures and school size.

In addition to comparing academic scores, it is possible to compare other measures such as attendance rates, dropout rates, and retention rates across different-sized schools. Dropout rates represent the number of students who drop out of school. Retention rates represent the percentage of students who are held back to repeat a grade. Comparisons across elementary and middle schools yielded no statistically significant differences across school size for any of these measures. Differences for high schools are shown in Table 11. Attendance rates were lower in high schools with 601 to 900 students, otherwise there were no statistically significant differences. All of the groups of high schools with more than 300 students had higher dropout rates than did high schools with 300 or fewer students. Other than being higher than schools with 300 or fewer students, there did not appear to be a strong relationship between dropout rates and school size. Retention rates were higher in schools with 901 to 1,500 students, but as with the academic measures of performance, there was no difference between the smaller and larger schools.

Table 11
Differences in Attendance, Dropout, and Retention Rates of High Schools (Relative to the Average of High Schools With 300 or Fewer Students)

School Size	Attendance Rates	Dropout Rates	Retention Rates
301 to 600	0.00	1.19	0.00
601 to 900	-1.78	1.64	0.00
901 to 1,200	0.00	1.33	2.02
1,201 to 1,500	0.00	1.42	1.92
1,501 to 1,800	0.00	1.23	0.00
1,801 and larger	0.00	1.38	0.00

Note: Performance levels that were not statistically different from the average performance of similar students in a school of 300 or fewer students are shown as zero. Statistical significance was evaluated at the 95 percent level.
Source: Staff analysis of CATS Student Data Files provided by the Kentucky Department of Education.

Limitations of the Analysis

There are some limitations associated with the comparisons. For example, it was not possible to account for all factors that could influence student performance.

The results discussed above provide an indication of how different types of students perform in schools of various sizes. There are some limitations, however, that should be noted. First, while it was possible to account for some factors that could influence scores, such as participation in an extended school services program, it is not possible to account for all the factors that influence student and school scores. For example, school officials and teachers may have developed independent programs to address their unique situations. Data on these programs are limited and not consistently collected across all districts in the state.

Some of the differences in performance could be caused by students migrating to certain types of schools. For example, high-performing students may be attracted to large schools that offer a greater range of classes.

In addition, it is likely that some families locate in school districts with characteristics that are seen as desirable. Families that believe small schools are preferable may locate in districts with small schools. If this is more likely to occur among families with high-performing students, then the results might be affected by these choices. Similarly, high-performing students may be attracted to larger schools that are able to offer a broader range of opportunities. As a result, the differences in performance across different-sized schools may not reflect only the advantages or disadvantages associated with different sizes. Instead, the results would also reflect the choices made by different types of families. It is unclear how much of the differences should be attributable to school size and how much should be attributable to other factors.

Due to these limitations, the results should be interpreted as showing the performance levels of students who are enrolled in schools of various sizes with the recognition that other factors that might be unrelated to school size may also affect the results. The results do not necessarily indicate that the size of a school is the reason for different scores.

Conclusions

The analysis suggests that scores for middle and high school students were generally higher at larger schools. Scores for elementary students at large schools were as high or higher than those at smaller schools.

The results presented indicate that students' performance levels do differ across sizes of schools. These differences persisted even after accounting for various factors that could affect performance. The results comparing scores of all students suggest that students in the largest schools scored as well or higher than did students at smaller schools. The differences in scores varied across elementary, middle, and high schools and across assessments. Scores for elementary students were generally as high or higher at the largest schools. For some assessments, however, scores at the

smallest and the largest groups of elementary schools were statistically the same. For middle school students, scores were progressively higher at the larger schools. Students' scores at high schools with 300 or fewer students were higher than those with 301 to 600 and those with 601 to 900 students. This differed, however, for the largest high schools, in which students had scores as high or higher than students in the smallest schools.

The comparison for Kentucky schools suggests that performance was often higher among larger schools. Other researchers have concluded that performance was highest at smaller schools.

Much of the past research examining the relationship between enrollment and student performance concluded that performance is typically lower at larger schools. The original research examining Kentucky schools that was presented in this report suggests that this is not the case. One reason for this difference may be the amount of detailed data available in Kentucky. Often researchers must rely on samples of data or data that is limited in other ways. Kentucky collects many types of detailed data across all schools and for all students, which tends to improve the validity of the results.

The difference in findings may be caused by past researchers assuming the relationship between size performance was constant across all school sizes.

Another possible reason for the different findings is the manner in which differences in school size were evaluated. Past researchers typically assumed that the relationship between enrollment and performance was constant across all school sizes. This assumption was made by Summers and Wolfe, Fowler and Walberg, and Caldas. Given this assumption, the results would show a relationship that was the same across all schools. That is, if the analysis showed a negative relationship, the relationship would be negative across all sizes of schools. The relationship between size and performance, however, might not be constant across all school sizes.

The results for Kentucky suggests that the relationship is not constant.

The results from analyzing Kentucky schools suggest that the relationship is more complicated. When comparing small schools to somewhat larger schools, performance was lower among the somewhat larger schools, indicating a negative relationship between size and performance. When the largest schools were included, performance at these schools often exceeded performance at the smaller schools. Therefore, the relationship is negative over a range of enrollment but positive beyond that range.[9] Researchers who assumed the relationship was constant may have found a negative relationship overall because there are typically more schools with enrollment in the negative range than there are in the positive range.

[9] There may also be a range of very large schools where performance again declines. This was not observed among Kentucky schools.

There was some evidence to suggest that small schools might provide certain advantages over somewhat larger schools.

Proponents of small schools suggest that small schools offer students certain advantages that can result in a better education, such as more personalized attention or greater opportunities to be involved. There was some evidence suggesting that these types of advantages may exist. Students' scores at the smallest high schools were higher than those at somewhat larger schools. For all students, however, the largest schools frequently had higher scores than did the smallest schools. This suggests that the advantages provided at larger schools may be more effective at increasing scores on the state assessments.

The performance differences could be due to school size but could also be due to other factors that could not adequately be accounted for in the analysis.

There is an important caveat that should be noted regarding these results. While the results do indicate that Kentucky students attending larger schools tend to perform as well as or better on average than do students at smaller schools, the reasons for this are not entirely clear. These differences could be due to the advantages that the largest schools can provide such as specialized programs. There may be other factors, however, affecting scores that could not be adequately accounted for in the analysis. For example, if larger schools are able to provide a broader range of classes than can smaller schools, higher-performing students may try to enroll in these schools. In addition, schools with high scores may attract more students, so that high performance levels result in larger schools. The performance differences across school size may reflect these types of choices and other factors that are not necessarily related to how well students learn at a particular-sized school.

To the extent that larger schools provide advantages to students, these advantages may not apply to all students. That is, some students may learn better in larger schools while other learn better in smaller schools.

In addition, to the extent that larger schools do provide certain education advantages, these advantages may not apply equally to all students. For example, Asian students in large elementary schools scored lower than those in small elementary schools. Similar results were found on some assessments for Asian middle school students. Therefore, depending on their circumstances, some students may learn better in the environments provided at smaller schools, while others may perform better with the greater resources and more specialized classes that larger schools might provide.

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Appendix A

Enrollment by School Within Types (2005 School Year)

The type of school is based on the classification system of the National Center for Education Statistics. Primary schools are listed on pages 39 to 54, middle schools are listed on pages 54 to 59, and high schools are listed on pages 59 to 63. Schools not covered by these classifications are on page 64.

Within types, schools are listed in order of increasing enrollment. Within types, the fourth and fifth columns indicate the cumulative percentages for number of schools and student enrollment. As an example, for a primary school with an enrollment of 200 students the cumulative percentages are 11.7 percent and 4.3 percent. This means that 11.7 percent of primary schools in 2005 had enrollments of 200 or fewer students. Schools with enrollments of 200 students or fewer had 4.3 percent of the students in primary schools.

For Grades, "P" indicates preschool and/or kindergarten.

Schools in independent districts are in italics.

