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Superintendent turnover in Kentucky

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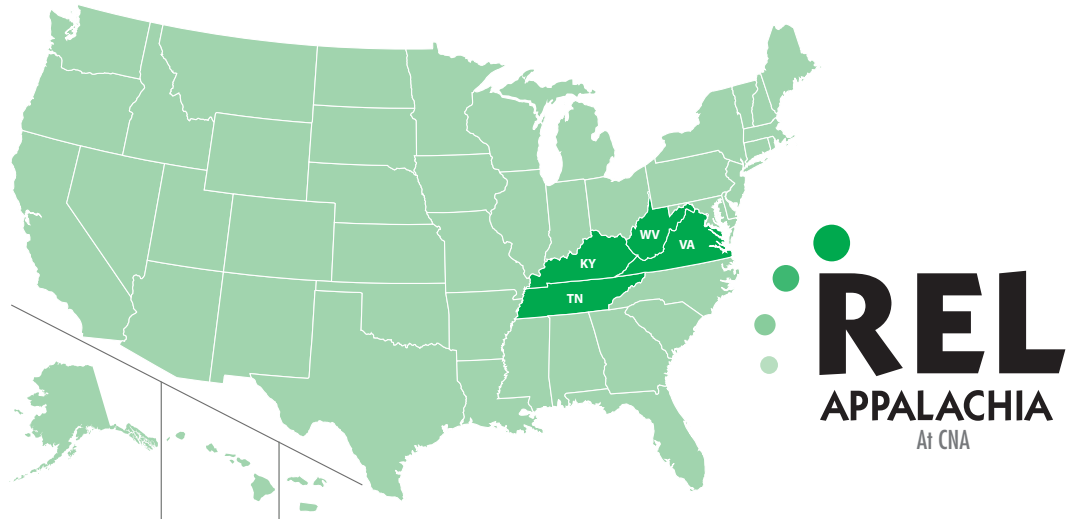
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This report is available on the regional educational laboratory website at http://ies.ed.gov/ncee/edlabs.

Superintendent turnover in Kentucky

This study examines superintendent turnover in Kentucky public school districts for 1998/99–2007/08, looking at how turnover varies by rural status, Appalachian and non-Appalachian region, and 2007/08 school district characteristics.

Sustaining, supporting, and building capacity among education leaders in Kentucky's rural school districts are growing concerns. Designing and targeting such efforts call for clear, comprehensive understanding of superintendent turnover across the state. Yet variations in the extent of superintendent turnover by rural status and region are little understood—indeed, a literature search identified only one published article that considered variations in superintendent turnover by locale (Cooper et al. 2000).

This report, responding to a request from Kentucky officials, is the state's first detailed description of superintendent turnover. It describes turnover statewide, by rural status (rural or nonrural), and by region (Appalachian or non-Appalachian) and examines how turnover varies by 2007/08 school district characteristics. Because most Kentucky school districts are rural (Johnson and Strange 2009) and many are in the Appalachian region, it intends to help policymakers and other leaders

better understand turnover in these areas so that they can develop new programs to prepare, recruit, and retain superintendents.

The report addresses four research questions for 1998/99–2007/08:

- What is the level of superintendent turnover in Kentucky school districts?

- How does Kentucky superintendent turnover in rural school districts compare with that in nonrural school districts?

- How does Kentucky superintendent turnover in Appalachian school districts compare with that in non-Appalachian school districts?

- How does superintendent turnover in Kentucky school districts vary by school district characteristics in 2007/08, and how do these numbers vary by rural status and by region?

Data sources include 2007/08 district performance reports and financial reports from the Kentucky Department of Education, the 2007/08 Common Core of Data from the U.S. Department of Education National Center for Education Statistics, 2007/08 Appalachian county designations from the Appalachian

Regional Commission, and a 2007/08 superintendent survey from the Center for Educational Research in Appalachia.

Key findings include:

- Kentucky school districts averaged one superintendent turnover during 1998/99–2007/08.

- Average superintendent turnover rates in rural and nonrural school districts over 1998/99–2007/08 were within one-tenth of a point of each other. Rural school districts ($n = 93$) averaged 1.01 superintendent turnovers, and nonrural school districts ($n = 81$) averaged 0.988. The median was 1.00 for both rural and nonrural school districts.