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Primary Schools (Lowest grade is grade 4 or lower and highest grade is grade 8 or lower)				
Battletown Elementary (Meade)	P-6	75	0.1%	0.0%
John T Arnett Elementary (Magoffin)	P-6	78	0.3%	0.0%
Big Creek Elementary (Leslie)	P-6	80	0.4%	0.1%
Cordia Elementary (Knott)	P-6	89	0.5%	0.1%
Rousseau Elementary (Breathitt)	P-6	92	0.7%	0.1%
Kingdom Come Settlement Elementary (Letcher)	P-8	98	0.8%	0.2%
Muldraugh Elementary (Meade)	P-6	99	0.9%	0.2%
Nevisdale Elementary (Whitley)	P-6	101	1.1%	0.2%
Grand Rivers Elementary (Livingston)	P-6	102	1.2%	0.3%
Laurel Elementary (Lewis)	P-6	103	1.3%	0.3%
Bethel Elementary (Bath)	P-4	108	1.5%	0.3%
Creekside Elementary-Upton Campus (Hardin)	P-5	108	1.6%	0.4%
The Academy at Lexington Elementary (Fayette)	P-5	113	1.7%	0.4%
Pierce Elementary (Green)	P-5	114	1.9%	0.4%
Prater Borders Elementary (Magoffin)	P-6	116	2.0%	0.5%
Cannel City Elementary (Morgan)	P-5	118	2.1%	0.5%
Eagle Elementary (McCreary)	P-5	120	2.3%	0.6%
Fourth District Elementary (Butler)	P-5	122	2.4%	0.6%
Millersburg Elementary (Bourbon)	P-5	125	2.5%	0.6%
West Point Elementary (West Point)	P-8	125	2.7%	0.7%
Sacramento Elementary (McLean)	P-5	128	2.8%	0.7%
Lost Creek Elementary (Perry)	P-8	129	2.9%	0.8%
Caney Creek Elementary (Knott)	P-8	133	3.1%	0.8%
Majestic Knox Creek Elementary (Pike)	P-6	135	3.2%	0.8%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Trapp Elementary (Clark)	P-5	137	3.3%	0.9%
East College Early Childhood Center (Mayfield)	P	138	3.5%	0.9%
Isonville Elementary (Elliott)	P-6	138	3.6%	1.0%
Wrigley Elementary (Morgan)	P-5	138	3.7%	1.0%
Salt Lick Elementary (Bath)	P-4	142	3.9%	1.1%
Beckham Combs Elementary (Knott)	P-8	143	4.0%	1.1%
Carter Elementary (Carter)	P-5	144	4.1%	1.2%
Nichols Elementary (Bullitt)	P-5	145	4.3%	1.2%
Pilot View Elementary (Clark)	P-5	145	4.4%	1.2%
Star Elementary (Carter)	P-5	145	4.5%	1.3%
Phelps Elementary (Casey)	P-6	147	4.7%	1.3%
Garrett Elementary (Casey)	P-6	148	4.8%	1.4%
Seven Hills Elementary (Owensboro)	P-4	149	4.9%	1.4%
Arlie Boggs Elementary (Letcher)	P-8	151	5.1%	1.5%
Southgate Elementary (Southgate)	P-8	153	5.2%	1.5%
Kings Mountain Elementary (Lincoln)	P-6	154	5.3%	1.6%
Woodstock Elementary (Pulaski)	P-5	155	5.5%	1.6%
A.J. Jolly Elementary (Campbell)	P-5	156	5.6%	1.7%
Knifley Elementary (Adair)	P-8	157	5.7%	1.7%
North Metcalfe Elementary (Metcalfe)	P-6	158	5.9%	1.8%
Oneida Elementary (Clay)	P-6	158	6.0%	1.8%
Summer Shade Elementary (Metcalfe)	P-6	158	6.1%	1.9%
Frakes School Center (Bell)	P-8	160	6.3%	1.9%
Smithtown Elementary (McCreary)	P-5	160	6.4%	2.0%
William H Natcher Elementary (Cloverport)	P-5	161	6.5%	2.0%
Hayes Lewis Elementary (Leslie)	P-6	162	6.7%	2.1%
Middle Fork Elementary (Magoffin)	P-6	163	6.8%	2.1%
Rogers Elementary (Wolfe)	P-5	163	6.9%	2.2%
Sparksville Elementary (Adair)	P-8	164	7.1%	2.2%
Artemus Elementary (Knox)	P-8	165	7.2%	2.3%
Big Creek Elementary (Perry)	P-8	167	7.3%	2.4%
Phillips Elementary (Casey)	P-6	168	7.5%	2.4%
Ben Johnson Elementary (Breckinridge)	P-5	169	7.6%	2.5%
McKinney Elementary (Lincoln)	P-6	169	7.7%	2.5%
South Irvine Elementary (Estill)	P-5	169	7.9%	2.6%
Poplar Creek Elementary (Whitley)	P-6	171	8.0%	2.6%
W B Muncy Elementary (Leslie)	P-6	174	8.1%	2.7%
Poage Elementary (Ashland)	P-6	179	8.3%	2.7%
Big Creek Elementary (Clay)	P-6	180	8.4%	2.8%
South Hancock Elementary (Hancock)	P-5	180	8.5%	2.9%
Boston Elementary (Nelson)	P-5	182	8.7%	2.9%
Ezel Elementary (Morgan)	P-5	182	8.8%	3.0%
Red River Valley Elementary (Wolfe)	P-5	182	8.9%	3.0%
Meade Memorial Elementary (Johnson)	P-6	183	9.1%	3.1%
Cuba Elementary (Graves)	P-6	185	9.2%	3.1%
Hatcher Elementary (Ashland)	P-6	185	9.3%	3.2%
East Valley Elementary (Morgan)	P-5	186	9.5%	3.3%
Horse Branch Elementary (Ohio)	P-6	186	9.6%	3.3%
Leatherwood Elementary (Perry)	P-8	187	9.7%	3.4%
Smithland Elementary (Livingston)	P-6	188	9.9%	3.4%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Hillsboro Elementary (Fleming)	P-6	189	10.0%	3.5%
Union Chapel Elementary (Russell)	P-6	190	10.1%	3.6%
Ledbetter Elementary (Livingston)	P-6	191	10.3%	3.6%
Summersville Elementary (Green)	P-5	193	10.4%	3.7%
Uniontown Elementary (Union)	P-5	193	10.5%	3.8%
Blackberry Elementary (Pike)	P-8	194	10.7%	3.8%
Fancy Farm Elementary (Graves)	P-6	195	10.8%	3.9%
Grant's Lick Elementary (Campbell)	P-5	196	10.9%	3.9%
Douglas Elementary (Casey)	P-6	197	11.1%	4.0%
Joe Harrison Carter Elementary (Monroe)	P-5	197	11.2%	4.1%
Custer Elementary (Breckinridge)	P-5	199	11.3%	4.1%
E P Ward Elementary (Fleming)	P-6	199	11.5%	4.2%
Kimper Elementary (Pike)	P-8	199	11.6%	4.3%
Slaughters Elementary (Webster)	P-8	200	11.7%	4.3%
Drakesboro Consolidated Elementary (Muhlenberg)	P-5	202	11.9%	4.4%
Jones Fork Elementary (Knott)	P-8	203	12.0%	4.5%
Magnolia Elementary (LaRue)	P-4	204	12.1%	4.5%
Millard Hensley Elementary (Magoffin)	P-6	204	12.3%	4.6%
Deming Elementary (Robertson)	P-6	206	12.4%	4.7%
North Middletown Elementary (Bourbon)	P-5	207	12.5%	4.7%
Burgin Elementary (Burgin)	P-5	208	12.6%	4.8%
Green Hills Elementary (Harlan)	P-8	209	12.8%	4.9%
North Livingston County Elementary (Livingston)	P-6	209	12.9%	4.9%
Shepherd Elementary (Adair)	P-8	210	13.0%	5.0%
Tilden Hogge Elementary (Rowan)	P-5	210	13.2%	5.1%
Charles Clark Elementary (Floyd)	P-5	212	13.3%	5.1%
Fifth District Elementary (Butler)	P-5	212	13.4%	5.2%
Buckhorn Elementary (Perry)	P-8	213	13.6%	5.3%
Buffalo Elementary (LaRue)	P-4	213	13.7%	5.3%
Boston Elementary (Whitley)	P-6	215	13.8%	5.4%
Lakeside Elementary (Elliott)	P-6	217	14.0%	5.5%
Salyer Elementary (Magoffin)	P-6	217	14.1%	5.5%
Jonathan Elementary (Marshall)	P-5	220	14.2%	5.6%
Stearns Elementary (McCreary)	P-5	221	14.4%	5.7%
Botts Elementary (Menifee)	P-5	222	14.5%	5.7%
Eminence Elementary (Eminence)	P-4	222	14.6%	5.8%
Highland Heights Elementary (Campbell)	P-5	222	14.8%	5.9%
Southern Elementary (Ohio)	P-6	222	14.9%	6.0%
Highland-Turner Elementary (Breathitt)	P-6	223	15.0%	6.0%
E B Terry Elementary (Glasgow)	P-5	224	15.2%	6.1%
Eastern Elementary (Henry)	P-5	224	15.3%	6.2%
Southside Elementary (Lee)	P-5	224	15.4%	6.2%
Cub Run Elementary (Hart)	P-8	228	15.6%	6.3%
Oakland Elementary (Warren)	P-6	230	15.7%	6.4%
Payneville Elementary (Meade)	P-6	230	15.8%	6.5%
Perryville Elementary (Boyle)	P-5	230	16.0%	6.5%
Johnson Elementary (Fayette)	P-5	231	16.1%	6.6%
Happy Valley Elementary (Glasgow)	P-5	232	16.2%	6.7%
Legrande Elementary (Hart)	P-8	233	16.4%	6.8%
Beckham Bates Elementary (Letcher)	P-8	234	16.5%	6.8%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Robinson Creek Elementary (Pike)	P-5	235	16.6%	6.9%
Cooper Whiteside Elementary (Paducah)	P-5	236	16.8%	7.0%
Goose Rock Elementary (Clay)	P-6	236	16.9%	7.1%
Howevalley Elementary (Hardin)	P-5	236	17.0%	7.1%
Lewisport Elementary (Hancock)	P-5	236	17.2%	7.2%
Utica Elementary (Daviess)	P-5	237	17.3%	7.3%
Arnett Elementary (Erlanger-Elsmere)	P-5	239	17.4%	7.4%
Ewing Elementary (Fleming)	P-6	240	17.6%	7.4%
Mildred Dean Elementary (Newport)	P-5	242	17.7%	7.5%
Gamaliel Elementary (Monroe)	P-5	243	17.8%	7.6%
Hacker Elementary (Clay)	P-6	243	18.0%	7.7%
Highland Elementary (Christian)	P-5	248	18.1%	7.8%
Waynesburg Elementary (Lincoln)	P-6	249	18.2%	7.8%
Anderson Co Early Childhood Elementary (Anderson)	P-0	250	18.4%	7.9%
Rightfork School Center (Bell)	P-8	250	18.5%	8.0%
Menifee County Elementary (Menifee)	P-5	251	18.6%	8.1%
Paces Creek Elementary (Clay)	P-6	251	18.8%	8.2%
Blaine Elementary (Lawrence)	P-8	252	18.9%	8.2%
Carr Elementary (Fulton)	P-6	253	19.0%	8.3%
Flat Lick Elementary (Knox)	P-8	253	19.2%	8.4%
Lacy Elementary (Christian)	P-5	254	19.3%	8.5%
Emmalena Elementary (Knott)	P-8	255	19.4%	8.6%
Calvary Elementary (Marion)	P-5	258	19.6%	8.7%
Ashland Elementary (Fayette)	P-5	260	19.7%	8.7%
Highland Elementary (Lincoln)	P-6	261	19.8%	8.8%
Upper Tygart Elementary (Carter)	P-5	262	20.0%	8.9%
Paint Lick Elementary (Garrard)	P-5	263	20.1%	9.0%
Robinson Elementary (Perry)	P-8	265	20.2%	9.1%
Beaver Creek Elementary (Knott)	P-8	267	20.4%	9.2%
Brown Elementary (Jefferson)	P-5	267	20.5%	9.2%
Chavies Elementary (Perry)	P-8	271	20.6%	9.3%
Horse Creek Elementary (Clay)	P-6	271	20.8%	9.4%
Russell Cave Elementary (Fayette)	P-5	272	20.9%	9.5%
Fleming Neon Elementary (Letcher)	P-8	273	21.0%	9.6%
Campton Elementary (Wolfe)	P-5	275	21.2%	9.7%
Flat Gap Elementary (Johnson)	P-6	275	21.3%	9.8%
Johnson Elementary (Laurel)	P-5	275	21.4%	9.9%
Willard Elementary (Perry)	P-8	275	21.6%	9.9%
Dawson Springs Elementary (Dawson Springs)	P-4	276	21.7%	10.0%
Walkertown Elementary (Hazard)	P-3	276	21.8%	10.1%
Jennie Rogers Elementary (Danville)	P-5	277	22.0%	10.2%
Sand Gap Elementary (Jackson)	P-5	277	22.1%	10.3%
Woodfill Elementary (Fort Thomas)	P-5	277	22.2%	10.4%
Hawesville Elementary (Hancock)	P-5	279	22.4%	10.5%
John W Miles Elementary (Erlanger-Elsmere)	P-5	279	22.5%	10.6%
Austin Tracy Elementary (Barren)	P-6	280	22.6%	10.7%
James A Duff Elementary (Floyd)	P-5	280	22.8%	10.7%
West Louisville Elementary (Daviess)	P-5	280	22.9%	10.8%
Hannah McClure Elementary (Clark)	P-5	282	23.0%	10.9%
Crofton Elementary (Christian)	P-5	283	23.2%	11.0%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Fallsburg Elementary (Lawrence)	P-8	283	23.3%	11.1%
Creekside Elementary-Sonora (Hardin)	P-5	284	23.4%	11.2%
Hogsett Elementary (Danville)	P-5	287	23.6%	11.3%
Howell Elementary (Erlanger-Elsmere)	P-5	287	23.7%	11.4%
Model Laboratory Elementary (Madison)	P-5	288	23.8%	11.5%
Cairo Elementary (Henderson)	P-5	289	24.0%	11.6%
Kelly Elementary (Boone)	P-5	290	24.1%	11.7%
Mayfield Elementary (Madison)	P-5	290	24.2%	11.8%
Toliver Elementary (Danville)	P-5	290	24.4%	11.9%
Farmington Elementary (Graves)	P-6	291	24.5%	11.9%
Harrison Elementary (Fayette)	P-5	292	24.6%	12.0%
Western Elementary (Ohio)	P-6	293	24.8%	12.1%
Arlington Elementary (Fayette)	P-5	294	24.9%	12.2%
Tollesboro Elementary (Lewis)	P-6	294	25.0%	12.3%
Viper Elementary (Perry)	P-8	294	25.2%	12.4%
Gilmore Lane Elementary (Jefferson)	P-5	295	25.3%	12.5%
Sandy Hook Elementary (Elliott)	P-6	296	25.4%	12.6%
Clearfield Elementary (Rowan)	P-5	297	25.6%	12.7%
Lone Jack School Center (Bell)	P-8	297	25.7%	12.8%
Dishman McGinnis Elementary (Bowling Green)	P-5	298	25.8%	12.9%
Fulton County Elementary (Fulton)	P-5	298	26.0%	13.0%
Hazelwood Elementary (Jefferson)	P-5	298	26.1%	13.1%
Thomas Edison Elementary (Covington)	P-5	298	26.2%	13.2%
Charles Russell Elementary (Ashland)	P-6	299	26.4%	13.3%
Eubank Elementary (Pulaski)	P-5	299	26.5%	13.4%
Middleburg Elementary (Casey)	P-6	299	26.6%	13.5%
Paris Elementary (Paris)	P-4	299	26.8%	13.6%
Wurtland Elementary (Greenup)	P-5	301	26.9%	13.7%
Campbell Elementary (Raceland)	P-3	302	27.0%	13.8%
Livermore Elementary (McLean)	P-5	302	27.2%	13.9%
Providence Elementary (Clark)	P-5	302	27.3%	13.9%
Northern Elementary (Scott)	P-5	303	27.4%	14.0%
Brooks Elementary (Bullitt)	P-5	304	27.6%	14.1%
Camp Ground Elementary (Laurel)	P-5	304	27.7%	14.2%
Cane Ridge Elementary (Bourbon)	P-5	304	27.8%	14.3%
Temple Hill Elementary (Barren)	P-6	304	28.0%	14.4%
Fordsville Elementary (Ohio)	P-6	305	28.1%	14.5%
Rosspoint Elementary (Harlan)	P-8	305	28.2%	14.6%
Greysbranch Elementary (Greenup)	P-5	306	28.4%	14.7%
Lowes Elementary (Graves)	P-6	306	28.5%	14.8%
Roundstone Elementary (Rockcastle)	P-5	306	28.6%	14.9%
Calhoun Elementary (McLean)	P-5	307	28.8%	15.0%
Sharpe Elementary (Marshall)	P-5	308	28.9%	15.1%
Dewitt Elementary (Knox)	P-8	309	29.0%	15.2%
Marie Roberts-Caney Elementary (Breathitt)	P-6	309	29.2%	15.3%
Argillite Elementary (Greenup)	P-5	310	29.3%	15.4%
Niagara Elementary (Henderson)	P-5	310	29.4%	15.5%
Irvington Elementary (Breckinridge)	P-5	312	29.6%	15.6%
Sutton Elementary (Owensboro)	P-4	313	29.7%	15.7%
Bevins Elementary (Pike)	P-8	314	29.8%	15.8%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Cravens Elementary (Owensboro)	P-4	315	30.0%	15.9%
Park City Elementary (Barren)	P-6	315	30.1%	16.0%
Cannonsburg Elementary (Boyd)	P-5	317	30.2%	16.1%
A J Lindeman Elementary (Erlanger-Elsmere)	P-5	318	30.4%	16.2%
Johnson Elementary (Fort Thomas)	P-5	318	30.5%	16.3%
Booker T Washington Montessori Magnet (Fayette)	P-5	319	30.6%	16.4%
Bowen Elementary (Powell)	P-5	319	30.8%	16.5%
Catlettsburg Elementary (Boyd)	P-5	319	30.9%	16.6%
Cowan Elementary (Letcher)	P-8	319	31.0%	16.7%
Roosevelt Perry Elementary (Jefferson)	P-5	319	31.2%	16.8%
Salem Elementary (Russell)	P-6	319	31.3%	16.9%
Estes Elementary (Owensboro)	P-4	320	31.4%	17.0%
Southwest Calloway Elementary (Calloway)	P-5	320	31.6%	17.2%
Calvert City Elementary (Marshall)	P-5	321	31.7%	17.3%
Hazel Green Elementary (Laurel)	P-5	321	31.8%	17.4%
Sedalia Elementary (Graves)	P-6	321	32.0%	17.5%
South Marshall Elementary (Marshall)	P-5	321	32.1%	17.6%
A B Chandler Elementary (Henderson)	P-5	322	32.2%	17.7%
Crabbe Elementary (Ashland)	P-6	322	32.4%	17.8%
T C Cherry Elementary (Bowling Green)	P-5	322	32.5%	17.9%
Broadway Elementary (Providence)	P-8	323	32.6%	18.0%
East Elementary (Calloway)	P-5	323	32.8%	18.1%
Fannie Bush Elementary (Clark)	P-5	323	32.9%	18.2%
George F Johnson Elementary (Pike)	P-5	324	33.0%	18.3%
Hawthorne Elementary (Jefferson)	P-5	324	33.2%	18.4%
Parker Bennett Curry Elementary (Bowling Green)	P-5	324	33.3%	18.5%
Dorton Elementary (Pike)	P-8	327	33.4%	18.6%
Beattyville Elementary (Lee)	P-5	328	33.6%	18.7%
Glasscock Elementary (Marion)	P-5	328	33.7%	18.8%
Junction City Elementary (Boyle)	P-5	329	33.8%	18.9%
Morgan Elementary (Paducah)	P-5	329	34.0%	19.0%
Lincoln Elementary (Jefferson)	P-5	330	34.1%	19.1%
McKee Elementary (Jackson)	P-5	330	34.2%	19.2%
Piner Elementary (Kenton)	P-5	330	34.4%	19.3%
Sinking Fork Elementary (Christian)	P-5	331	34.5%	19.4%
Portland Elementary (Jefferson)	P-5	332	34.6%	19.6%
Letcher Elementary (Letcher)	P-8	333	34.8%	19.7%
Southside Elementary (Harrison)	P-5	333	34.9%	19.8%
Symsonia Elementary (Graves)	P-6	333	35.0%	19.9%
Athens Elementary (Fayette)	P-5	335	35.2%	20.0%
Runyon Elementary (Pike)	P-8	335	35.3%	20.1%
Cawood Elementary (Harlan)	P-8	336	35.4%	20.2%
Lebanon Junction Elementary (Bullitt)	P-5	336	35.6%	20.3%
Roy G Eversole Middle (Hazard)	P-8	336	35.7%	20.4%
Foust Elementary (Owensboro)	P-5	337	35.8%	20.5%
Milton Elementary (Trimble)	P-5	337	36.0%	20.6%
Bonnieville Elementary (Hart)	P-8	338	36.1%	20.7%
Sixth District Elementary (Covington)	P-5	338	36.2%	20.8%
Jenkins Elementary (Jenkins)	P-5	339	36.4%	21.0%
Stinnett Elementary (Leslie)	P-6	339	36.5%	21.1%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Olmstead Elementary (Logan)	P-8	340	36.6%	21.2%
Pineville Elementary (Pineville)	P-6	340	36.8%	21.3%
W R Castle Memorial Elementary (Johnson)	P-6	340	36.9%	21.4%
Campbellsburg Elementary (Henry)	P-5	341	37.0%	21.5%
Inez Elementary (Martin)	P-5	341	37.2%	21.6%
Jefferson Elementary (Henderson)	P-5	342	37.3%	21.7%
Cochrane Elementary (Jefferson)	P-5	343	37.4%	21.8%
Crums Lane Elementary (Jefferson)	P-5	344	37.5%	21.9%
Hager Elementary (Ashland)	P-6	344	37.7%	22.0%
Westside Elementary (Harrison)	P-5	344	37.8%	22.2%
Ryland Heights Elementary (Kenton)	P-5	345	37.9%	22.3%
Newton Parrish Elementary (Owensboro)	P-4	349	38.1%	22.4%
Sebree Elementary (Webster)	P-8	349	38.2%	22.5%
Stanton Elementary (Powell)	P-5	350	38.3%	22.6%
Bremen Elementary (Muhlenberg)	P-5	351	38.5%	22.7%
Crab Orchard Elementary (Lincoln)	P-6	351	38.6%	22.8%
Hyden Elementary (Leslie)	P-6	351	38.7%	22.9%
Lebanon Elementary (Marion)	P-5	351	38.9%	23.1%
Moyer Elementary (Fort Thomas)	P-5	352	39.0%	23.2%
Feds Creek Elementary (Pike)	P-8	353	39.1%	23.3%
McDowell Elementary (Floyd)	P-6	354	39.3%	23.4%
Carlisle County Elementary (Carlisle)	P-5	356	39.4%	23.5%
Ft Wright Elementary (Kenton)	P-5	356	39.5%	23.6%
Kyrock Elementary (Edmonson)	P-4	356	39.7%	23.7%
Ninth District Elementary (Covington)	P-5	356	39.8%	23.9%
Barbourville Elementary (Barbourville)	P-6	357	39.9%	24.0%
Breckinridge/Franklin Elementary (Jefferson)	P-5	357	40.1%	24.1%
Dixon Elementary (Webster)	P-8	357	40.2%	24.2%
W D Osborne Elementary (Floyd)	P-6	357	40.3%	24.3%
Eden Elementary (Martin)	P-5	359	40.5%	24.4%
James A Caywood Elementary (Kenton)	P-5	360	40.6%	24.5%
Martha Jane Potter Elementary (Letcher)	P-8	360	40.7%	24.7%
Nancy Elementary (Pulaski)	P-5	360	40.9%	24.8%
West Liberty Elementary (Morgan)	P-5	360	41.0%	24.9%
Adairville Elementary (Logan)	P-8	362	41.1%	25.0%
Bridgeport Elementary (Franklin)	P-5	362	41.3%	25.1%
Central Elementary (Johnson)	P-6	362	41.4%	25.2%
Frayser Elementary (Jefferson)	P-5	362	41.5%	25.4%
Wheatley Elementary (Jefferson)	P-5	362	41.7%	25.5%
Caverna Elementary (Caverna)	P-5	363	41.8%	25.6%
Hiseville Elementary (Barren)	P-6	363	41.9%	25.7%
Johnsontown Road Elementary (Jefferson)	P-5	364	42.1%	25.8%
Pleasant View Elementary (Whitley)	P-6	365	42.2%	25.9%
Brodhead Elementary (Rockcastle)	P-5	368	42.3%	26.1%
Fairview Elementary (Fairview)	P-6	370	42.5%	26.2%
John G Carlisle Elementary (Covington)	P-5	370	42.6%	26.3%
Keavy Elementary (Laurel)	P-5	370	42.7%	26.4%
Mary Todd Elementary (Fayette)	P-5	370	42.9%	26.5%
Liberty Elementary (Casey)	P-6	371	43.0%	26.6%
Grapevine Elementary (Hopkins)	P-5	373	43.1%	26.8%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Shearer Elementary (Clark)	P-5	373	43.3%	26.9%
Cochran Elementary (Jefferson)	P-5	374	43.4%	27.0%
Meadow Lands Elementary (Daviess)	P-5	374	43.5%	27.1%
Field Elementary (Jefferson)	P-5	375	43.7%	27.2%
Whitesville Elementary (Daviess)	P-5	375	43.8%	27.4%
Cane Run Elementary (Jefferson)	P-5	376	43.9%	27.5%
Colony Elementary (Laurel)	P-5	378	44.1%	27.6%
Northside Elementary (Harrison)	P-5	379	44.2%	27.7%
Bush Elementary (Laurel)	P-5	380	44.3%	27.9%
Pride Avenue Elementary (Hopkins)	P-5	380	44.5%	28.0%
Boone Elementary (Knox)	P-8	381	44.6%	28.1%
Slaughter Elementary (Jefferson)	P-5	381	44.7%	28.2%
Glenn O Swing Elementary (Covington)	P-5	382	44.9%	28.3%
Rangeland Elementary (Jefferson)	P-5	382	45.0%	28.5%
Shopville Elementary (Pulaski)	P-5	382	45.1%	28.6%
Eastside Elementary (Harrison)	P-5	383	45.3%	28.7%
Shannon Johnson Elementary (Madison)	P-5	383	45.4%	28.8%
West Broadway Elementary (Hopkins)	P-5	384	45.5%	29.0%
Ekron Elementary (Meade)	P-6	385	45.7%	29.1%
Stamping Ground Elementary (Scott)	P-5	385	45.8%	29.2%
Phelps Elementary (Pike)	P-6	387	45.9%	29.3%
Warfield Elementary (Martin)	P-5	387	46.1%	29.5%
Bloomfield Elementary (Nelson)	P-5	388	46.2%	29.6%
Dixie Elementary (Jefferson)	P-5	388	46.3%	29.7%
J M Stumbo Elementary (Floyd)	P-8	388	46.5%	29.8%
Memorial Elementary (Hart)	P-8	388	46.6%	30.0%
W R McNeill Elementary (Bowling Green)	P-5	388	46.7%	30.1%
Rodburn Elementary (Rowan)	P-5	389	46.9%	30.2%
Wellington Elementary (Jefferson)	P-5	389	47.0%	30.3%
May Valley Elementary (Floyd)	P-5	390	47.1%	30.5%
Earlington Elementary (Hopkins)	P-5	391	47.3%	30.6%
Ponderosa Elementary (Boyd)	P-5	393	47.4%	30.7%
Clay Elementary (Webster)	P-8	395	47.5%	30.8%
Camp Taylor Elementary (Jefferson)	P-5	396	47.7%	31.0%
Medora Elementary (Jefferson)	P-5	396	47.8%	31.1%
Meadowthorpe Elementary (Fayette)	P-5	397	47.9%	31.2%
New Castle Elementary (Henry)	P-5	398	48.1%	31.3%
Eastern Elementary (Barren)	P-6	399	48.2%	31.5%
Manchester Elementary (Clay)	P-6	401	48.3%	31.6%
Burning Springs Elementary (Clay)	P-6	402	48.5%	31.7%
Country Heights Elementary (Daviess)	P-5	402	48.6%	31.9%
Longfellow Elementary (Mayfield)	1-3	402	48.7%	32.0%
Reidland Elementary (McCracken)	P-5	402	48.9%	32.1%
Jamestown Elementary (Russell)	P-6	403	49.0%	32.2%
Harlan Elementary (Harlan)	P-4	405	49.1%	32.4%
Paintsville Elementary (Paintsville)	P-6	405	49.3%	32.5%
Sturgis Elementary (Union)	P-5	405	49.4%	32.6%
Fourth Street Elementary (Newport)	P-5	406	49.5%	32.8%
Whitley City Elementary (McCreary)	P-5	406	49.7%	32.9%
Yates Elementary (Fayette)	P-5	406	49.8%	33.0%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Washington County Elementary (Washington)	P-5	407	49.9%	33.2%
Kerrick Elementary (Jefferson)	P-5	408	50.1%	33.3%
Porter Elementary (Johnson)	P-6	408	50.2%	33.4%
Hughes Kirk Elementary (Muhlenberg)	P-5	409	50.3%	33.5%
Rineyville Elementary (Hardin)	P-5	409	50.5%	33.7%
Blake Elementary (Jefferson)	P-5	411	50.6%	33.8%
Caneyville Elementary (Grayson)	P-5	412	50.7%	33.9%
King Elementary (Jefferson)	P-5	412	50.9%	34.1%
Northside Elementary (Woodford)	P-6	412	51.0%	34.2%
South Edmonson Elementary (Edmonson)	P-4	412	51.1%	34.3%
Carr Creek Elementary (Knott)	P-8	413	51.3%	34.5%
Oran P Lawler Elementary (Grayson)	P-5	413	51.4%	34.6%
Yellow Creek School Center (Bell)	P-8	414	51.5%	34.7%
Alexandria Elementary (Campbell)	P-5	415	51.7%	34.9%
McNabb Elementary (Paducah)	P-5	416	51.8%	35.0%
The New Haven School (Nelson)	P-8	416	51.9%	35.1%
Deep Springs Elementary (Fayette)	P-5	417	52.1%	35.3%
Monticello Elementary (Monticello)	P-5	417	52.2%	35.4%
Central Elementary (Clark)	P-5	418	52.3%	35.5%
Evarts Elementary (Harlan)	P-8	421	52.5%	35.7%
Lyon County Elementary (Lyon)	P-5	421	52.6%	35.8%
Concord Elementary (McCracken)	P-5	422	52.7%	35.9%
Garrison Elementary (Lewis)	P-6	422	52.9%	36.1%
Potter Gray Elementary (Bowling Green)	P-5	422	53.0%	36.2%
Central City Elementary (Muhlenberg)	P-5	423	53.1%	36.3%
Dennis C Wooton Elementary (Perry)	P-6	423	53.3%	36.5%
Shelby Elementary (Jefferson)	P-5	423	53.4%	36.6%
Caldwell County Primary (Caldwell)	P-3	426	53.5%	36.8%
David T. Wilson Elementary (Meade)	P-6	426	53.7%	36.9%
Hindman Elementary (Knott)	P-8	427	53.8%	37.0%
Mason Corinth Elementary (Grant)	P-5	427	53.9%	37.2%
Chandlers Elementary (Logan)	P-8	428	54.1%	37.3%
Eisenhower Elementary (Jefferson)	P-5	429	54.2%	37.4%
Robert W Combs Elementary (Perry)	P-8	429	54.3%	37.6%
Mill Creek Elementary (Jefferson)	P-5	430	54.5%	37.7%
Morehead Elementary (Rowan)	P-5	430	54.6%	37.9%
North Warren Elementary (Warren)	P-6	430	54.7%	38.0%
Emma B Ward Elementary (Anderson)	1-5	431	54.9%	38.1%
Black Mountain Elementary (Harlan)	P-8	432	55.0%	38.3%
Minors Lane Elementary (Jefferson)	P-5	432	55.1%	38.4%
Cox's Creek Elementary (Nelson)	P-5	433	55.3%	38.6%
Lancaster Elementary (Garrard)	P-5	434	55.4%	38.7%
Anchorage Public Elementary (Anchorage)	P-8	435	55.5%	38.8%
Mary A Goetz Elementary (Ludlow)	P-5	435	55.7%	39.0%
Westridge Elementary (Franklin)	P-5	435	55.8%	39.1%
Hall Elementary (Harlan)	P-8	436	55.9%	39.2%
Owen County Primary Elementary (Owen)	P-3	436	56.1%	39.4%
Sorgho Elementary (Daviess)	P-5	436	56.2%	39.5%
Tyner Elementary (Jackson)	P-5	436	56.3%	39.7%
Wallins Elementary (Harlan)	P-8	436	56.5%	39.8%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Graves County Central Elementary (Graves)	P-6	437	56.6%	39.9%
Whitley County North Elementary (Whitley)	P-6	438	56.7%	40.1%
East Heights Elementary (Henderson)	P-5	439	56.9%	40.2%
Latonia Elementary (Covington)	P-5	439	57.0%	40.4%
Layne Elementary (Jefferson)	P-5	439	57.1%	40.5%
Belmont Elementary (Christian)	P-5	441	57.3%	40.7%
Oakview Elementary (Ashland)	P-6	441	57.4%	40.8%
Richardsville Elementary (Warren)	P-6	441	57.5%	40.9%
Tamarack Elementary (Daviess)	P-5	441	57.7%	41.1%
Bedford Elementary (Trimble)	P-5	442	57.8%	41.2%
Heritage Elementary (Carter)	P-5	442	57.9%	41.4%
Linlee Elementary (Fayette)	P-5	442	58.1%	41.5%
Wingo Elementary (Graves)	P-6	442	58.2%	41.6%
Engelhard Elementary (Jefferson)	P-5	444	58.3%	41.8%
Grandview Elementary (Bellevue)	P-6	445	58.5%	41.9%
Central Elementary (Marshall)	P-5	447	58.6%	42.1%
Evan Harlow Elementary (Harrodsburg)	P-5	448	58.7%	42.2%
West Whitesburg Elementary (Letcher)	P-5	448	58.9%	42.4%
Wilkerson Traditional Elementary (Jefferson)	P-5	448	59.0%	42.5%
Bloom Elementary (Jefferson)	P-5	449	59.1%	42.6%
Greensburg Elementary (Green)	P-5	449	59.3%	42.8%
Owsley County Elementary (Owsley)	P-6	449	59.4%	42.9%
Hampton Elementary (Knox)	P-8	450	59.5%	43.1%
Heath Elementary (McCracken)	P-5	450	59.7%	43.2%
Hickman County Elementary (Hickman)	P-6	450	59.8%	43.4%
Williamstown Elementary (Williamstown)	P-5	450	59.9%	43.5%
Millard Elementary (Pike)	P-3	451	60.1%	43.7%
Walker Elementary (Wayne)	P-3	451	60.2%	43.8%
South Heights Elementary (Henderson)	P-5	453	60.3%	43.9%
Cold Hill Elementary (Laurel)	P-5	454	60.5%	44.1%
Morganfield Elementary (Union)	P-5	454	60.6%	44.2%
Southern Elementary (Scott)	P-5	454	60.7%	44.4%
Taylor Elementary (Bracken)	P-4	454	60.9%	44.5%
Simmons Elementary (Woodford)	P-6	455	61.0%	44.7%
Price Elementary (Jefferson)	P-5	457	61.1%	44.8%
Wilt Elementary (Jefferson)	P-5	457	61.3%	45.0%
Alvaton Elementary (Warren)	P-6	459	61.4%	45.1%
Liberty Elementary (Oldham)	P-5	459	61.5%	45.3%
Longest Elementary (Muhlenberg)	P-5	459	61.7%	45.4%
Elkhorn Elementary (Franklin)	P-5	461	61.8%	45.6%
Indian Hills Elementary (Christian)	P-5	461	61.9%	45.7%
Hodgenville Elementary (LaRue)	P-4	462	62.1%	45.9%
Jesse D Lay Elementary (Knox)	P-8	462	62.2%	46.0%
Spottsville Elementary (Henderson)	P-5	462	62.3%	46.2%
Coral Ridge Elementary (Jefferson)	P-5	463	62.5%	46.3%
Okolona Elementary (Jefferson)	P-5	464	62.6%	46.5%
Luhr Elementary (Jefferson)	P-5	465	62.7%	46.6%
Foster Heights Elementary (Nelson)	P-3	466	62.8%	46.8%
Sublimity Elementary (Laurel)	P-5	466	63.0%	46.9%
Byck Elementary (Jefferson)	P-5	467	63.1%	47.0%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Atkinson Elementary (Jefferson)	P-5	468	63.2%	47.2%
Brandeis Elementary (Jefferson)	P-5	468	63.4%	47.4%
Whitley County Central Primary (Whitley)	P-3	468	63.5%	47.5%
Science Hill Elementary (Science Hill)	P-8	469	63.6%	47.7%
Southside Elementary (Hopkins)	P-5	469	63.8%	47.8%
South Elementary (Corbin)	P-5	470	63.9%	48.0%
James Lane Allen Elementary (Fayette)	P-5	471	64.0%	48.1%
Campbellsville Elementary (Campbellsville)	P-4	473	64.2%	48.3%
R E Stevenson Elementary (Russellville)	P-4	473	64.3%	48.4%
Sanders Elementary (Jefferson)	P-5	473	64.4%	48.6%
Collins Lane Elementary (Franklin)	P-5	474	64.6%	48.7%
Highland Elementary (Johnson)	P-6	474	64.7%	48.9%
Oak Hill Elementary (Pulaski)	P-5	475	64.8%	49.0%
Allen Elementary (Floyd)	P-8	476	65.0%	49.2%
Tates Creek Elementary (Fayette)	P-5	476	65.1%	49.3%
Camp Dick Robinson Elementary (Garrard)	P-5	477	65.2%	49.5%
Eastern Elementary (Scott)	P-5	477	65.4%	49.6%
Whitney Young Elementary (Jefferson)	P-5	477	65.5%	49.8%
Mullins Elementary (Pike)	P-8	478	65.6%	49.9%
North Todd Elementary (Todd)	P-5	479	65.8%	50.1%
North Washington Elementary (Washington)	P-8	480	65.9%	50.2%
Jesse Stuart Elementary (Hopkins)	P-5	481	66.0%	50.4%
Kingston Elementary (Madison)	P-5	481	66.2%	50.6%
Overdale Elementary (Bullitt)	P-5	482	66.3%	50.7%
Franklin Elementary (Simpson)	P-3	483	66.4%	50.9%
Wright Elementary (Shelby)	P-5	483	66.6%	51.0%
Gallatin County Elementary (Gallatin)	P-3	484	66.7%	51.2%
Morningside Elementary (Christian)	P-5	485	66.8%	51.3%
Waco Elementary (Madison)	P-5	485	67.0%	51.5%
Beaver Dam Elementary (Ohio)	P-6	486	67.1%	51.6%
Lewis County Central Elementary (Lewis)	P-5	487	67.2%	51.8%
Page School Center (Bell)	P-8	487	67.4%	51.9%
White's Tower Elementary (Kenton)	P-5	487	67.5%	52.1%
Indian Trail Elementary (Jefferson)	P-5	490	67.6%	52.3%
Millcreek Elementary (Fayette)	P-5	490	67.8%	52.4%
Stonestreet Elementary (Jefferson)	P-5	490	67.9%	52.6%
Audubon Elementary (Daviess)	P-5	491	68.0%	52.7%
Pleasant Grove Elementary (Bullitt)	P-5	491	68.2%	52.9%
Auburndale Elementary (Jefferson)	P-5	493	68.3%	53.1%
Estill Springs Elementary (Estill)	P-5	493	68.4%	53.2%
Fairdale Elementary (Jefferson)	P-5	493	68.6%	53.4%
Helmwood Heights Elementary (Elizabethtown)	P-5	493	68.7%	53.5%
Cumberland County Elementary (Cumberland)	P-5	494	68.8%	53.7%
Salyersville Elementary (Magoffin)	P-6	495	69.0%	53.8%
South Green Elementary (Glasgow)	P-5	495	69.1%	54.0%
Hattie C Warner Elementary (Jessamine)	1-5	498	69.2%	54.2%
Robert B. Turner Elementary (Anderson)	1-5	498	69.4%	54.3%
Highland Elementary (Daviess)	P-5	500	69.5%	54.5%
Bardstown Elementary (Bardstown)	P-5	501	69.6%	54.6%
Hustonville Elementary (Lincoln)	P-6	502	69.8%	54.8%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
South Todd Elementary (Todd)	P-5	503	69.9%	55.0%
East Bernstadt Elementary (East Bernstadt)	P-8	504	70.0%	55.1%
Hite Elementary (Jefferson)	P-5	504	70.2%	55.3%
Vine Grove Elementary (Hardin)	P-5	504	70.3%	55.5%
Laukhuf Elementary (Jefferson)	P-5	505	70.4%	55.6%
Burnside Elementary (Pulaski)	P-5	507	70.6%	55.8%
Prestonsburg Elementary (Floyd)	P-5	507	70.7%	55.9%
East View Elementary (Daviess)	P-5	508	70.8%	56.1%
Hearn Elementary (Franklin)	P-5	510	71.0%	56.3%
Tompkinsville Elementary (Monroe)	P-5	510	71.1%	56.4%
Cardinal Valley Elementary (Fayette)	P-5	511	71.2%	56.6%
Hardinsburg Elementary (Breckinridge)	P-5	511	71.4%	56.8%
L B J Elementary (Breathitt)	P-6	511	71.5%	56.9%
A B Combs Elementary (Perry)	P-8	512	71.6%	57.1%
Zachary Taylor Elementary (Jefferson)	P-5	515	71.8%	57.3%
Cassidy Elementary (Fayette)	P-5	516	71.9%	57.4%
Saffell Street Elementary (Anderson)	1-5	516	72.0%	57.6%
Blue Lick Elementary (Jefferson)	P-5	521	72.2%	57.7%
Holiday Elementary (Christian)	P-5	522	72.3%	57.9%
Pembroke Elementary (Christian)	P-5	522	72.4%	58.1%
Rosenwald Dunbar Elementary (Jessamine)	1-5	522	72.6%	58.3%
West Irvine Elementary (Estill)	P-5	522	72.7%	58.4%
Central Primary (Corbin)	P-3	523	72.8%	58.6%
Northern Elementary (Fayette)	P-5	523	73.0%	58.8%
Rutherford Elementary (Jefferson)	P-5	524	73.1%	58.9%
H W Wilkey Elementary (Grayson)	P-5	525	73.2%	59.1%
West Hopkins Accelerated Elementary (Hopkins)	P-8	525	73.4%	59.3%
A D Owens Elementary (Newport)	P-5	526	73.5%	59.4%
Garth Elementary (Scott)	P-5	526	73.6%	59.6%
Second Street Elementary (Frankfort)	P-8	527	73.8%	59.8%
Heritage Elementary (Shelby)	P-5	529	73.9%	59.9%
Semple Elementary (Jefferson)	P-5	529	74.0%	60.1%
White Hall Elementary (Madison)	P-5	529	74.2%	60.3%
Julia R Ewan Elementary (Fayette)	P-5	530	74.3%	60.4%
Middlesboro Primary (Middlesboro)	P-3	530	74.4%	60.6%
Rockfield Elementary (Warren)	P-6	530	74.6%	60.8%
Gutermuth Elementary (Jefferson)	P-5	531	74.7%	61.0%
Maxwell Spanish Immersion Elementary (Fayette)	P-5	531	74.8%	61.1%
Summit Elementary (Boyd)	P-5	532	75.0%	61.3%
Benton Elementary (Marshall)	P-5	534	75.1%	61.5%
Bristow Elementary (Warren)	P-6	534	75.2%	61.6%
Hillard Collins Elementary (Boone)	P-5	535	75.4%	61.8%
Burns Elementary (Daviess)	P-5	536	75.5%	62.0%
Greenwood Elementary (Jefferson)	P-5	536	75.6%	62.2%
Lakewood Elementary (Hardin)	P-5	536	75.8%	62.3%
Maryville Elementary (Bullitt)	P-5	536	75.9%	62.5%
Watson Lane Elementary (Jefferson)	P-5	536	76.0%	62.7%
Brookside Elementary (Jessamine)	1-5	537	76.2%	62.8%
Hanson Elementary (Hopkins)	P-5	537	76.3%	63.0%
John F Kennedy Montessori Elementary (Jefferson)	P-5	538	76.4%	63.2%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Peaks Mill Elementary (Franklin)	P-5	538	76.6%	63.4%
Clay City Elementary (Powell)	P-5	540	76.7%	63.5%
John W. Reiley Elementary (Campbell)	P-5	540	76.8%	63.7%
Beechwood Elementary (Beechwood)	P-6	541	77.0%	63.9%
Kirksville Elementary (Madison)	P-5	541	77.1%	64.1%
Owingsville Elementary (Bath)	P-4	541	77.2%	64.2%
Middletown Elementary (Jefferson)	P-5	543	77.4%	64.4%
Berea Community Elementary (Berea)	P-5	544	77.5%	64.6%
Hartstern Elementary (Jefferson)	P-5	544	77.6%	64.8%
Dixie Elementary Magnet (Fayette)	P-5	545	77.8%	64.9%
Greenville Elementary (Muhlenberg)	P-5	545	77.9%	65.1%
Deer Park Elementary (Daviess)	P-5	546	78.0%	65.3%
Munfordville Elementary (Hart)	P-8	546	78.2%	65.5%
Donald E. Cline Elementary (Campbell)	P-5	548	78.3%	65.6%
West Marion Elementary (Marion)	P-5	548	78.4%	65.8%
Clear Creek Elementary (Shelby)	P-5	551	78.6%	66.0%
McKell Elementary (Greenup)	P-5	553	78.7%	66.2%
Morningside Elementary (Elizabethtown)	P-5	555	78.8%	66.3%
Old Mill Elementary (Bullitt)	P-5	556	79.0%	66.5%
Huntertown Elementary (Woodford)	P-6	558	79.1%	66.7%
Southside Elementary (Pike)	P-5	558	79.2%	66.9%
Bell Elementary (Wayne)	1-4	559	79.4%	67.1%
Saint Matthews Elementary (Jefferson)	P-5	559	79.5%	67.2%
Simpsonville Elementary (Shelby)	P-5	559	79.6%	67.4%
Western Elementary (Scott)	P-5	560	79.8%	67.6%
William Natcher Elementary (Warren)	P-6	560	79.9%	67.8%
Cumberland Trace Elementary (Warren)	P-6	561	80.0%	68.0%
Squires Elementary (Fayette)	P-5	561	80.2%	68.1%
Woodland Elementary (Hardin)	P-5	562	80.3%	68.3%
Beechgrove Elementary (Kenton)	P-5	563	80.4%	68.5%
Girdler Elementary (Knox)	P-8	566	80.6%	68.7%
Silver Creek Elementary (Madison)	P-5	566	80.7%	68.9%
Roby Elementary (Bullitt)	P-5	567	80.8%	69.0%
Taylor Mill Elementary (Kenton)	P-5	567	81.0%	69.2%