- Average superintendent turnover rates in Appalachian and non-Appalachian school districts over 1998/99–2007/08 were within one-tenth of a point of each other. Appalachian school districts ($n = 73$) averaged 0.986 superintendent turnovers, and non-Appalachian school districts ($n = 101$) averaged 1.01. The median was 1.00 for both Appalachian and non-Appalachian school districts.

- Statewide, superintendent turnover varied with school districts' demographic, fiscal, and achievement characteristics. However, the differences did not show patterns strong or consistent enough to suggest associations between these characteristics and superintendent turnover.

- In both rural and nonrural school districts and in both Appalachian and non-Appalachian school districts, superintendent turnover varied with demographic, fiscal, and achievement characteristics. However, the differences did not show patterns strong or consistent enough to suggest systematic differences between rural and nonrural school districts or between Appalachian and non-Appalachian school districts.

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This study examines superintendent turnover in Kentucky public school districts for 1998/99–2007/08, looking at how turnover varies by rural status, Appalachian and non-Appalachian region, and 2007/08 school district characteristics

WHY THIS STUDY?

Variations in superintendent turnover by the rural status of schools and districts are little understood. A literature search identified only one published article that considered variations in superintendent turnover by school locale (Cooper et al. 2000). Superintendents in rural districts perceive greater stringency than do those in urban and suburban districts in state accountability measures and allocate more time to tasks associated with day to day district operations than to

tasks associated with long-range improvements and strategic initiatives (Jones and Howley 2009). Thus, designing and targeting efforts to sustain, support, and build capacity among education leaders in rural school districts are growing concerns that call for clear, comprehensive understanding of superintendent turnover.

Investigating the possibility of such variations in Kentucky is especially important because the majority of its schools and districts are rural (Johnson and Strange 2009) and because studies have reported that the roles, responsibilities, and expectations of rural education leaders differ from those of their urban and suburban counterparts (Canales et al. 2008; Jones and Howley 2009). Rural school districts in Kentucky face especially great education challenges. Schools and districts are large, are among the poorest in the country, and operate with low funding—contexts that often work against desirable education outcomes (Johnson and Strange 2009).

The Kentucky Department of Education, the Kentucky Association of School Superintendents, and the Kentucky Association of School Administrators requested this study to help determine the extent of superintendent turnover in the state. Their interest was motivated by the assumptions that superintendent turnover threatens school district stability and ability to improve and that turnover varies by district location and school and student characteristics.

This report is the first detailed description of superintendent turnover in Kentucky. It describes the extent of superintendent turnover during 1998/99–2007/08 statewide, by rural status, and by region (Appalachian and non-Appalachian) and examines how turnover varies by five school district characteristics in 2007/08 (district enrollment, student eligibility for free or reduced-price meals, state and local revenue per student, expenditure per student, and district accountability index). Because most Kentucky school districts are rural (Johnson and Strange 2009) and many are in the Appalachian region, this report intends to help

BOX 1
Key terms

District accountability index. A composite measure of school district performance calculated and reported by the Kentucky Department of Education every two years. The index includes both academic measures (assessments of student performance on the state-prescribed core content) and nonacademic measures (student attendance rates). In 2007/08, indices ranged from 66 to 116 on a scale of 1–140.

Region. A designator for Kentucky counties and school districts, a region is classified as Appalachian or non-Appalachian. An Appalachian county is within the boundaries of the Appalachian region, as defined by the Appalachian Regional Commission in its authorizing legislation (Appalachian Regional Development Act 1965). All local school districts serving commission-designated counties are Appalachian school districts.

Rural status. A designator for Kentucky school districts, rural status is classified as rural or nonrural. A rural school district is designated by the National Center for Education Statistics as locale code 41: rural, fringe; locale code 42: rural, distant; or locale code 43: rural, remote, as published in the 2007/08 Common Core of Data (U.S. Department of Education 2008). These designations are based on U.S. Census Bureau classifications of communities according to population size and density.

School district enrollment. The average daily membership (the aggregate of the daily total number of students enrolled in a school district divided by the total number of days in the academic year) reported by the Kentucky Department of Education.

Superintendent turnover. The number of times a district changed superintendents over 1998/99–2007/08 (the total number of superintendents employed during that 10-year period minus one).

policymakers develop new programs to recruit and retain district leaders in these areas. (See box 1 for definitions of key terms.)