Smyrna Traditional Elementary (Jefferson)	P-5	569	81.1%	69.4%
Pine Knot Elementary (McCreary)	P-5	571	81.2%	69.6%
Briarwood Elementary (Warren)	P-6	572	81.4%	69.8%
Foster Traditional Academy (Jefferson)	P-5	573	81.5%	70.0%
Kenwood Elementary (Jefferson)	P-5	573	81.6%	70.1%
Kathryn Winn Elementary (Carroll)	P-3	576	81.8%	70.3%
Chenoweth Elementary (Jefferson)	P-5	577	81.9%	70.5%
Northern Elementary (Pendleton)	P-5	577	82.0%	70.7%
Madeline M Breckinridge Elementary (Fayette)	P-5	579	82.2%	70.9%
Edmonton Elementary (Metcalfe)	P-6	580	82.3%	71.1%
Bates Elementary (Jefferson)	P-5	581	82.4%	71.3%
Hopkins Elementary (Somerset)	P-4	582	82.6%	71.4%
West Knox County Elementary (Knox)	P-5	582	82.7%	71.6%
Wilder Elementary (Jefferson)	P-5	582	82.8%	71.8%
Nicholasville Elementary (Jessamine)	1-5	583	83.0%	72.0%
Meadow View Elementary (Hardin)	P-5	584	83.1%	72.2%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Farley Elementary (McCracken)	P-5	585	83.2%	72.4%
Murray Elementary (Murray)	P-3	586	83.4%	72.6%
Centerfield Elementary (Oldham)	P-5	587	83.5%	72.7%
Southside Elementary (Woodford)	P-6	587	83.6%	72.9%
Watterson Elementary (Jefferson)	P-5	587	83.8%	73.1%
Carter Traditional Elementary (Jefferson)	P-5	589	83.9%	73.3%
New Highland Elementary (Hardin)	P-5	589	84.0%	73.5%
Colonel William Casey Elementary (Adair)	P-3	590	84.2%	73.7%
Crittenden County Elementary (Crittenden)	P-5	590	84.3%	73.9%
Clark Elementary (Paducah)	P-5	591	84.4%	74.1%
Lewisburg Elementary (Logan)	P-8	591	84.6%	74.3%
Picadome Elementary (Fayette)	P-5	593	84.7%	74.5%
Daniel Boone Elementary (Madison)	P-5	595	84.8%	74.6%
Freedom Elementary (Bullitt)	P-5	596	85.0%	74.8%
North Elementary (Calloway)	P-5	596	85.1%	75.0%
Goldsmith Lane Elementary (Jefferson)	P-5	597	85.2%	75.2%
Millbrooke Elementary (Christian)	P-5	597	85.4%	75.4%
Schaffner Traditional Elementary (Jefferson)	P-5	597	85.5%	75.6%
Bell Central School Center (Bell)	P-8	598	85.6%	75.8%
Clays Mill Elementary (Fayette)	P-5	599	85.8%	76.0%
Parkway Elementary (Hardin)	P-5	602	85.9%	76.2%
Lincoln Elementary (Dayton)	P-6	603	86.0%	76.4%
Clarkson Elementary (Grayson)	P-5	604	86.2%	76.6%
Jacob Elementary (Jefferson)	P-5	604	86.3%	76.8%
Maupin Elementary (Jefferson)	P-5	604	86.4%	77.0%
Klondike Lane Elementary (Jefferson)	P-5	605	86.6%	77.1%
Shacklette Elementary (Jefferson)	P-5	607	86.7%	77.3%
Strode Station Elementary (Clark)	P-5	609	86.8%	77.5%
Bourbon Central Elementary (Bourbon)	P-5	610	87.0%	77.7%
Dunn Elementary (Jefferson)	P-5	611	87.1%	77.9%
Florence Elementary (Boone)	P-5	611	87.2%	78.1%
Greathouse Shryock Traditional Elementary (Jefferson)	P-5	611	87.4%	78.3%
Julius Marks Elementary (Fayette)	P-5	611	87.5%	78.5%
Audubon Traditional Elementary (Jefferson)	P-5	612	87.6%	78.7%
Elkhorn City Elementary (Pike)	P-8	613	87.7%	78.9%
Wilmore Elementary (Jessamine)	1-5	614	87.9%	79.1%
Anne Mason Elementary (Scott)	P-5	616	88.0%	79.3%
James R Allen Elementary (Meade)	P-3	616	88.1%	79.5%
Lowe Elementary (Jefferson)	P-5	617	88.3%	79.7%
Coleridge Taylor Elementary (Jefferson)	P-5	618	88.4%	79.9%
Painted Stone Elementary (Shelby)	P-5	620	88.5%	80.1%
McFerran Elementary (Jefferson)	P-5	621	88.7%	80.3%
Bardstown Primary (Bardstown)	P-3	623	88.8%	80.5%
R C Hinsdale Elementary (Kenton)	P-5	627	88.9%	80.7%
Woodlawn Elementary (Boyle)	P-5	627	89.1%	80.9%
Garden Springs Elementary (Fayette)	P-5	632	89.2%	81.1%
Cedar Grove Elementary (Bullitt)	P-5	634	89.3%	81.3%
Hunter Hills Elementary (Laurel)	P-5	636	89.5%	81.5%
Ballard County Elementary (Ballard)	P-5	638	89.6%	81.7%
Summit View Elementary (Kenton)	P-5	638	89.7%	81.9%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Mount Vernon Elementary (Rockcastle)	P-5	639	89.9%	82.1%
Russell Springs Elementary (Russell)	P-6	639	90.0%	82.3%
Trunnell Elementary (Jefferson)	P-5	640	90.1%	82.5%
Camargo Elementary (Montgomery)	P-5	642	90.3%	82.7%
Southern Elementary (Pulaski)	P-5	642	90.4%	82.9%
Walton-Verona Elementary (Walton-Verona)	P-6	646	90.5%	83.2%
Flaherty Elementary (Meade)	P-6	647	90.7%	83.4%
Olive Hill Elementary (Carter)	P-5	651	90.8%	83.6%
Warren County Elementary (Warren)	P-6	651	90.9%	83.8%
Glendover Elementary (Fayette)	P-5	653	91.1%	84.0%
Red Cross Elementary (Barren)	P-6	654	91.2%	84.2%
Lost River Elementary (Warren)	P-6	660	91.3%	84.4%
Lincoln Trail Elementary (Hardin)	P-5	662	91.5%	84.6%
Dry Ridge Elementary (Grant)	P-5	663	91.6%	84.8%
Pikeville Elementary (Pikeville)	P-6	663	91.7%	85.0%
Morgantown Elementary (Butler)	P-5	665	91.9%	85.3%
Southern Elementary (Pendleton)	P-5	665	92.0%	85.5%
Albany Elementary (Clinton)	P-4	666	92.1%	85.7%
Kit Carson Elementary (Madison)	P-5	667	92.3%	85.9%
Crestwood Elementary (Oldham)	P-5	670	92.4%	86.1%
Mapleton Elementary (Montgomery)	P-5	671	92.5%	86.3%
Wheeler Elementary (Jefferson)	P-5	671	92.7%	86.5%
Oak Grove Elementary (Whitley)	P-6	672	92.8%	86.8%
Hendron Lone Oak Elementary (McCracken)	P-5	673	92.9%	87.0%
South Christian Elementary (Christian)	P-5	673	93.1%	87.2%
LaGrange Elementary (Oldham)	P-5	680	93.2%	87.4%
Wayland Alexander Elementary (Ohio)	P-6	682	93.3%	87.6%
Kenton Elementary (Kenton)	P-5	684	93.5%	87.9%
Auburn Elementary (Logan)	P-8	687	93.6%	88.1%
Lansdowne Elementary (Fayette)	P-5	687	93.7%	88.3%
Lone Oak Elementary (McCracken)	P-5	688	93.9%	88.5%
Russell Primary (Russell)	P-3	688	94.0%	88.7%
Buckner Elementary (Oldham)	P-5	691	94.1%	89.0%
Flemingsburg Elementary (Fleming)	P-6	692	94.3%	89.2%
Prichard Elementary (Carter)	P-5	693	94.4%	89.4%
Southern Elementary (Fayette)	P-5	694	94.5%	89.6%
Stonewall Elementary (Fayette)	P-5	694	94.7%	89.8%
Simpson Elementary (Simpson)	1-4	696	94.8%	90.1%
Norton Elementary (Jefferson)	P-5	697	94.9%	90.3%
Cumberland Elementary (Harlan)	P-8	698	95.1%	90.5%
Crittenden Mount Zion Elementary (Grant)	P-5	699	95.2%	90.7%
Stanford Elementary (Lincoln)	P-6	699	95.3%	91.0%
Pulaski Elementary (Pulaski)	P-5	700	95.5%	91.2%
North Pointe Elementary (Boone)	P-5	708	95.6%	91.4%
Chester Goodridge Elementary (Boone)	P-5	714	95.7%	91.6%
Ockerman Elementary (Boone)	P-5	714	95.9%	91.9%
Malcolm B Chancey, Jr. Elementary (Jefferson)	P-5	715	96.0%	92.1%
Mount Sterling Elementary (Montgomery)	P-5	718	96.1%	92.3%
Veterans Park Elementary (Fayette)	P-5	718	96.3%	92.6%
Rich Pond Elementary (Warren)	P-6	719	96.4%	92.8%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Rosa Parks Elementary (Fayette)	P-5	723	96.5%	93.0%
Jeffersontown Elementary (Jefferson)	P-5	730	96.7%	93.3%
London Elementary (Laurel)	P-5	730	96.8%	93.5%
A M Yealey Elementary (Boone)	P-5	736	96.9%	93.7%
Mount Washington Elementary (Bullitt)	P-5	741	97.1%	94.0%
Betsy Layne Elementary (Floyd)	P-8	743	97.2%	94.2%
Roberta Tully Elementary (Jefferson)	P-5	751	97.3%	94.5%
Clark Middle (Clark)	P-5	752	97.5%	94.7%
Bowen Elementary (Jefferson)	P-5	758	97.6%	94.9%
Trigg County Elementary (Trigg)	P-4	766	97.7%	95.2%
Louisa Elementary (Lawrence)	P-5	767	97.9%	95.4%
Burlington Elementary (Boone)	P-5	806	98.0%	95.7%
Goshen at Hillcrest Elementary (Oldham)	P-4	810	98.1%	95.9%
River Ridge Elementary (Kenton)	P-5	824	98.3%	96.2%
Stephens Elementary (Boone)	P-5	826	98.4%	96.5%
Fern Creek Elementary (Jefferson)	P-5	836	98.5%	96.7%
Nicholas County Elementary (Nicholas)	P-8	841	98.7%	97.0%
Mercer County Elementary (Mercer)	P-4	853	98.8%	97.3%
Camden Station Elementary (Oldham)	P-5	864	98.9%	97.6%
G C Burkhead Elementary (Hardin)	P-5	870	99.1%	97.8%
Johns Creek Elementary (Pike)	P-8	890	99.2%	98.1%
Charles Straub Elementary (Mason)	P-3	896	99.3%	98.4%
Allen County Primary Center (Allen)	P-3	905	99.5%	98.7%
Spencer County Elementary (Spencer)	P-4	924	99.6%	99.0%
New Haven Elementary (Boone)	P-5	941	99.7%	99.3%
Erpenbeck Elementary (Boone)	P-5	1,026	99.9%	99.6%
Taylor County Elementary (Taylor)	P-5	1,131	100.0%	100.0%
Middle Schools (Lowest grade is grade 4 to grade 7 and highest grade is grade 4 to grade 9)				
Frederick Fraize Middle (Cloverport)	6-8	61	0.4%	0.0%
Fredericktown Elementary (Washington)	4-8	70	0.8%	0.1%
Kennedy Metro Middle (Jefferson)	4-8	84	1.3%	0.2%
Brown Middle (Jefferson)	6-8	156	1.7%	0.3%
Model Laboratory Middle (Madison)	6-8	168	2.1%	0.4%
Fulton County Middle (Fulton)	6-8	188	2.5%	0.5%
Dawson Springs Middle (Dawson Springs)	5-8	210	2.9%	0.7%
Caverna Middle (Caverna)	6-8	211	3.4%	0.8%
Worthington Elementary (Raceland)	4-6	212	3.8%	1.0%
Carlisle County Middle (Carlisle)	6-8	215	4.2%	1.1%
Washington County Middle (Washington)	6-8	215	4.6%	1.3%
Monticello Middle (Monticello)	6-8	220	5.0%	1.4%
Turkey Creek Middle (Pike)	6-8	220	5.5%	1.6%
Whitesburg Middle (Letcher)	6-8	220	5.9%	1.7%
Harrodsburg Middle (Harrodsburg)	6-8	224	6.3%	1.9%
Old Kentucky Home Intermediate (Nelson)	4-5	235	6.7%	2.1%
Sparks Elementary (Mayfield)	4-5	235	7.1%	2.2%
Paris Middle (Paris)	5-8	237	7.6%	2.4%
Ludlow Middle (Ludlow)	6-8	241	8.0%	2.6%
Berea Community Middle (Berea)	6-8	242	8.4%	2.7%
Livingston County Middle (Livingston)	7-8	243	8.8%	2.9%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
South Floyd Middle (Floyd)	7-8	243	9.2%	3.1%
Warfield Middle (Martin)	6-8	252	9.7%	3.3%
Menifee County Middle (Menifee)	6-8	254	10.1%	3.4%
Middlesboro Intermediate (Middlesboro)	4-5	257	10.5%	3.6%
Gallatin County Upper Elementary (Gallatin)	4-5	271	10.9%	3.8%
Lyon County Middle (Lyon)	6-8	271	11.3%	4.0%
SCAPA at Bluegrass (Fayette)	4-8	276	11.8%	4.2%
Benton Middle (Marshall)	6-8	277	12.2%	4.4%
Metcalfe County Middle (Metcalfe)	7-8	281	12.6%	4.6%
Cartmell Elementary (Carroll)	4-5	283	13.0%	4.8%
Cumberland County Middle (Cumberland)	6-8	285	13.4%	5.0%
Edmonson County Middle (Edmonson)	7-8	303	13.9%	5.2%
Lee County Middle (Lee)	6-8	307	14.3%	5.4%
Saint Charles Middle (Marion)	6-8	309	14.7%	5.7%
South Marshall Middle (Marshall)	6-8	309	15.1%	5.9%
Leslie County Middle (Leslie)	7-8	315	15.5%	6.1%
Virgie Middle (Pike)	6-8	315	16.0%	6.3%
Russell-McDowell Intermediate (Russell)	4-5	316	16.4%	6.5%
Whitley Central Intermediate (Whitley)	4-6	325	16.8%	6.8%
Edmonson Co 5-6 Center (Edmonson)	5-6	326	17.2%	7.0%
Ballard County Middle (Ballard)	6-8	327	17.6%	7.2%
Allen Central Middle (Floyd)	6-8	332	18.1%	7.5%
Adair County Middle (Adair)	7-8	345	18.5%	7.7%
Crittenden County Middle (Crittenden)	6-8	346	18.9%	8.0%
Pine Knot Middle (McCreary)	6-8	352	19.3%	8.2%
Sebastian Middle (Breathitt)	7-8	356	19.7%	8.5%
Wolfe County Middle (Wolfe)	6-8	357	20.2%	8.7%
Russellville Middle (Russellville)	5-8	360	20.6%	9.0%
Gallatin County Middle (Gallatin)	6-8	365	21.0%	9.2%
Mayfield Middle (Mayfield)	6-8	370	21.4%	9.5%
LaRue County Intermediate (LaRue)	5-6	374	21.8%	9.8%
Trimble County Middle (Trimble)	6-8	374	22.3%	10.0%
Inez Middle (Martin)	6-8	378	22.7%	10.3%
McLean County Middle (McLean)	6-8	378	23.1%	10.6%
Green County Middle (Green)	6-8	379	23.5%	10.8%
James D Adams Middle (Floyd)	6-8	379	23.9%	11.1%
Casey County Middle (Casey)	7-8	382	24.4%	11.4%
McKell Middle (Greenup)	6-8	394	24.8%	11.7%
Turner Elementary (Wayne)	5-6	395	25.2%	11.9%
Bracken County Middle (Bracken)	5-8	398	25.6%	12.2%
Earle D Jones Elementary (Mason)	4-5	400	26.1%	12.5%
Campbellsville Middle (Campbellsville)	5-8	405	26.5%	12.8%
Hancock County Middle (Hancock)	6-8	408	26.9%	13.1%
Middlesboro Middle (Middlesboro)	6-8	408	27.3%	13.4%
A J Lloyd Middle (Wayne)	7-8	415	27.7%	13.7%
Simons Middle (Fleming)	7-8	421	28.2%	14.0%
Wurtland Middle (Greenup)	6-8	421	28.6%	14.3%
LaRue County Middle (LaRue)	7-8	422	29.0%	14.6%
John Adair Intermediate (Adair)	4-6	433	29.4%	14.9%
Bate Middle (Danville)	6-8	434	29.8%	15.2%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Lebanon Middle (Marion)	6-8	435	30.3%	15.5%
Bloomfield Middle (Nelson)	6-8	436	30.7%	15.8%
Owen County Elementary (Owen)	4-5	443	31.1%	16.1%
Herald Whitaker Middle (Magoffin)	7-8	446	31.5%	16.4%
Whitley City Middle (McCreary)	6-8	457	31.9%	16.7%
Warren East Middle (Warren)	7-8	463	32.4%	17.1%
Allen County Intermediate Center (Allen)	4-5	464	32.8%	17.4%
Reidland Middle (McCracken)	6-8	465	33.2%	17.7%
Bardstown Middle (Bardstown)	6-8	468	33.6%	18.1%
Caldwell County Middle (Caldwell)	6-8	471	34.0%	18.4%
Meece Middle (Somerset)	5-8	480	34.5%	18.7%
Glasgow Middle (Glasgow)	6-8	483	34.9%	19.1%
Russell County Middle (Russell)	7-8	483	35.3%	19.4%
Heath Middle (McCracken)	6-8	484	35.7%	19.8%
Bowling Middle (Owen)	6-8	485	36.1%	20.1%
Lewis County Middle (Lewis)	6-8	485	36.6%	20.5%
Todd County Middle (Todd)	6-8	487	37.0%	20.8%
Carroll County Middle (Carroll)	6-8	489	37.4%	21.1%
Clinton County Middle (Clinton)	5-8	496	37.8%	21.5%
Butler County Middle (Butler)	6-8	497	38.2%	21.8%
Robert Frost Middle (Jefferson)	6-8	497	38.7%	22.2%
Russell Middle (Russell)	6-8	498	39.1%	22.6%
South Hopkins Middle (Hopkins)	6-8	508	39.5%	22.9%
Browning Springs Middle (Hopkins)	6-8	509	39.9%	23.3%
James Madison Middle (Hopkins)	6-8	510	40.3%	23.6%
Lincoln Elementary (Simpson)	5-6	513	40.8%	24.0%
Bend Gate Elementary (Henderson)	4-5	518	41.2%	24.4%
Franklin-Simpson Middle (Simpson)	7-8	518	41.6%	24.7%
Monroe County Middle (Monroe)	6-8	518	42.0%	25.1%
Tates Creek Middle (Fayette)	6-8	518	42.4%	25.5%
Caldwell County Elementary (Caldwell)	4-5	525	42.9%	25.8%
Henry County Middle (Henry)	6-8	526	43.3%	26.2%
Crawford Middle (Fayette)	6-8	533	43.7%	26.6%
Union County Middle (Union)	6-8	536	44.1%	27.0%
Owensboro 5-6 Elementary Center (Owensboro)	5-6	538	44.5%	27.4%
Morgan County Middle (Morgan)	6-8	539	45.0%	27.7%
Louisa Middle (Lawrence)	6-8	540	45.4%	28.1%
William G Conkwright Middle (Clark)	6-8	540	45.8%	28.5%
Talton K Stone Middle (Elizabethtown)	6-8	543	46.2%	28.9%
Millard Middle (Pike)	4-8	545	46.6%	29.3%
West Carter Middle (Carter)	6-8	548	47.1%	29.7%
Corbin Middle (Corbin)	6-8	549	47.5%	30.1%
George M Verity Middle (Ashland)	7-8	549	47.9%	30.4%
Muhlenberg South Middle (Muhlenberg)	6-8	552	48.3%	30.8%
Highlands Middle (Fort Thomas)	6-8	557	48.7%	31.2%
Jackson County Middle (Jackson)	6-8	557	49.2%	31.6%
Radcliff Middle (Hardin)	6-8	559	49.6%	32.0%
Tichenor Middle (Erlanger-Elsmere)	6-8	563	50.0%	32.4%
Georgetown Middle (Scott)	6-8	569	50.4%	32.8%
Johnson County Middle (Johnson)	7-8	572	50.8%	33.2%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Newport Middle (Newport)	6-8	573	51.3%	33.6%
Bernheim Middle (Bullitt)	6-8	574	51.7%	34.0%
North Drive Middle (Christian)	6-8	582	52.1%	34.5%
North Marshall Middle (Marshall)	6-8	584	52.5%	34.9%
West Hardin Middle (Hardin)	6-8	593	52.9%	35.3%
Henry F Moss Middle (Warren)	7-8	597	53.4%	35.7%
Old Kentucky Home Middle (Nelson)	6-8	600	53.8%	36.1%
Knight Middle (Jefferson)	6-8	604	54.2%	36.6%
Shelby County East Middle (Shelby)	6-8	611	54.6%	37.0%
Woodford County Middle (Woodford)	7-8	616	55.0%	37.4%
Owensboro Middle (Owensboro)	6-8	618	55.5%	37.9%
Lexington Traditional Magnet (Fayette)	6-8	619	55.9%	38.3%
Two Rivers Middle (Covington)	6-7	623	56.3%	38.8%
Barren County Middle (Barren)	7-8	626	56.7%	39.2%
Powell County Middle (Powell)	6-8	626	57.1%	39.6%
Bourbon County Middle (Bourbon)	6-8	629	57.6%	40.1%
Leestown Middle (Fayette)	6-8	633	58.0%	40.5%
Taylor County Middle (Taylor)	6-8	637	58.4%	41.0%
Garrard Middle (Garrard)	6-8	638	58.8%	41.4%
Breckinridge County Middle (Breckinridge)	6-8	640	59.2%	41.9%
Muhlenberg North Middle (Muhlenberg)	6-8	640	59.7%	42.4%
Barret Traditional Middle (Jefferson)	6-8	643	60.1%	42.8%
Mason County Middle (Mason)	6-8	645	60.5%	43.3%
Paducah Middle (Paducah)	6-8	645	60.9%	43.7%
Winburn Middle (Fayette)	6-8	646	61.3%	44.2%
Ohio County Middle (Ohio)	7-8	648	61.8%	44.6%
Bryan Station Traditional Magnet MS (Fayette)	6-8	650	62.2%	45.1%
Bondurant Middle (Franklin)	6-8	652	62.6%	45.6%
East Hardin Middle (Hardin)	6-8	653	63.0%	46.0%
Clay County Middle (Clay)	7-8	654	63.4%	46.5%
Estill County Middle (Estill)	6-8	654	63.9%	47.0%
East Carter Middle (Carter)	6-8	668	64.3%	47.4%
Bath County Middle (Bath)	5-8	670	64.7%	47.9%
Rector A Jones Middle (Boone)	6-8	674	65.1%	48.4%
Lone Oak Middle (McCracken)	6-8	677	65.5%	48.9%
Lincoln County Middle (Lincoln)	7-8	681	66.0%	49.3%
Western Middle (Jefferson)	6-8	682	66.4%	49.8%
Bullitt Lick Middle (Bullitt)	6-8	696	66.8%	50.3%
Graves County Middle (Graves)	7-8	698	67.2%	50.8%
James T Alton Middle (Hardin)	6-8	699	67.6%	51.3%
Boyle County Middle (Boyle)	6-8	710	68.1%	51.8%
Madison Middle (Madison)	6-8	711	68.5%	52.3%
Hopkinsville Middle (Christian)	6-8	717	68.9%	52.8%
Henderson County South Middle (Henderson)	6-8	722	69.3%	53.3%
Murray Middle (Murray)	4-8	725	69.7%	53.9%
Calloway County Middle (Calloway)	6-8	728	70.2%	54.4%
Woodland Middle (Kenton)	6-8	729	70.6%	54.9%
Phillip A Sharp Middle (Pendleton)	6-8	733	71.0%	55.4%
Lassiter Middle (Jefferson)	6-8	737	71.4%	55.9%
Trigg County Middle (Trigg)	5-8	740	71.8%	56.5%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Twenhofel Middle (Kenton)	6-8	740	72.3%	57.0%
Drakes Creek Middle (Warren)	7-8	742	72.7%	57.5%
Clark Moores Middle (Madison)	6-8	745	73.1%	58.0%
Rockcastle County Middle (Rockcastle)	6-8	749	73.5%	58.6%
Boyd County Middle (Boyd)	6-8	753	73.9%	59.1%
Bluegrass Middle (Hardin)	6-8	758	74.4%	59.6%
Rowan County Middle (Rowan)	6-8	760	74.8%	60.2%
Iroquois Middle Magnet Career Academy (Jefferson)	6-8	764	75.2%	60.7%
Turkey Foot Middle (Kenton)	6-8	767	75.6%	61.3%
Whitley County Middle (Whitley)	7-8	767	76.1%	61.8%
Kenneth D King Middle (Mercer)	5-8	768	76.5%	62.3%
Elkhorn Middle (Franklin)	6-8	770	76.9%	62.9%
Morton Middle (Fayette)	6-8	771	77.3%	63.4%
James E Bazzell Middle (Allen)	6-8	773	77.7%	64.0%
Carrithers Middle (Jefferson)	6-8	779	78.2%	64.5%
Shelby County West Middle (Shelby)	6-8	781	78.6%	65.1%
West Jessamine Middle (Jessamine)	6-8	786	79.0%	65.7%
Foley Middle (Madison)	6-8	796	79.4%	66.2%
Daviess County Middle (Daviess)	6-8	799	79.8%	66.8%
Harrison County Middle (Harrison)	6-8	799	80.3%	67.4%
Southern Middle (Fayette)	6-8	804	80.7%	67.9%
Bowling Green Middle (Bowling Green)	6-8	819	81.1%	68.5%
Spencer County Middle (Spencer)	5-8	827	81.5%	69.1%
Summit View Middle (Kenton)	6-8	829	81.9%	69.7%
Ockerman Middle (Boone)	6-8	830	82.4%	70.3%
South Oldham Middle (Oldham)	6-8	831	82.8%	70.9%
Stuart Pepper Middle (Meade)	7-8	835	83.2%	71.4%
Jessie M Clark Middle (Fayette)	6-8	837	83.6%	72.0%
F T Burns Middle (Daviess)	6-8	838	84.0%	72.6%
Hebron Middle (Bullitt)	6-8	845	84.5%	73.2%
Henderson County North Middle (Henderson)	6-8	851	84.9%	73.8%
Northern Middle (Pulaski)	6-8	852	85.3%	74.4%
College View Middle (Daviess)	6-8	856	85.7%	75.0%
Southern Leadership Academy (Jefferson)	6-8	866	86.1%	75.7%
Mount Washington Middle (Bullitt)	6-8	888	86.6%	76.3%
North Oldham Middle (Oldham)	5-8	892	87.0%	76.9%
Kammerer Middle (Jefferson)	6-8	894	87.4%	77.6%
Edythe Jones Hayes Middle (Fayette)	6-8	904	87.8%	78.2%
Jefferson County Traditional Middle (Jefferson)	6-8	910	88.2%	78.8%
Christian County Middle (Christian)	6-8	912	88.7%	79.5%
Anderson County Middle (Anderson)	6-8	944	89.1%	80.2%
Moore Traditional Middle (Jefferson)	6-8	953	89.5%	80.8%
East Jessamine County Middle (Jessamine)	6-8	955	89.9%	81.5%
Johnson Traditional Middle (Jefferson)	6-8	964	90.3%	82.2%
Grant County Middle (Grant)	6-8	965	90.8%	82.9%
Oldham County Middle (Oldham)	6-8	972	91.2%	83.6%
Conway Middle (Jefferson)	6-8	978	91.6%	84.3%
North Laurel Middle (Laurel)	6-8	980	92.0%	85.0%
Southern Middle (Pulaski)	6-8	1,003	92.4%	85.7%
Farnsley Middle (Jefferson)	6-8	1,011	92.9%	86.4%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Grayson County Middle (Grayson)	6-8	1,015	93.3%	87.1%
Myers Middle (Jefferson)	6-8	1,036	93.7%	87.8%
Highland Middle (Jefferson)	6-8	1,042	94.1%	88.6%
McNabb Middle (Montgomery)	6-8	1,052	94.5%	89.3%
Scott County Middle (Scott)	6-8	1,054	95.0%	90.1%
Campbell County Middle (Campbell)	6-8	1,067	95.4%	90.8%
Westport Traditional Middle & Fine Arts Academy (Jefferson)	6-8	1,073	95.8%	91.6%
Beaumont Middle (Fayette)	6-8	1,079	96.2%	92.4%
Newburg Middle (Jefferson)	6-8	1,101	96.6%	93.1%
Meyzeek Middle (Jefferson)	6-8	1,140	97.1%	93.9%
Gray Middle (Boone)	6-8	1,151	97.5%	94.8%
Crosby Middle (Jefferson)	6-8	1,158	97.9%	95.6%
South Laurel Middle (Laurel)	6-8	1,174	98.3%	96.4%
Thomas Jefferson Middle (Jefferson)	6-8	1,187	98.7%	97.3%
Stuart Middle (Jefferson)	6-8	1,277	99.2%	98.2%
Conner Middle (Boone)	6-8	1,281	99.6%	99.1%
Noe Middle (Jefferson)	6-8	1,305	100.0%	100.0%
High Schools (Lowest grade is grade 7 to grade 12 and highest grade is grade 12)				
Frederick Fraize High (Cloverport)	9-12	84	0.4%	0.0%
Breckinridge Metropolitan High (Jefferson)	8-12	116	0.9%	0.1%
Providence High (Providence)	9-12	119	1.3%	0.2%
Cordia High (Knott)	7-12	143	1.7%	0.2%
Ramey-Estep High (Boyd)	7-12	165	2.2%	0.3%
Letcher High (Letcher)	9-12	189	2.6%	0.4%
Buechel Metropolitan High (Jefferson)	9-12	195	3.0%	0.5%
Dawson Springs High (Dawson Springs)	9-12	197	3.5%	0.6%
Paris High (Paris)	9-12	207	3.9%	0.7%
Buckhorn High (Perry)	9-12	210	4.3%	0.8%
Brown High (Jefferson)	9-12	212	4.8%	1.0%
Deming High (Robertson)	7-12	220	5.2%	1.1%
Model Laboratory High (Madison)	9-12	226	5.7%	1.2%
Fulton City High (Fulton)	7-12	227	6.1%	1.3%
Caverna High (Caverna)	9-12	233	6.5%	1.4%
Fleming Neon High (Letcher)	9-12	236	7.0%	1.6%
Harrodsburg High (Harrodsburg)	9-12	241	7.4%	1.7%
Monticello High (Monticello)	9-12	241	7.8%	1.8%
Fulton County High (Fulton)	9-12	243	8.3%	1.9%
Jenkins Middle High (Jenkins)	7-12	250	8.7%	2.1%
Carlisle County High (Carlisle)	9-12	253	9.1%	2.2%
Pineville High (Pineville)	7-12	281	9.6%	2.3%
Barbourville High (Barbourville)	7-12	289	10.0%	2.5%
Hazard High (Hazard)	9-12	291	10.4%	2.6%
Cumberland High (Harlan)	9-12	300	10.9%	2.8%
Lyon County High (Lyon)	9-12	306	11.3%	3.0%
Ludlow High (Ludlow)	9-12	307	11.7%	3.1%
Berea Community High (Berea)	9-12	339	12.2%	3.3%
Frankfort High (Frankfort)	9-12	349	12.6%	3.5%
Cumberland County High (Cumberland)	9-12	352	13.0%	3.7%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Nicholas County High (Nicholas)	9-12	352	13.5%	3.8%
Paintsville High (Paintsville)	7-12	357	13.9%	4.0%
Owsley County High (Owsley)	7-12	363	14.3%	4.2%
Wolfe County High (Wolfe)	9-12	366	14.8%	4.4%
Hickman County High (Hickman)	7-12	367	15.2%	4.6%
Campbellsville High (Campbellsville)	9-12	368	15.7%	4.8%
Menifee County High (Menifee)	9-12	375	16.1%	5.0%
Lee County High (Lee)	9-12	376	16.5%	5.2%
Russellville High (Russellville)	8-12	382	17.0%	5.4%
Evarts High (Harlan)	9-12	389	17.4%	5.6%
South Floyd High (Floyd)	9-12	389	17.8%	5.8%
Bracken County High (Bracken)	9-12	402	18.3%	6.0%
Crittenden County High (Crittenden)	9-12	406	18.7%	6.2%
Allen Central High (Floyd)	9-12	407	19.1%	6.4%
Fairview High (Fairview)	7-12	409	19.6%	6.6%
Liberty High (Jefferson)	8-12	410	20.0%	6.9%
Mayfield High (Mayfield)	9-12	422	20.4%	7.1%
Bellevue High (Bellevue)	7-12	426	20.9%	7.3%
Ballard Memorial High (Ballard)	9-12	434	21.3%	7.5%
Gallatin County High (Gallatin)	9-12	440	21.7%	7.8%
Livingston Central High (Livingston)	9-12	451	22.2%	8.0%
Raceland-Worthington High (Raceland)	7-12	458	22.6%	8.2%
Clinton County High (Clinton)	9-12	467	23.0%	8.5%
Betsy Layne High (Floyd)	9-12	473	23.5%	8.7%
Phelps High (Pike)	7-12	476	23.9%	9.0%
Trimble County High (Trimble)	9-12	480	24.3%	9.2%
Metcalfe County High (Metcalfe)	9-12	484	24.8%	9.5%
Beechwood High (Beechwood)	7-12	486	25.2%	9.7%
Hancock County High (Hancock)	9-12	491	25.7%	10.0%
Dayton High (Dayton)	7-12	498	26.1%	10.2%
McLean County High (McLean)	9-12	504	26.5%	10.5%
Murray High (Murray)	9-12	515	27.0%	10.8%
Somerset High (Somerset)	9-12	525	27.4%	11.1%
Green County High (Green)	9-12	530	27.8%	11.3%
Bardstown High (Bardstown)	9-12	532	28.3%	11.6%
Walton-Verona High (Walton-Verona)	7-12	535	28.7%	11.9%
Danville High (Danville)	9-12	536	29.1%	12.2%
Bath County High (Bath)	9-12	537	29.6%	12.4%
Reidland High (McCracken)	9-12	540	30.0%	12.7%
Carroll County High (Carroll)	9-12	548	30.4%	13.0%
Elliott County High (Elliott)	7-12	549	30.9%	13.3%
Monroe County High (Monroe)	9-12	558	31.3%	13.6%
Glasgow High (Glasgow)	9-12	565	31.7%	13.9%
Middlesboro High (Middlesboro)	9-12	574	32.2%	14.2%
Webster County High (Webster)	9-12	584	32.6%	14.5%
Owen County High (Owen)	9-12	597	33.0%	14.8%
Todd County Central High (Todd)	9-12	599	33.5%	15.1%
Trigg County High (Trigg)	9-12	601	33.9%	15.4%
Pikeville High (Pikeville)	7-12	604	34.3%	15.7%
Newport High (Newport)	9-12	609	34.8%	16.1%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Shelby Valley High (Pike)	9-12	611	35.2%	16.4%
Washington County High (Washington)	9-12	611	35.7%	16.7%
Heath High (McCracken)	9-12	621	36.1%	17.0%
Whitesburg High (Letcher)	9-12	625	36.5%	17.3%
Lloyd High (Erlanger-Elsmere)	9-12	641	37.0%	17.7%
Corbin High (Corbin)	9-12	642	37.4%	18.0%
Leslie County High (Leslie)	9-12	651	37.8%	18.4%
Caldwell County High (Caldwell)	9-12	659	38.3%	18.7%
Henry County High (Henry)	9-12	666	38.7%	19.1%
Morgan County High (Morgan)	9-12	667	39.1%	19.4%
Magoffin County High (Magoffin)	9-12	674	39.6%	19.8%
Sheldon Clark High (Martin)	9-12	674	40.0%	20.1%
Prestonsburg High (Floyd)	9-12	676	40.4%	20.5%
Muhlenberg South High (Muhlenberg)	9-12	677	40.9%	20.8%
Jackson County High (Jackson)	9-12	681	41.3%	21.2%
West Carter County High (Carter)	9-12	681	41.7%	21.5%
Breathitt County High (Breathitt)	9-12	683	42.2%	21.9%
Pike Central High (Pike)	9-12	683	42.6%	22.2%
Shawnee High Magnet Career Academy (Jefferson)	9-12	683	43.0%	22.6%
Western Hills High (Franklin)	9-12	686	43.5%	22.9%
Knott County Central High (Knott)	9-12	687	43.9%	23.3%
Wayne County High (Wayne)	9-12	689	44.3%	23.7%
Butler County High (Butler)	9-12	690	44.8%	24.0%
Edmonson County High (Edmonson)	9-12	693	45.2%	24.4%
Belfry High (Pike)	9-12	695	45.7%	24.8%
Spencer County High (Spencer)	9-12	697	46.1%	25.1%
Estill County High (Estill)	9-12	699	46.5%	25.5%
Lewis County High (Lewis)	9-12	699	47.0%	25.8%
Mercer County High (Mercer)	9-12	699	47.4%	26.2%
Russell High (Russell)	9-12	699	47.8%	26.6%
Moore Traditional High (Jefferson)	9-12	722	48.3%	27.0%
Casey County High (Casey)	9-12	723	48.7%	27.3%
James A Cawood High (Harlan)	9-12	724	49.1%	27.7%
Garrard County High (Garrard)	9-12	726	49.6%	28.1%
North Oldham High (Oldham)	9-12	730	50.0%	28.5%
East Carter County High (Carter)	9-12	737	50.4%	28.9%
LaRue County High (LaRue)	9-12	739	50.9%	29.2%
Elizabethtown High (Elizabethtown)	9-12	755	51.3%	29.6%
Hart County High (Hart)	9-12	755	51.7%	30.0%
Union County High (Union)	9-12	769	52.2%	30.4%
East Ridge High (Pike)	9-12	775	52.6%	30.8%
Fleming County High (Fleming)	9-12	776	53.0%	31.2%
Powell County High (Powell)	9-12	791	53.5%	31.6%
Adair County High (Adair)	9-12	798	53.9%	32.1%
Taylor County High (Taylor)	9-12	808	54.3%	32.5%
Highlands High (Fort Thomas)	9-12	818	54.8%	32.9%
Paducah Tilghman High (Paducah)	9-12	818	55.2%	33.3%
Bourbon County High (Bourbon)	9-12	831	55.7%	33.8%
Mason County High (Mason)	9-12	832	56.1%	34.2%
Muhlenberg North High (Muhlenberg)	9-12	837	56.5%	34.6%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Lawrence County High (Lawrence)	9-12	850	57.0%	35.1%
Breckinridge County High (Breckinridge)	9-12	853	57.4%	35.5%
Fairdale High Magnet Career Academy (Jefferson)	9-12	853	57.8%	36.0%
Lone Oak High (McCracken)	9-12	863	58.3%	36.4%
Warren East High (Warren)	9-12	877	58.7%	36.9%
Pendleton County High (Pendleton)	9-12	879	59.1%	37.3%
Western MST Magnet High (Jefferson)	9-12	882	59.6%	37.8%
Bell County High (Bell)	9-12	883	60.0%	38.3%
Boyle County High (Boyle)	9-12	889	60.4%	38.7%
Russell County High (Russell)	9-12	909	60.9%	39.2%
Franklin-Simpson High (Simpson)	9-12	915	61.3%	39.7%
Marion County High (Marion)	9-12	919	61.7%	40.2%
McCreary Central High (McCreary)	9-12	920	62.2%	40.6%
Rockcastle County High (Rockcastle)	9-12	921	62.6%	41.1%
Rowan County Senior High (Rowan)	9-12	925	63.0%	41.6%
Bullitt East High (Bullitt)	9-12	931	63.5%	42.1%
Knox Central High (Knox)	9-12	932	63.9%	42.6%
Allen County-Scottsville High (Allen)	9-12	934	64.3%	43.1%
East Jessamine High (Jessamine)	9-12	936	64.8%	43.6%
Greenup County High (Greenup)	9-12	942	65.2%	44.1%
Calloway County High (Calloway)	9-12	948	65.7%	44.5%
Franklin County High (Franklin)	9-12	958	66.1%	45.0%
Valley Traditional High (Jefferson)	9-12	969	66.5%	45.6%
Madison Southern High (Madison)	9-12	975	67.0%	46.1%
South Oldham High (Oldham)	9-12	985	67.4%	46.6%
Central High (Hopkins)	9-12	987	67.8%	47.1%
North Bullitt High (Bullitt)	9-12	989	68.3%	47.6%
Atherton High (Jefferson)	9-12	993	68.7%	48.1%
Harrison County High (Harrison)	9-12	1,002	69.1%	48.6%
West Jessamine High (Jessamine)	9-12	1,008	69.6%	49.2%
Boyd County High (Boyd)	9-12	1,015	70.0%	49.7%
Paul G Blazer High (Ashland)	9-12	1,024	70.4%	50.2%
Logan County High (Logan)	9-12	1,025	70.9%	50.8%
Johnson Central High (Johnson)	9-12	1,039	71.3%	51.3%
Perry County Central High (Perry)	9-12	1,039	71.7%	51.9%
Jeffersontown High Magnet Career Academy (Jefferson)	9-12	1,044	72.2%	52.4%
Pulaski County High (Pulaski)	9-12	1,044	72.6%	52.9%
Central High (Jefferson)	9-12	1,048	73.0%	53.5%
Bowling Green High (Bowling Green)	9-12	1,050	73.5%	54.0%
Jefferson County High (Jefferson)	9-12	1,063	73.9%	54.6%
Hopkinsville High (Christian)	9-12	1,076	74.3%	55.2%
Anderson County High (Anderson)	9-12	1,092	74.8%	55.7%
Madisonville North Hopkins High (Hopkins)	9-12	1,104	75.2%	56.3%
Grant County High (Grant)	9-12	1,112	75.7%	56.9%
Owensboro High (Owensboro)	9-12	1,136	76.1%	57.5%
Clay County High (Clay)	9-12	1,154	76.5%	58.1%
Doss High Magnet Career Academy (Jefferson)	9-12	1,159	77.0%	58.7%
Montgomery County High (Montgomery)	9-12	1,163	77.4%	59.3%
Warren Central High (Warren)	9-12	1,172	77.8%	59.9%
Waggener Traditional High (Jefferson)	9-12	1,191	78.3%	60.5%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Students
Lincoln County High (Lincoln)	9-12	1,200	78.7%	61.2%
Scott High (Kenton)	9-12	1,205	79.1%	61.8%
Woodford County High (Woodford)	9-12	1,205	79.6%	62.4%
Ohio County High (Ohio)	9-12	1,217	80.0%	63.0%
Dixie Heights High (Kenton)	9-12	1,228	80.4%	63.7%
Barren County High (Barren)	9-12	1,231	80.9%	64.3%
Southwestern High (Pulaski)	9-12	1,231	81.3%	65.0%
Oldham County High (Oldham)	9-12	1,244	81.7%	65.6%
Whitley County High (Whitley)	9-12	1,244	82.2%	66.3%
Grayson County High (Grayson)	9-12	1,249	82.6%	66.9%
North Laurel High (Laurel)	9-12	1,268	83.0%	67.6%
South Laurel High (Laurel)	9-12	1,290	83.5%	68.3%
Bullitt Central High (Bullitt)	9-12	1,300	83.9%	68.9%
John Hardin High (Hardin)	9-12	1,305	84.3%	69.6%
Iroquois High (Jefferson)	9-12	1,306	84.8%	70.3%
Scott County High (Scott)	10-12	1,345	85.2%	71.0%
Holmes Junior Senior High (Covington)	8-12	1,366	85.7%	71.7%
Fern Creek Traditional High (Jefferson)	9-12	1,371	86.1%	72.4%
Bryan Station High (Fayette)	9-12	1,375	86.5%	73.2%
Christian County High (Christian)	9-12	1,376	87.0%	73.9%
Graves County High (Graves)	9-12	1,378	87.4%	74.6%
Simon Kenton High (Kenton)	9-12	1,385	87.8%	75.3%
Southern High Magnet Career Academy (Jefferson)	9-12	1,395	88.3%	76.0%
Greenwood High (Warren)	9-12	1,416	88.7%	76.8%
Apollo High (Daviess)	9-12	1,441	89.1%	77.5%
North Hardin High (Hardin)	9-12	1,442	89.6%	78.3%
Marshall County High (Marshall)	9-12	1,445	90.0%	79.0%
Larry A. Ryle High (Boone)	9-12	1,488	90.4%	79.8%
Campbell County High (Campbell)	9-12	1,515	90.9%	80.6%
Meade County High (Meade)	9-12	1,536	91.3%	81.4%
Shelby County High (Shelby)	9-12	1,540	91.7%	82.2%
Boone County High (Boone)	9-12	1,563	92.2%	83.0%
Nelson County High (Nelson)	9-12	1,582	92.6%	83.9%
Conner High (Boone)	9-12	1,586	93.0%	84.7%
George Rogers Clark High (Clark)	9-12	1,589	93.5%	85.5%
Central Hardin High (Hardin)	9-12	1,597	93.9%	86.3%
Madison Central High (Madison)	9-12	1,622	94.3%	87.2%
Louisville Male High (Jefferson)	9-12	1,641	94.8%	88.0%
Butler Traditional High (Jefferson)	9-12	1,643	95.2%	88.9%
Ballard High (Jefferson)	9-12	1,691	95.7%	89.8%
Tates Creek High (Fayette)	9-12	1,738	96.1%	90.7%
Daviess County High (Daviess)	9-12	1,758	96.5%	91.6%
Seneca High Magnet Career Academy (Jefferson)	9-12	1,825	97.0%	92.6%
Dupont Manual High (Jefferson)	9-12	1,852	97.4%	93.5%
Eastern High (Jefferson)	9-12	1,893	97.8%	94.5%
Pleasure Ridge Park Magnet Career Academy (Jefferson)	9-12	1,978	98.3%	95.6%
Henry Clay High (Fayette)	9-12	2,021	98.7%	96.6%
Lafayette High (Fayette)	9-12	2,030	99.1%	97.7%
Paul Laurence Dunbar High (Fayette)	9-12	2,222	99.6%	98.8%
Henderson County Senior High (Henderson)	9-12	2,243	100.0%	100.0%

School (District)	Grades	Enroll-ment	Cumulative % of: Schools	Cumulative % of: Students
Other (Schools that do not fit within the previous types)				
Burgin High (Burgin)	6-12	243	10.0%	5.0%
Augusta Independent (Augusta)	P-12	278	20.0%	10.7%
Silver Grove (Silver Grove)	P-12	310	30.0%	17.0%
Williamstown High (Williamstown)	6-12	441	40.0%	26.0%
Eminence High (Eminence)	5-12	501	50.0%	36.3%
Harlan High (Harlan)	5-12	514	60.0%	46.8%
Scott County Ninth Grade (Scott)	9-9	570	70.0%	58.5%
Jackson City (Jackson)	P-12	600	80.0%	70.8%
Lynn Camp High (Knox)	6-12	685	90.0%	84.8%
Williamsburg City (Williamsburg)	P-12	744	100.0%	100.0%

Source: Compiled by staff from data from the Kentucky Department of Education.

Appendix B

Description of the Methodology Used To Compare Performance

This appendix summarizes the data and methodology used to compare the performance across school size. The detailed estimates are also included.

Data for the comparisons came from several different sources. Students' test scores on each of the CATS assessments for school years 2001 through 2005 were obtained from the Kentucky Department of Education. The department also provided information on students' demographic characteristics such as gender and race, and information on whether students participated in the various assistance programs. Such programs have been developed to identify and assist students who face certain types of barriers to learning.

The department also provided school report cards, which included the number of students per teacher, the number of computers per student, and several measures of teacher education. The information on teacher education consisted of

- the percentage of classes that were taught by teachers who were certified in the subjects and grades they taught,
- the percentage of classes that were taught by teachers who majored or minored in the subjects they taught, and
- the percentage of classes taught by teachers who have earned master's degrees.

Schools also reported the number of hours parents or guardians volunteered at school and the number of students whose parents or guardians participated in "at least one teacher conference" (Commonwealth. Department. "Fields" 14).

Schools were grouped into seven categories based on size. Dummy variables were created for each category. Using the available data, regression models were estimated to determine if performance on the various assessments differed with school size. Regression models allow for the influence of various factors to be estimated. It is useful to account for these factors because they can affect the comparisons of performance across school size. An example of this might be the influence migrant students have on scores. Migrant students often face language and cultural barriers that can limit performance on standard assessments. If migrant students were disproportionately enrolled in large schools, large schools might appear to score poorly relative to smaller schools. This apparent difference could be due to the relatively large number of migrant students rather than any disadvantage that might be present at large schools.

Each student's characteristics were taken into account using dummy variables that indicated the student's race, whether the student was a migrant, whether the student had a disability, whether the student participated in the school assistance programs, and whether the student received free or reduced lunches. The model also accounted for

school-level effects that might be common for students within a particular school. To determine whether the effect of school size differed across racial or economic groups, estimates were made that also compared the performance of different groups of students across school size. This was done by estimating a separate regression model for the students in each of the racial/ethnic groups and a separate model for students who participated in the free or reduced lunch programs.

Typically, elementary schools consisted of 1st through 5th grades, middle schools consisted of 6th through 8th grades, and high schools consisted of 9th through 12th grades. The data provided by the Kentucky Department of Education indicated that some schools grouped grades differently. For instance, Bellevue High School combines 7th through 12th grades. It was not known how integrated the grades might have been in these schools. To account for these situations, dummy variables were created indicating whether grades typically assigned as elementary, middle, and high school were combined. For example, a school consisting of 1st through 7th grades was classified as a combined elementary and middle school.

A similar model was developed for the school-level analysis. In this analysis, schools' academic indices on each component of the Kentucky Core Content Test and the school-level score on the norm-referenced test were compared across school size. Much of the same data that were used in the student-level analysis were also used in the school-level analysis. Individual student characteristics, however, were replaced with the percentage of students having those characteristics. For example, participation in the free or reduced lunch program was accounted for using the percentage of students participating.

The results of the regressions are shown in the following tables. Schools with 300 or fewer students were the excluded group in the regressions. Therefore, the estimates associated with school size show performance levels relative to schools with 300 or fewer students. For the students' race, whites were the excluded category. Tables B.1 through B.3 show the results of the student-level analysis for all students. Tables B.4 through B.6 show the results from the student-level analysis by racial/ethnic groups and students who participated in the free or reduced lunch programs. Only the results associated with school size are shown in Table B.4 through B.6. The results associated with other factors that were accounted for, such as student-teacher ratio, are available upon request. Tables B.7 through B.9 show the results for the school-level analysis.

All tables consist of staff analyses of data provided by the Kentucky Department of Education.

Table B.1
Student-level Analysis (Elementary Schools)

Variable	NRT 3rd Grade		Reading 4th Grade		Science 4th Grade		Arts & Humanities 5th Grade		Math 5th Grade		Practical Living & Vocational Skills 5th Grade		Social Studies 5th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	626.51	(101.77)	555.56	(99.25)	545.47	(106.62)	492.29	(52.37)	539.16	(93.03)	469.95	(50.63)	522.90	(108.96)
Male	-3.61	(-25.83)	-8.74	(-67.36)	1.59	(13.44)	-13.78	(-51.58)	-0.02	(-0.15)	-11.50	(-43.15)	-2.76	(-20.39)
Asian	5.09	(6.16)	4.40	(5.63)	3.07	(4.31)	9.73	(6.11)	16.51	(16.78)	4.02	(2.53)	4.83	(5.98)
Hispanic	-9.19	(-15.16)	-3.82	(-6.59)	-5.80	(-10.99)	-11.86	(-9.72)	-5.43	(-7.20)	-13.24	(-10.88)	-6.15	(-9.92)
Black	-14.02	(-54.29)	-11.04	(-45.70)	-13.87	(-63.07)	-20.20	(-40.60)	-16.92	(-55.06)	-18.80	(-37.93)	-11.97	(-47.36)
Other Racial Group	-4.83	(-8.08)	-2.21	(-3.77)	-3.69	(-6.91)	-7.58	(-6.15)	-5.07	(-6.66)	-6.03	(-4.91)	-4.04	(-6.46)
Migrant	-6.31	(-9.90)	-6.57	(-11.06)	-5.87	(-10.85)	-14.95	(-11.84)	-7.80	(-10.00)	-13.19	(-10.47)	-7.95	(-12.41)
Title I Basic Program	-11.18	(-35.89)	-10.33	(-34.38)	-8.25	(-30.13)	-17.39	(-27.27)	-12.86	(-32.65)	-16.91	(-26.62)	-10.29	(-31.78)
Extended School Services	-17.10	(-96.22)	-9.45	(-63.62)	-6.96	(-51.41)	-15.08	(-46.85)	-11.23	(-56.50)	-13.90	(-43.32)	-8.42	(-51.49)
Individualize Education Plan	-17.45	(-27.13)	-11.08	(-19.19)	-10.98	(-20.88)	-28.42	(-24.18)	-23.19	(-31.93)	-22.32	(-19.04)	-16.65	(-27.90)
Disability	-10.62	(-16.71)	-4.92	(-8.66)	-4.56	(-8.82)	-10.88	(-9.47)	-10.45	(-14.72)	-11.30	(-9.86)	-8.27	(-14.18)
Free or Reduced Lunch	-13.58	(-86.61)	-12.75	(-87.86)	-10.65	(-80.55)	-21.86	(-73.17)	-14.94	(-80.92)	-20.14	(-67.62)	-13.41	(-88.43)
Student-Teacher Ratio	-0.46	(-7.29)	-0.51	(-8.78)	-0.73	(-13.68)	-1.34	(-11.33)	-1.00	(-13.77)	-1.30	(-11.28)	-0.85	(-14.10)
Student-Computer Ratio	-0.01	(-1.23)	0.00	(0.10)	0.01	(0.99)	-0.08	(-3.89)	-0.02	(-1.55)	-0.06	(-2.96)	-0.02	(-2.10)
Percent of population with income above $150,000	15.40	(0.66)	58.25	(2.60)	57.28	(2.61)	116.85	(2.56)	57.55	(2.12)	84.57	(2.21)	46.42	(1.83)
Percent of population with a bachelor's degree or higher	6.62	(0.93)	-4.32	(-0.64)	-13.29	(-1.99)	3.88	(0.28)	18.57	(2.25)	6.28	(0.54)	0.74	(0.10)
Percent of classes taught by teachers certified for subject & grade	0.13	(2.12)	0.07	(1.29)	0.05	(1.08)	0.34	(3.86)	0.25	(4.65)	0.46	(5.26)	0.22	(4.87)
Percent of classes taught by teachers with a major/minor in the subject they teach	0.11	(6.41)	0.08	(5.20)	0.16	(10.91)	0.31	(10.02)	0.20	(10.65)	0.29	(9.49)	0.17	(10.85)
Percent of teachers with a master's degree	0.07	(7.02)	0.07	(7.42)	0.09	(9.93)	0.20	(10.52)	0.10	(8.00)	0.15	(7.86)	0.11	(10.62)
Volunteer hours per student	0.03	(1.30)	0.03	(1.82)	0.09	(5.09)	0.04	(1.16)	0.08	(3.25)	0.09	(2.40)	0.06	(2.81)
Percent of students with at least one parent-teacher conference	2.78	(4.07)	2.06	(3.30)	3.20	(5.60)	8.24	(6.43)	4.83	(6.12)	8.55	(6.77)	4.80	(7.35)
Elementary & Middle	-1.86	(-1.71)	-6.18	(-5.91)	-6.30	(-6.24)	-18.84	(-9.25)	-9.87	(-8.09)	-13.73	(-7.79)	-8.72	(-7.84)
Elementary, Middle, & High	1.50	(3.36)	-0.74	(-1.77)	1.61	(4.21)	-1.64	(-1.92)	-1.27	(-2.41)	0.63	(0.74)	0.32	(0.73)
Middle & High							-18.57	(-1.29)	-14.67	(-1.71)	-16.83	(-1.39)	-8.57	(-1.07)
Middle							37.55	(0.57)	5.00	(0.12)	-34.66	(-0.54)	3.31	(0.10)
301 to 600	1.01	(2.02)	-0.62	(-1.33)	-0.97	(-2.25)	-0.59	(-0.62)	0.77	(1.30)	0.37	(0.40)	0.29	(0.59)
601 to 900	0.71	(1.15)	-1.16	(-2.01)	-1.26	(-2.37)	0.35	(0.29)	0.91	(1.24)	0.42	(0.37)	1.39	(2.25)
901 to 1,200	7.28	(5.13)	-0.11	(-0.09)	1.04	(0.84)	-1.71	(-0.52)	-0.93	(-0.46)	9.16	(2.85)	0.21	(0.12)
1,201 to 1,500														
1,501 to 1,800														
Over 1,800														

Table B.2
Student-level Analysis (Middle Schools)

Variable	NRT 6th Grade		Reading 7th Grade		Science 7th Grade		Arts & Humanities 8th Grade		Math 8th Grade		Practical Living & Vocational Skills 8th Grade		Social Studies 8th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	666.51	(183.28)	520.35	(152.74)	510.82	(146.34)	513.34	(67.02)	526.60	(125.20)	503.02	(77.88)	509.88	(103.14)
Male	-4.20	(-29.74)	-11.70	(-99.62)	2.82	(23.59)	-22.15	(-84.30)	0.37	(2.58)	-14.25	(-63.42)	-7.10	(-41.84)
Asian	8.17	(9.60)	7.81	(11.15)	6.82	(9.57)	20.50	(13.24)	16.67	(19.55)	10.21	(7.71)	13.78	(13.78)
Hispanic	-10.26	(-16.02)	-5.37	(-9.84)	-9.24	(-16.64)	-16.79	(-13.42)	-8.33	(-12.09)	-16.41	(-15.34)	-11.76	(-14.56)
Black	-17.71	(-67.01)	-10.31	(-46.72)	-15.97	(-71.06)	-17.42	(-34.80)	-17.31	(-62.81)	-17.72	(-41.43)	-16.37	(-50.68)
Other Racial Group	-5.76	(-9.01)	-3.06	(-5.41)	-5.03	(-8.73)	-7.62	(-5.96)	-5.22	(-7.41)	-5.62	(-5.14)	-4.61	(-5.59)
Migrant	-5.33	(-7.65)	-6.92	(-11.21)	-6.31	(-10.04)	-14.58	(-10.16)	-6.07	(-7.68)	-9.49	(-7.74)	-9.97	(-10.76)
Title I Basic Program	-10.93	(-31.16)	-7.42	(-24.06)	-7.44	(-23.70)	-12.13	(-16.56)	-7.38	(-18.30)	-9.44	(-15.08)	-9.27	(-19.59)
Extended School Services	-13.03	(-71.59)	-5.61	(-38.40)	-4.90	(-32.93)	-9.63	(-27.59)	-5.42	(-28.20)	-8.83	(-29.59)	-6.96	(-30.89)
Individualize Education Plan	-21.62	(-33.28)	-16.73	(-30.78)	-18.08	(-32.67)	-32.82	(-26.97)	-24.35	(-36.34)	-25.85	(-24.85)	-24.79	(-31.55)
Disability	-16.56	(-26.11)	-12.85	(-24.17)	-11.35	(-20.96)	-28.68	(-24.15)	-20.18	(-30.85)	-23.74	(-23.38)	-21.51	(-28.05)
Free or Reduced Lunch	-15.93	(-101.95)	-12.70	(-97.82)	-12.18	(-92.13)	-26.30	(-90.19)	-14.74	(-91.79)	-21.59	(-86.61)	-19.86	(-105.48)
Student-Teacher Ratio	-0.34	(-6.39)	-0.62	(-14.29)	-0.98	(-22.01)	-1.76	(-18.03)	-0.91	(-17.02)	-0.90	(-10.90)	-0.90	(-14.39)
Student-Computer Ratio	-0.03	(-1.80)	-0.04	(-3.06)	-0.03	(-2.47)	-0.20	(-7.95)	-0.10	(-7.36)	-0.13	(-5.78)	-0.11	(-6.64)
Percent of population with income above $150,000	9.97	(0.45)	39.22	(2.13)	14.40	(0.71)	98.52	(2.30)	16.07	(0.70)	52.47	(1.69)	53.03	(1.92)
Percent of population with a bachelor's degree or higher	41.30	(5.16)	17.68	(2.54)	15.94	(2.10)	44.08	(2.73)	37.25	(4.33)	43.34	(3.70)	32.27	(3.10)
Percent of classes taught by teachers certified for subject & grade	0.09	(2.77)	0.08	(3.31)	0.02	(0.71)	0.20	(3.97)	0.15	(5.40)	0.16	(3.77)	0.14	(4.18)
Percent of classes taught by teachers with a major/minor in the subject they teach	0.07	(8.53)	0.11	(16.00)	0.10	(14.49)	0.30	(18.67)	0.17	(19.91)	0.18	(13.47)	0.15	(14.58)
Percent of teachers with a master's degree	0.07	(6.29)	0.08	(8.73)	0.11	(12.44)	0.20	(10.23)	0.13	(11.86)	0.14	(8.24)	0.13	(9.98)
Volunteer hours per student	0.00	(0.14)	0.05	(2.34)	0.03	(1.21)	0.11	(2.27)	0.07	(2.43)	0.07	(1.70)	0.06	(2.01)
Percent of students with at least one parent-teacher conference	1.02	(1.84)	0.22	(0.47)	-0.35	(-0.75)	-2.99	(-2.92)	-2.57	(-4.56)	-0.75	(-0.86)	-1.13	(-1.70)
Elementary & Middle	-4.27	(-4.26)	-2.95	(-1.40)	-2.59	(-1.20)	-1.51	(-0.32)	-7.13	(-2.71)	-3.73	(-0.92)	2.09	(0.68)
Elementary, Middle, & High	-7.32	(-7.11)	-6.22	(-3.00)	-4.22	(-2.00)	-4.29	(-0.92)	-8.20	(-3.19)	-7.33	(-1.84)	-1.06	(-0.35)
Middle & High	-10.69	(-2.82)	-6.47	(-2.57)	-2.93	(-1.12)	-7.59	(-1.33)	-9.72	(-3.13)	-9.32	(-2.01)	-1.81	(-0.49)
Middle	-6.24	(-6.73)	-3.65	(-1.79)	-2.63	(-1.27)	1.48	(0.32)	-6.31	(-2.49)	-3.03	(-0.77)	1.02	(0.34)
301 to 600	0.33	(0.45)	0.00	(0.00)	1.29	(1.63)	-0.04	(-0.02)	-1.01	(-1.08)	-1.38	(-1.01)	-1.12	(-1.01)
601 to 900	-0.15	(-0.18)	0.60	(0.75)	2.51	(2.96)	1.07	(0.58)	-0.82	(-0.82)	-1.60	(-1.10)	0.83	(0.70)
901 to 1,200	-0.30	(-0.31)	2.23	(2.49)	5.75	(6.13)	11.03	(5.42)	3.84	(3.47)	4.06	(2.49)	6.18	(4.70)
1,201 to 1,500	0.53	(0.42)	3.26	(2.87)	5.97	(5.08)	14.98	(5.88)	5.47	(3.93)	5.72	(2.75)	8.94	(5.44)
1,501 to 1,800	-		-		-		-		-		-		-	
Over 1,800	-		-		-		-		-		-		-	

Table B.3
Student-level Analysis (High Schools)

Variable	NRT 9th Grade		Reading 10th Grade		Science 11th Grade		Arts & Humanities 11th Grade		Math 11th Grade		Practical Living & Vocational Skills 10th Grade		Social Studies 11th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	696.97	(149.94)	515.85	(70.39)	532.08	(95.38)	525.39	(53.24)	515.49	(75.63)	511.94	(61.74)	538.13	(64.27)
Male	-6.55	(-45.78)	-22.73	(-106.08)	4.28	(25.24)	-22.03	(-74.50)	0.03	(0.14)	-18.41	(-73.69)	-6.53	(-26.08)
Asian	9.33	(11.26)	9.49	(8.13)	5.05	(5.61)	10.21	(6.50)	17.06	(15.54)	-0.21	(-0.15)	10.41	(7.81)
Hispanic	-14.84	(-21.93)	-12.81	(-12.08)	-12.21	(-14.09)	-14.22	(-9.40)	-12.29	(-11.63)	-21.80	(-17.64)	-14.81	(-11.54)
Black	-20.69	(-77.49)	-21.76	(-52.86)	-22.89	(-68.37)	-25.44	(-43.50)	-27.71	(-67.87)	-24.08	(-50.24)	-25.68	(-51.81)
Other Racial Group	-3.93	(-5.64)	-7.24	(-6.75)	-6.27	(-7.49)	-8.49	(-5.81)	-9.00	(-8.82)	-9.21	(-7.37)	-6.87	(-5.55)
Migrant	-8.60	(-8.88)	-13.13	(-7.92)	-9.18	(-5.52)	-18.22	(-6.28)	-12.31	(-6.07)	-12.36	(-6.39)	-16.77	(-6.82)
Title I Basic Program	-9.64	(-14.61)	-11.40	(-9.92)	-6.35	(-6.37)	-9.41	(-5.40)	-7.47	(-6.14)	-9.64	(-7.21)	-8.90	(-6.02)
Extended School Services	-4.39	(-22.97)	-2.29	(-8.23)	-0.44	(-1.97)	1.14	(2.93)	-1.67	(-6.16)	-1.78	(-5.50)	0.41	(1.25)
Individualize Education Plan	-24.59	(-36.37)	-38.35	(-35.63)	-31.07	(-35.25)	-44.54	(-28.94)	-44.60	(-41.50)	-38.19	(-30.43)	-45.62	(-34.98)
Disability	-21.74	(-33.07)	-24.23	(-23.00)	-16.96	(-19.79)	-26.52	(-17.72)	-24.49	(-23.44)	-22.33	(-18.18)	-25.32	(-19.96)
Free or Reduced Lunch	-15.90	(-99.44)	-19.27	(-78.66)	-11.67	(-58.29)	-21.28	(-60.87)	-15.25	(-62.46)	-19.11	(-66.95)	-20.58	(-69.47)
Student-Teacher Ratio	-0.49	(-9.16)	-0.59	(-7.37)	-0.76	(-12.16)	-2.27	(-20.69)	-0.76	(-10.00)	-0.87	(-9.45)	-1.70	(-18.20)
Student-Computer Ratio	-0.01	(-0.75)	0.04	(1.42)	-0.01	(-0.39)	0.10	(2.32)	0.00	(0.16)	0.03	(0.73)	0.00	(0.13)
Percent of population with income above $150,000	94.64	(2.26)	105.85	(1.38)	47.42	(1.08)	160.99	(1.80)	117.78	(2.15)	157.05	(2.47)	73.78	(0.96)
Percent of population with a bachelor's degree or higher	36.29	(3.76)	33.68	(1.89)	28.69	(2.83)	51.09	(2.47)	45.61	(3.60)	34.07	(2.33)	55.50	(3.11)
Percent of classes taught by teachers certified for subject & grade	0.09	(1.95)	0.06	(0.84)	0.11	(2.11)	0.26	(2.80)	0.19	(2.89)	0.23	(2.92)	0.22	(2.78)
Percent of classes taught by teachers with a major/minor in the subject they teach	-0.04	(-1.22)	-0.01	(-0.28)	0.03	(0.72)	0.04	(0.56)	0.04	(0.82)	-0.07	(-1.43)	0.04	(0.74)
Percent of teachers with a master's degree	0.05	(3.65)	0.25	(12.54)	0.16	(10.27)	0.28	(10.40)	0.14	(7.54)	0.14	(6.31)	0.24	(10.28)
Volunteer hours per student	0.05	(2.47)	-0.01	(-0.34)	-0.02	(-0.59)	0.13	(2.88)	0.01	(0.28)	0.02	(0.43)	0.13	(3.35)
Percent of students with at least one parent-teacher conference	4.72	(7.75)	10.48	(11.41)	8.35	(11.69)	19.79	(15.74)	9.73	(11.16)	8.21	(7.81)	18.74	(17.58)
Elementary & Middle	0.00		0.00		0.00		0.00		0.00		0.00		0.00	
Elementary, Middle, & High	-0.39	(-0.85)	-1.37	(-2.03)	-3.93	(-7.21)	-7.72	(-8.09)	-1.22	(-1.84)	-0.69	(-0.88)	-6.71	(-8.30)
Middle & High	-0.60	(-0.55)	-3.59	(-2.10)	-0.17	(-0.14)	-4.87	(-2.14)	-2.91	(-1.93)	-3.92	(-2.24)	-1.37	(-0.70)
Middle	-4.99	(-2.63)	-		-		-		-		-		-	
301 to 600	-2.84	(-2.27)	-9.84	(-5.01)	-4.61	(-3.40)	-12.87	(-5.14)	-3.98	(-2.39)	-6.57	(-3.25)	-9.40	(-4.41)
601 to 900	-2.92	(-2.23)	-7.38	(-3.54)	-5.08	(-3.58)	-10.81	(-4.08)	-4.73	(-2.70)	-5.12	(-2.43)	-9.08	(-4.02)
901 to 1,200	-1.84	(-1.35)	-3.31	(-1.52)	-2.56	(-1.73)	-3.68	(-1.33)	-3.37	(-1.84)	-3.44	(-1.56)	-2.88	(-1.22)
1,201 to 1,500	1.01	(0.70)	5.86	(2.57)	1.85	(1.19)	5.49	(1.89)	2.02	(1.05)	3.67	(1.59)	5.87	(2.37)
1,501 to 1,800	1.57	(1.04)	8.15	(3.44)	1.11	(0.68)	2.31	(0.76)	2.54	(1.26)	3.07	(1.27)	5.85	(2.26)
Over 1,800	2.28	(1.44)	12.48	(5.02)	2.85	(1.65)	5.69	(1.78)	5.65	(2.65)	4.96	(1.94)	11.10	(4.07)

Table B.4
Performance Differences Across School Size
by Racial / Ethnic Groups and Participation in Free or Reduced Lunch Programs
(Elementary Schools)

Variable	NRT 3rd Grade		Reading 4th Grade		Science 4th Grade		Arts & Humanities 5th Grade		Math 5th Grade		Practical Living & Vocational Skills 5th Grade		Social Studies 5th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Asian														
301 to 600	10.27	(2.25)	-1.90	(-0.41)	-3.28	(-0.74)	11.19	(1.12)	13.11	(2.08)	8.67	(0.91)	6.49	(1.20)
601 to 900	9.17	(1.87)	-3.89	(-0.79)	-2.50	(-0.53)	12.61	(1.18)	12.26	(1.83)	10.03	(0.98)	8.32	(1.44)
901 to 1,200	17.16	(1.73)	-8.79	(-0.80)	-16.93	(-1.68)	-54.67	(-2.17)	2.98	(0.19)	-66.42	(-2.73)	-49.84	(-3.65)
1,201 to 1,500	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1,501 to 1,800	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Over 1,800	.	.	.	.	.	.	.	.	.	.	.	.	.	.
African American														
301 to 600	-0.78	(-0.56)	-3.61	(-2.59)	-4.46	(-3.31)	-6.29	(-2.28)	-4.71	(-2.75)	-3.68	(-1.41)	-3.36	(-2.26)
601 to 900	1.08	(0.67)	-3.31	(-2.05)	-2.05	(-1.31)	-3.59	(-1.13)	-5.10	(-2.58)	-3.54	(-1.18)	-2.49	(-1.46)
901 to 1,200	0.37	(0.05)	-1.71	(-0.23)	0.03	(0.00)	1.27	(0.07)	20.56	(1.78)	18.84	(1.07)	10.32	(1.03)
1,201 to 1,500	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1,501 to 1,800	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Over 1,800	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hispanic														
301 to 600	4.83	(1.86)	3.66	(1.44)	3.92	(1.62)	5.99	(1.16)	2.84	(0.88)	12.00	(2.38)	-1.14	(-0.38)
601 to 900	8.27	(2.74)	4.21	(1.43)	4.88	(1.75)	12.55	(2.09)	0.12	(0.03)	8.18	(1.39)	-1.37	(-0.40)
901 to 1,200	2.96	(0.29)	4.12	(0.45)	-0.90	(-0.11)	17.56	(0.68)	3.92	(0.24)	-3.87	(-0.15)	7.73	(0.52)
1,201 to 1,500	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1,501 to 1,800	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Over 1,800	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Participate in Free / Reduced Lunch														
301 to 600	0.01	(0.02)	-1.32	(-2.28)	-1.53	(-2.74)	-0.93	(-0.81)	0.20	(0.27)	-0.61	(-0.56)	-0.05	(-0.09)
601 to 900	-0.25	(-0.31)	-2.35	(-3.06)	-3.09	(-4.19)	-2.89	(-1.90)	-1.82	(-1.91)	-3.49	(-2.40)	-0.77	(-0.95)
901 to 1,200	3.73	(1.43)	0.27	(0.11)	0.09	(0.04)	-19.13	(-3.29)	-6.46	(-1.77)	-3.11	(-0.55)	-4.35	(-1.41)
1,201 to 1,500	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1,501 to 1,800	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Over 1,800	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Table B.5
Performance Differences Across School Size
by Racial / Ethnic Groups and Participation in Free or Reduced Lunch Programs
(Middle Schools)

Variable	NRT 6th Grade		Reading 7th Grade		Science 7th Grade		Arts & Humanities 8th Grade		Math 8th Grade		Practical Living & Vocational Skills 8th Grade		Social Studies 8th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Asian														
301 to 600	-20.04	(-2.50)	2.73	(0.31)	-9.68	(-1.12)	-15.17	(-0.87)	0.36	(0.04)	-26.99	(-1.91)	-9.41	(-0.79)
601 to 900	-18.68	(-2.31)	3.07	(0.36)	-7.66	(-0.90)	-8.92	(-0.52)	-2.28	(-0.27)	-28.09	(-2.01)	-7.31	(-0.62)
901 to 1,200	-20.80	(-2.41)	1.06	(0.12)	-10.71	(-1.21)	-8.77	(-0.48)	-2.99	(-0.34)	-29.56	(-2.02)	-7.87	(-0.63)
1,201 to 1,500	-28.67	(-2.87)	-5.30	(-0.53)	-19.24	(-1.91)	-24.96	(-1.19)	-6.37	(-0.63)	-47.23	(-2.81)	-27.44	(-1.91)
1,501 to 1,800	-		-		-		-		-		-		-	
Over 1,800	-		-		-		-		-		-		-	
African American														
301 to 600	2.36	(0.95)	0.60	(0.24)	-0.99	(-0.37)	-1.63	(-0.30)	-0.32	(-0.10)	-0.67	(-0.15)	0.48	(0.13)
601 to 900	0.66	(0.26)	0.94	(0.36)	-0.38	(-0.14)	-1.50	(-0.28)	-0.88	(-0.27)	-1.84	(-0.40)	2.24	(0.59)
901 to 1,200	2.02	(0.75)	2.86	(1.06)	0.90	(0.32)	4.60	(0.81)	3.43	(1.00)	3.07	(0.64)	5.28	(1.34)
1,201 to 1,500	1.57	(0.51)	0.79	(0.26)	-2.70	(-0.84)	-3.12	(-0.50)	1.64	(0.43)	-1.58	(-0.30)	2.38	(0.55)
1,501 to 1,800	-		-		-		-		-		-		-	
Over 1,800	-		-		-		-		-		-		-	
Hispanic														
301 to 600	-2.96	(-0.66)	1.19	(0.24)	4.77	(0.92)	14.25	(1.32)	11.30	(1.95)	8.58	(1.00)	10.05	(1.38)
601 to 900	-2.73	(-0.59)	1.35	(0.28)	4.23	(0.82)	14.20	(1.32)	14.04	(2.44)	6.41	(0.75)	11.97	(1.65)
901 to 1,200	0.14	(0.03)	0.28	(0.05)	1.11	(0.19)	19.08	(1.63)	14.73	(2.37)	9.26	(1.00)	14.50	(1.84)
1,201 to 1,500	-0.56	(-0.08)	-7.49	(-1.15)	-4.01	(-0.57)	16.54	(1.19)	10.39	(1.40)	-3.36	(-0.30)	5.36	(0.57)
1,501 to 1,800	-		-		-		-		-		-		-	
Over 1,800	-		-		-		-		-		-		-	
Participate in Free / Reduced Lunch														
301 to 600	0.89	(1.04)	-0.93	(-1.04)	0.65	(0.65)	-0.44	(-0.22)	-0.49	(-0.41)	-1.81	(-1.13)	-0.49	(-0.37)
601 to 900	-0.58	(-0.58)	-1.03	(-1.06)	1.29	(1.20)	-0.20	(-0.09)	-0.79	(-0.61)	-1.62	(-0.93)	1.48	(1.03)
901 to 1,200	-0.33	(-0.26)	-0.44	(-0.38)	2.18	(1.72)	6.37	(2.51)	2.75	(1.79)	1.98	(0.96)	4.67	(2.78)
1,201 to 1,500	2.10	(1.24)	0.07	(0.05)	1.97	(1.19)	5.85	(1.75)	2.84	(1.40)	0.61	(0.22)	5.92	(2.68)
1,501 to 1,800	-		-		-		-		-		-		-	
Over 1,800	-		-		-		-		-		-		-	

Table B.6
Performance Differences Across School Size
by Racial / Ethnic Groups and Participation in Free or Reduced Lunch Programs
(High Schools)

Variable	NRT 9th Grade		Reading 10th Grade		Science 11th Grade		Arts & Humanities 11th Grade		Math 11th Grade		Practical Living & Vocational Skills 10th Grade		Social Studies 11th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Asian														
301 to 600	-17.27	(-1.51)	-26.29	(-1.58)	12.91	(1.06)	-8.70	(-0.45)	11.73	(0.88)	-38.56	(-2.06)	-5.28	(-0.32)
601 to 900	-5.86	(-0.51)	-29.08	(-1.77)	1.14	(0.09)	-20.18	(-1.05)	-2.77	(-0.21)	-30.23	(-1.65)	-15.95	(-0.97)
901 to 1,200	-14.54	(-1.27)	-40.02	(-2.44)	3.90	(0.32)	-23.69	(-1.23)	-11.33	(-0.86)	-43.36	(-2.38)	-14.63	(-0.89)
1,201 to 1,500	-9.74	(-0.83)	-29.40	(-1.76)	6.97	(0.56)	-11.48	(-0.58)	-0.21	(-0.02)	-39.44	(-2.11)	-5.95	(-0.35)
1,501 to 1,800	-10.72	(-0.90)	-29.21	(-1.72)	7.23	(0.57)	-10.27	(-0.51)	1.48	(0.11)	-41.51	(-2.19)	-4.25	(-0.25)
Over 1,800	-6.65	(-0.55)	-23.27	(-1.35)	6.37	(0.49)	-3.87	(-0.19)	6.50	(0.46)	-31.43	(-1.63)	2.71	(0.15)
African American														
301 to 600	-1.32	(-0.39)	-7.66	(-1.56)	1.52	(0.36)	-0.44	(-0.07)	-3.14	(-0.63)	-1.28	(-0.24)	-4.89	(-0.82)
601 to 900	-3.11	(-0.92)	-8.39	(-1.69)	-1.89	(-0.45)	-5.13	(-0.77)	-4.63	(-0.92)	-1.92	(-0.36)	-5.84	(-0.96)
901 to 1,200	-2.52	(-0.74)	-7.05	(-1.41)	-3.14	(-0.74)	-2.48	(-0.37)	-5.63	(-1.11)	-0.47	(-0.09)	-4.58	(-0.74)
1,201 to 1,500	1.36	(0.39)	0.90	(0.17)	4.73	(1.07)	9.85	(1.42)	3.42	(0.65)	4.74	(0.85)	4.96	(0.78)
1,501 to 1,800	1.71	(0.47)	-1.48	(-0.28)	-3.74	(-0.82)	-1.00	(-0.14)	-2.53	(-0.46)	3.45	(0.60)	-5.73	(-0.87)
Over 1,800	2.07	(0.55)	3.03	(0.54)	-2.69	(-0.56)	5.73	(0.77)	3.92	(0.69)	3.89	(0.65)	0.00	(-0.00)
Hispanic														
301 to 600	-2.33	(-0.31)	12.97	(1.22)	-2.33	(-0.23)	16.39	(1.04)	3.06	(0.27)	15.59	(1.30)	0.63	(0.04)
601 to 900	-0.63	(-0.09)	8.89	(0.87)	-9.72	(-1.00)	4.79	(0.31)	-1.95	(-0.18)	14.95	(1.29)	-4.84	(-0.35)
901 to 1,200	-3.26	(-0.44)	3.14	(0.30)	-11.17	(-1.15)	2.66	(0.17)	-4.18	(-0.38)	7.21	(0.61)	-7.56	(-0.55)
1,201 to 1,500	-3.35	(-0.44)	11.18	(1.03)	-10.18	(-1.01)	7.80	(0.49)	-3.38	(-0.29)	17.61	(1.43)	-2.75	(-0.19)
1,501 to 1,800	3.48	(0.44)	13.95	(1.25)	-3.67	(-0.35)	13.53	(0.82)	1.19	(0.10)	17.50	(1.38)	-0.37	(-0.02)
Over 1,800	-5.78	(-0.68)	12.85	(1.07)	-10.83	(-0.97)	6.05	(0.34)	-7.66	(-0.61)	14.22	(1.05)	-5.65	(-0.36)
Participate in Free / Reduced Lunch														
301 to 600	-0.70	(-0.44)	-8.89	(-3.55)	-3.72	(-1.86)	-10.91	(-3.34)	-5.11	(-2.15)	-3.63	(-1.40)	-10.44	(-3.72)
601 to 900	-1.83	(-1.11)	-8.29	(-3.19)	-4.07	(-1.97)	-9.89	(-2.92)	-5.06	(-2.06)	-2.22	(-0.83)	-10.47	(-3.59)
901 to 1,200	-1.52	(-0.89)	-5.44	(-2.01)	-3.41	(-1.58)	-6.30	(-1.79)	-6.09	(-2.38)	-2.18	(-0.79)	-8.35	(-2.75)
1,201 to 1,500	1.37	(0.76)	4.25	(1.48)	1.37	(0.59)	3.20	(0.85)	-0.20	(-0.07)	4.11	(1.39)	-0.53	(-0.16)
1,501 to 1,800	1.69	(0.87)	2.98	(0.97)	-2.15	(-0.87)	-1.50	(-0.37)	-2.81	(-0.95)	1.55	(0.49)	-3.57	(-1.02)
Over 1,800	1.40	(0.66)	7.92	(2.34)	-0.33	(-0.12)	1.56	(0.35)	1.80	(0.55)	4.48	(1.26)	0.26	(0.07)

Table B.7
School-level Analysis
(Elementary Schools, Norm-referenced Test)

Variable	Reading 3rd Grade		Math 3rd Grade		Language 3rd Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	57.44	(5.33)	(50.41)	(4.38)	(50.15)	(4.60)
Student-Teacher Ratio	-0.07	(-0.70)	(-0.21)	(-1.82)	(0.01)	(0.05)
Student-Computer Ratio	-0.03	(-2.21)	(-0.04)	(-2.15)	(-0.03)	(-2.22)
Limited English Proficiency (Percent)	-0.04	(-0.34)	(-0.02)	(-0.11)	(-0.03)	(-0.20)
Migrant (Percent)	-0.16	(-1.62)	(-0.16)	(-1.53)	(-0.23)	(-2.34)
Free or Reduced Lunch (Percent)	-0.19	(-10.45)	(-0.20)	(-9.54)	(-0.18)	(-9.58)
Students with Disabilities (Percent)	0.02	(0.49)	(0.07)	(1.56)	(0.00)	(0.07)
Asian (Percent)	24.39	(1.21)	(49.07)	(2.15)	(41.22)	(1.95)
Hispanic (Percent)	-27.72	(-2.17)	(-20.97)	(-1.48)	(-24.97)	(-1.89)
Black (Percent)	-25.31	(-10.36)	(-24.75)	(-8.83)	(-21.36)	(-8.21)
Percent of population with income above $150,000	-20.02	(-1.12)	(-19.46)	(-0.94)	(-19.15)	(-1.00)
Percent of population with a bachelor's degree or higher	18.02	(2.79)	(16.26)	(2.18)	(13.75)	(1.99)
Percent of classes taught by teachers certified for subject & grade	0.00	(0.01)	(0.13)	(1.20)	(0.07)	(0.71)
Percent of classes taught by teachers with a major/minor in the subject they teach	0.06	(1.48)	(0.04)	(0.83)	(0.03)	(0.69)
Percent of teachers with a master's degree	0.09	(5.59)	(0.10)	(5.24)	(0.09)	(5.49)
Volunteer hours per student	0.05	(1.24)	(0.05)	(1.12)	(0.03)	(0.77)
Percent of students with at least one parent-teacher conference	2.26	(1.87)	(1.58)	(1.20)	(2.66)	(2.15)
301 to 600	0.77	(1.28)	(0.62)	(0.93)	(0.38)	(0.61)
601 to 900	1.30	(1.47)	(0.84)	(0.85)	(0.61)	(0.66)
901 to 1,200	0.63	(0.17)	(2.56)	(0.63)	(0.35)	(0.09)
1,201 to 1,500	-		-		-	
1,501 to 1,800	-		-		-	
Over 1,800	-		-		-	

Continued on next page.

Table B.7 (cont.)
School-level Analysis
(Elementary Schools, Kentucky Core Content Tests)

Variable	Reading 4th Grade		Science 4th Grade		Arts & Humanities 5th Grade		Math 5th Grade		Practical Living & Vocational Skills 5th Grade		Social Studies 5th Grade		Writing 4th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	92.85	(10.03)	86.44	(8.28)	52.77	(4.75)	72.31	(6.34)	86.70	(8.20)	77.91	(6.44)	57.65	(5.68)
Student-Teacher Ratio	-0.21	(-2.11)	-0.44	(-3.82)	-0.43	(-3.31)	-0.43	(-3.35)	-0.45	(-3.79)	-0.56	(-4.01)	-0.22	(-1.95)
Student-Computer Ratio	-0.03	(-2.12)	-0.02	(-1.47)	-0.03	(-1.70)	-0.03	(-1.65)	-0.02	(-1.17)	-0.02	(-0.84)	0.01	(0.44)
Limited English Proficiency (Percent)	0.18	(1.47)	0.26	(1.88)	0.28	(1.75)	0.40	(2.55)	0.15	(1.01)	0.35	(2.06)	0.11	(0.78)
Migrant (Percent)	-0.23	(-2.50)	-0.15	(-1.43)	-0.42	(-3.51)	-0.36	(-3.05)	-0.37	(-3.34)	-0.23	(-1.78)	-0.40	(-3.89)
Free or Reduced Lunch (Percent)	-0.19	(-10.91)	-0.18	(-8.52)	-0.25	(-10.51)	-0.26	(-11.34)	-0.26	(-12.48)	-0.25	(-9.83)	-0.02	(-1.08)
Students with Disabilities (Percent)	0.14	(3.56)	0.19	(4.03)	0.23	(4.40)	0.17	(3.25)	0.19	(3.76)	0.13	(2.33)	0.18	(3.95)
Asian (Percent)	33.87	(1.76)	64.85	(2.77)	68.82	(2.60)	84.37	(3.30)	52.29	(2.25)	57.79	(2.07)	61.67	(2.53)
Hispanic (Percent)	-6.66	(-0.55)	-9.40	(-0.66)	-6.27	(-0.39)	-17.89	(-1.12)	-2.23	(-0.15)	-20.84	(-1.21)	21.19	(1.48)
Black (Percent)	-18.94	(-7.95)	-26.97	(-9.33)	-20.94	(-6.43)	-19.77	(-6.31)	-18.31	(-6.55)	-24.02	(-6.97)	-17.67	(-5.73)
Percent of population with income above $150,000	9.26	(0.53)	23.42	(1.09)	28.93	(1.19)	26.68	(1.15)	11.62	(0.57)	10.50	(0.41)	41.05	(1.76)
Percent of population with a bachelor's degree or higher	3.56	(0.56)	-1.71	(-0.22)	6.65	(0.77)	12.10	(1.46)	3.68	(0.50)	12.48	(1.36)	-8.80	(-1.07)
Percent of classes taught by teachers certified for subject & grade	-0.08	(-0.92)	-0.06	(-0.64)	0.03	(0.26)	0.02	(0.23)	-0.05	(-0.53)	0.02	(0.17)	-0.02	(-0.23)
Percent of classes taught by teachers with a major/minor in the subject they teach	0.05	(1.32)	0.10	(2.44)	0.08	(1.80)	0.04	(0.97)	0.09	(2.21)	0.05	(1.05)	0.09	(2.11)
Percent of teachers with a master's degree	0.07	(4.49)	0.09	(5.18)	0.09	(4.26)	0.06	(3.04)	0.06	(3.03)	0.10	(4.70)	0.08	(4.73)
Volunteer hours per student	0.08	(2.33)	0.09	(2.25)	0.11	(2.50)	0.16	(3.67)	0.14	(3.43)	0.14	(3.01)	0.10	(2.63)
Percent of students with at least one parent-teacher conference	3.35	(3.04)	2.31	(1.82)	4.21	(2.93)	5.05	(3.49)	4.22	(3.16)	4.20	(2.71)	1.47	(1.17)
301 to 600	-0.43	(-0.76)	-0.50	(-0.75)	-0.44	(-0.58)	0.31	(0.41)	0.39	(0.57)	0.14	(0.18)	0.75	(1.11)
601 to 900	-0.59	(-0.71)	-0.60	(-0.61)	-0.63	(-0.57)	0.35	(0.32)	-0.80	(-0.80)	0.27	(0.23)	1.14	(1.14)
901 to 1,200	-2.66	(-0.77)	-3.92	(-0.99)	-0.25	(-0.05)	-0.82	(-0.17)	1.61	(0.36)	-2.73	(-0.52)	3.08	(0.78)
1,201 to 1,500	-		-		4.37	(0.32)	4.28	(0.33)	5.06	(0.42)	4.20	(0.30)	-	
1,501 to 1,800	-		-		-		-		-		-		-	
Over 1,800	-		-		-		-		-		-		-	

Table B.8
School-level Analysis
(Middle Schools, Norm-referenced Test)

Variable	Reading 6th Grade		Math 6th Grade		Language 6th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	33.63	(4.64)	(32.76)	(3.50)	(27.49)	(3.58)
Student-Teacher Ratio	-0.05	(-0.40)	(-0.04)	(-0.28)	(0.03)	(0.25)
Student-Computer Ratio	0.00	(0.23)	(-0.00)	(-0.21)	(0.01)	(0.76)
Limited English Proficiency (Percent)	-0.27	(-1.29)	(-0.00)	(-0.02)	(-0.18)	(-0.82)
Migrant (Percent)	-0.16	(-1.54)	(-0.15)	(-1.14)	(-0.12)	(-1.13)
Free or Reduced Lunch (Percent)	-0.18	(-8.84)	(-0.22)	(-8.24)	(-0.19)	(-8.75)
Students with Disabilities (Percent)	0.05	(0.88)	(0.09)	(1.28)	(0.01)	(0.25)
Asian (Percent)	84.28	(2.21)	(102.16)	(2.02)	(100.39)	(2.52)
Hispanic (Percent)	11.86	(0.60)	(12.05)	(0.46)	(7.99)	(0.39)
Black (Percent)	-34.33	(-9.97)	(-36.60)	(-7.90)	(-30.38)	(-8.50)
Percent of population with income above $150,000	-12.99	(-0.77)	(-24.39)	(-1.06)	(-9.84)	(-0.56)
Percent of population with a bachelor's degree or higher	32.02	(4.29)	(45.98)	(4.56)	(33.30)	(4.30)
Percent of classes taught by teachers certified for subject & grade	0.18	(2.70)	(0.15)	(1.72)	(0.20)	(2.74)
Percent of classes taught by teachers with a major/minor in the subject they teach	0.08	(4.17)	(0.09)	(3.53)	(0.08)	(3.79)
Percent of teachers with a master's degree	0.06	(3.65)	(0.06)	(3.01)	(0.05)	(2.85)
Volunteer hours per student	0.04	(1.01)	(0.07)	(1.38)	(0.08)	(2.04)
Percent of students with at least one parent-teacher conference	2.14	(2.05)	(3.22)	(2.36)	(2.41)	(2.20)
301 to 600	-0.74	(-1.06)	(-0.70)	(-0.76)	(-0.23)	(-0.32)
601 to 900	-2.03	(-2.20)	(-1.84)	(-1.50)	(-1.21)	(-1.25)
901 to 1,200	-1.76	(-1.26)	(-0.69)	(-0.37)	(-1.35)	(-0.93)
1,201 to 1,500	-2.65	(-1.01)	-0.84	(-0.24)	-0.77	(-0.28)
1,501 to 1,800						
Over 1,800						

Continued on next page.

Table B.8 (cont.)
School-level Analysis
(Middle Schools, Kentucky Core Content Tests)

Variable	Reading 7th Grade		Science 7th Grade		Arts & Humanities 8th Grade		Math 8th Grade		Practical Living & Vocational Skills 8th Grade		Social Studies 8th Grade		Writing 7th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	69.69	(9.24)	62.56	(6.25)	41.07	(3.72)	40.21	(4.52)	47.38	(5.19)	46.91	(5.38)	22.36	(2.15)
Student-Teacher Ratio	0.07	(0.54)	0.08	(0.46)	-0.02	(-0.08)	0.14	(0.86)	-0.02	(-0.10)	0.09	(0.58)	0.10	(0.54)
Student-Computer Ratio	0.00	(0.33)	0.00	(-0.03)	-0.06	(-3.39)	-0.06	(-3.69)	-0.05	(-3.12)	-0.05	(-3.68)	0.02	(1.06)
Limited English Proficiency (Percent)	-0.44	(-1.61)	-0.09	(-0.24)	-0.23	(-0.56)	0.02	(0.06)	-0.09	(-0.27)	-0.07	(-0.21)	-0.63	(-1.63)
Migrant (Percent)	-0.10	(-0.76)	0.07	(0.39)	-0.33	(-1.74)	-0.54	(-3.50)	-0.23	(-1.46)	-0.23	(-1.54)	-0.58	(-3.19)
Free or Reduced Lunch (Percent)	-0.09	(-3.65)	-0.15	(-4.52)	-0.27	(-8.03)	-0.25	(-8.50)	-0.21	(-7.54)	-0.22	(-8.01)	0.03	(0.93)
Students with Disabilities (Percent)	0.18	(2.56)	0.34	(3.47)	0.28	(2.71)	0.23	(2.64)	0.17	(2.01)	0.13	(1.57)	0.30	(3.01)
Asian (Percent)	80.65	(1.87)	66.41	(1.12)	174.05	(2.85)	155.10	(2.91)	134.72	(2.64)	130.85	(2.58)	72.07	(1.20)
Hispanic (Percent)	20.86	(0.89)	-0.79	(-0.02)	56.55	(1.67)	28.54	(0.99)	15.58	(0.56)	16.18	(0.59)	32.90	(1.00)
Black (Percent)	-27.25	(-7.24)	-38.62	(-7.39)	-28.23	(-5.36)	-26.14	(-5.54)	-28.67	(-6.35)	-29.53	(-6.63)	-34.30	(-6.59)
Percent of population with income above $150,000	2.35	(0.13)	-20.52	(-0.81)	9.72	(0.40)	0.81	(0.04)	-3.78	(-0.18)	2.61	(0.12)	8.13	(0.33)
Percent of population with a bachelor's degree or higher	35.96	(4.28)	47.91	(4.09)	26.87	(2.34)	35.36	(3.39)	35.96	(3.63)	33.91	(3.46)	28.46	(2.46)
Percent of classes taught by teachers certified for subject & grade	0.01	(0.21)	-0.07	(-0.79)	0.17	(1.75)	0.15	(1.94)	0.12	(1.44)	0.14	(1.83)	0.10	(1.11)
Percent of classes taught by teachers with a major/minor in the subject they teach	0.05	(2.72)	0.02	(0.86)	0.14	(4.64)	0.11	(4.68)	0.11	(4.56)	0.08	(3.52)	0.10	(3.68)
Percent of teachers with a master's degree	0.06	(3.08)	0.11	(4.09)	0.08	(2.80)	0.08	(3.34)	0.07	(3.23)	0.10	(4.55)	0.06	(2.06)
Volunteer hours per student	0.00	(-0.04)	0.09	(1.28)	0.05	(0.76)	0.09	(1.44)	0.09	(1.46)	0.03	(0.58)	0.02	(0.32)
Percent of students with at least one parent-teacher conference	1.74	(1.44)	2.82	(1.74)	1.21	(0.69)	0.70	(0.49)	2.07	(1.44)	0.75	(0.53)	1.68	(1.00)
301 to 600	0.01	(0.01)	1.89	(1.48)	0.01	(0.01)	-2.27	(-1.98)	-0.42	(-0.38)	-0.68	(-0.63)	-0.90	(-0.70)
601 to 900	-0.03	(-0.02)	1.31	(0.87)	-1.20	(-0.78)	-3.81	(-2.82)	-1.11	(-0.85)	-1.63	(-1.27)	-2.77	(-1.83)
901 to 1,200	0.45	(0.29)	3.15	(1.51)	-0.02	(-0.01)	-2.56	(-1.39)	0.31	(0.17)	-0.87	(-0.50)	-3.35	(-1.59)
1,201 to 1,500	-0.73	(-0.27)	4.22	(1.18)	-2.07	(-0.57)	-4.51	(-1.48)	-2.58	(-0.84)	-3.50	(-1.18)	-2.28	(-0.63)
1,501 to 1,800														
Over 1,800														

Table B.9
School-level Analysis
(High Schools, Norm-referenced Test)

Variable	Reading 9th Grade		Math 9th Grade		Language 9th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	55.20	(6.57)	44.47	(4.74)	59.83	(6.48)
Student-Teacher Ratio	0.10	(0.82)	0.25	(1.70)	0.09	(0.66)
Student-Computer Ratio	0.00	(0.19)	0.03	(1.09)	0.01	(0.33)
Limited English Proficiency (Percent)	-0.26	(-1.18)	0.06	(0.25)	-0.09	(-0.36)
Migrant (Percent)	0.03	(0.10)	0.26	(0.72)	0.08	(0.22)
Free or Reduced Lunch (Percent)	-0.17	(-6.69)	-0.24	(-8.08)	-0.17	(-5.93)
Students with Disabilities (Percent)	-0.12	(-1.45)	-0.06	(-0.64)	-0.11	(-1.19)
Asian (Percent)	137.50	(4.01)	130.58	(3.12)	163.99	(4.21)
Hispanic (Percent)	9.89	(0.36)	12.61	(0.39)	-19.32	(-0.63)
Black (Percent)	-23.57	(-6.43)	-30.50	(-6.65)	-26.03	(-6.18)
Percent of population with income above $150,000	70.03	(2.18)	95.80	(2.35)	72.28	(1.94)
Percent of population with a bachelor's degree or higher	16.91	(2.11)	19.68	(1.94)	24.33	(2.63)
Percent of classes taught by teachers certified for subject & grade	-0.08	(-0.95)	-0.03	(-0.30)	-0.18	(-1.92)
Percent of classes taught by teachers with a major/minor in the subject they teach	0.10	(1.72)	0.08	(1.27)	0.08	(1.32)
Percent of teachers with a master's degree	0.02	(0.69)	0.04	(1.36)	0.01	(0.56)
Volunteer hours per student	0.04	(0.72)	0.10	(1.49)	0.03	(0.54)
Percent of students with at least one parent-teacher conference	2.33	(2.02)	2.61	(1.94)	2.83	(2.21)
301 to 600	-1.66	(-1.36)	-0.84	(-0.57)	-0.48	(-0.35)
601 to 900	-2.80	(-2.20)	-2.50	(-1.62)	-1.84	(-1.27)
901 to 1,200	-4.17	(-3.04)	-3.79	(-2.28)	-2.84	(-1.83)
1,201 to 1,500	-2.73	(-1.76)	-1.46	(-0.78)	-1.28	(-0.73)
1,501 to 1,800	-1.87	(-1.09)	0.12	(0.06)	-0.68	(-0.35)
Over 1,800	-1.69	(-0.77)	0.61	(0.23)	-0.04	(-0.01)

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Table B.9 (cont.)
School-level Analysis
(High Schools, Kentucky Core Content Tests)

Variable	Reading 10th Grade		Science 11th Grade		Arts & Humanities 11th Grade		Math 11th Grade		Practical Living & Vocational Skills 10th Grade		Social Studies 11th Grade		Writing 12th Grade	
	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat	Estimate	t-stat
Intercept	54.29	(4.74)	49.42	(5.12)	26.09	(1.86)	31.22	(2.88)	57.52	(5.56)	40.25	(3.20)	33.58	(3.02)
Student-Teacher Ratio	0.25	(1.40)	0.09	(0.61)	0.51	(2.42)	0.44	(2.69)	0.35	(2.20)	-0.09	(-0.49)	0.40	(2.35)
Student-Computer Ratio	0.02	(0.60)	0.02	(0.59)	0.08	(1.88)	0.06	(1.93)	0.02	(0.63)	0.05	(1.41)	0.04	(1.22)
Limited English Proficiency (Percent)	-0.32	(-1.04)	-0.34	(-1.34)	-0.28	(-0.77)	-0.14	(-0.51)	-0.24	(-0.88)	-0.83	(-2.43)	-0.11	(-0.36)
Migrant (Percent)	-0.12	(-0.32)	-0.04	(-0.13)	-0.20	(-0.46)	0.27	(0.78)	0.04	(0.11)	-0.12	(-0.29)	-0.26	(-0.75)
Free or Reduced Lunch (Percent)	-0.12	(-3.50)	-0.15	(-5.52)	-0.15	(-3.84)	-0.20	(-6.20)	-0.15	(-5.29)	-0.12	(-3.19)	-0.03	(-0.89)
Students with Disabilities (Percent)	0.12	(1.14)	-0.02	(-0.22)	-0.03	(-0.26)	0.15	(1.43)	0.13	(1.35)	-0.03	(-0.27)	-0.02	(-0.18)
Asian (Percent)	188.67	(3.93)	152.33	(4.00)	242.00	(4.39)	183.57	(4.00)	131.64	(3.16)	209.90	(3.95)	115.19	(2.60)
Hispanic (Percent)	95.11	(2.49)	67.43	(2.19)	84.69	(1.91)	73.84	(2.07)	53.31	(1.59)	140.87	(3.35)	84.14	(2.36)
Black (Percent)	-22.98	(-4.66)	-28.24	(-7.33)	-24.65	(-4.38)	-24.71	(-5.07)	-26.96	(-6.39)	-27.83	(-5.09)	-11.45	(-2.55)
Percent of population with income above $150,000	83.17	(1.96)	50.06	(1.52)	107.74	(2.24)	88.66	(2.08)	65.29	(1.81)	50.46	(1.07)	-5.20	(-0.14)
Percent of population with a bachelor's degree or higher	20.24	(1.91)	23.79	(2.90)	25.77	(2.14)	33.13	(3.11)	23.15	(2.57)	36.44	(3.10)	26.94	(2.81)
Percent of classes taught by teachers certified for subject & grade	-0.07	(-0.64)	0.08	(0.89)	0.23	(1.62)	0.11	(1.02)	-0.02	(-0.18)	0.17	(1.35)	0.08	(0.73)
Percent of classes taught by teachers with a major/minor in the subject they teach	0.13	(1.68)	0.04	(0.60)	0.07	(0.71)	0.08	(1.08)	0.08	(1.20)	0.07	(0.81)	0.14	(1.90)
Percent of teachers with a master's degree	0.10	(3.12)	0.06	(2.22)	0.05	(1.33)	0.06	(2.02)	0.09	(3.11)	0.07	(2.16)	0.00	(-0.04)
Volunteer hours per student	0.11	(1.38)	0.06	(0.89)	0.08	(0.89)	0.09	(1.29)	0.13	(1.92)	0.14	(1.63)	0.18	(2.45)
Percent of students with at least one parent-teacher conference	2.66	(1.66)	5.44	(4.14)	7.05	(3.71)	6.57	(4.38)	4.85	(3.41)	7.18	(4.07)	3.04	(2.00)
301 to 600	-1.19	(-0.75)	-0.88	(-0.69)	-4.00	(-2.15)	-1.79	(-1.16)	-1.95	(-1.40)	-1.17	(-0.66)	-1.11	(-0.75)
601 to 900	-2.31	(-1.38)	-2.79	(-2.08)	-6.05	(-3.10)	-2.45	(-1.49)	-2.48	(-1.70)	-2.73	(-1.47)	-3.57	(-2.30)
901 to 1,200	-3.52	(-1.94)	-3.60	(-2.48)	-6.54	(-3.10)	-4.37	(-2.47)	-3.25	(-2.07)	-3.07	(-1.53)	-5.28	(-3.14)
1,201 to 1,500	-2.56	(-1.23)	-2.37	(-1.43)	-6.11	(-2.53)	-2.37	(-1.18)	-2.69	(-1.49)	-0.82	(-0.36)	-4.36	(-2.27)
1,501 to 1,800	-1.16	(-0.51)	-1.59	(-0.87)	-5.97	(-2.24)	-0.27	(-0.12)	-2.53	(-1.27)	0.33	(0.13)	-2.49	(-1.17)
Over 1,800	-0.50	(-0.17)	-1.38	(-0.57)	-3.93	(-1.12)	1.37	(0.48)	-2.68	(-1.02)	2.72	(0.82)	-2.95	(-1.05)