Little empirical research on superintendent turnover

A search of the Education Resources Information Center (ERIC) database using the key terms "superintendent" and "turnover" found little information on superintendent turnover. The search yielded more than 100 published articles and technical reports; filtering out opinion pieces and other nonempirical work left 19 publications, only one of which considered variations in superintendent turnover by locale (Cooper et al. 2000).

The other publications focused more on superintendent tenure—and offered varied findings. The Council of Great City Schools (2008/2009) surveyed its member districts (66 of the country's largest urban school districts) and, with an 80 percent response rate, found the average tenure of a superintendent as of June 2008 to be 3.1 years, an increase from the 2.3 years reported in 1999. Surveying a nationally representative sample of school districts, Glass, Björk, and Brunner (2000) reported an average superintendent tenure of 5.6 years—little change from earlier versions of the same study: the mean tenure was 6.4 years in 1992, 5.6 years in 1982, and 6.0 years in 1971. Yee and Cuban (1996), calculating an average annual tenure for superintendents in 25 large urban school districts (the 25 largest in 1975) found that the average full tenure for then-current superintendents fell from 13.96 years to 5.76 years over 1900–90, but they concluded that the drop was nonlinear and not as precipitous as described in popular media.[1]

Other publications were generally nonempirical and oriented toward practitioners. These publications generally suggest that superintendent turnover is misunderstood and likely not as frequent as often reported (Black 2009; Clark 2001; Natkin et al. 2002; Yee and Cuban 1996).

What the research shows about district characteristics and superintendent turnover

The literature review found two studies examining possible associations between school district

poverty level and superintendent turnover. McIntire (2001) studied all Texas school districts and found that those with higher rates of students eligible for free or reduced-price meals were associated with higher rates of superintendent turnover. In a study of 892 superintendents drawn from a nationally representative sample, plus all North Carolina school districts, Cooper et al. (2000) reported a statistically significant relationship between higher district poverty rates and more frequent superintendent turnover.

School district finances also are related to superintendent turnover. The top reason given by U.S. superintendents for leaving the field was a lack of funding for school district operations (Glass, Björk, and Brunner 2000). Similarly, district finances—though not the main reason for high superintendent turnover—exerted significant influence in Illinois (Eaton and Sharp 1996). A more recent Texas study (Trevino et al. 2008) found a statistically significant relationship between shortened superintendent tenure and concerns over district finances, based on self-reports by superintendents. Other studies view the issue from the opposite direction—as turnover affecting finances, not finances affecting turnover. Ray and Marshall (2005/06), investigating the impact of superintendent termination on district finances using the total general fund balance as a dependent variable, found that terminations and buyouts were negatively associated with funding for district operations. And Metzger (1997) reported that finances suffer in high turnover districts because of the high cost of recruiting superintendents.

Waters and Marzano (2006) reported a significant positive correlation between superintendent tenure and student achievement variables in 2 of the 27 studies included in their meta-analysis, indicating that a stable superintendency was associated with more desirable academic outcomes.[2] This result could suggest that shorter tenure (more frequent superintendent turnover) would correlate with fewer desirable academic outcomes. The average correlations (.19) in the two studies, however, were rather weak. Alsbury (2008), using a mixed-methods approach to investigate the relationship between student achievement and superintendent and school board turnover over an eight-year period in Washington state, found a statistically significant association between turnovers attributed to political motives and declining test scores, as measured by state accountability assessments.

> **School districts averaged one turnover during the study period, varying only slightly between rural and nonrural districts and between Appalachian and non-Appalachian districts**

THE DISTRIBUTION OF SCHOOL DISTRICTS IN KENTUCKY

This study focuses particularly on Kentucky's rural and Appalachian school districts. Maps 1 and 2 depict Kentucky school districts by region and rural status.

Kentucky has 174 school districts with 73 in Appalachian counties. Of those 73, 45 are rural (table 1).

Kentucky's 174 school districts serve 120 counties. Of those 120, 111 have either one or two districts (81 counties with one district and 30 counties with two districts; table 2).

RESEARCH QUESTIONS

This study examines four research questions for school years 1998/99–2007/08:

- What is the level of superintendent turnover in Kentucky school districts?

- How does Kentucky superintendent turnover in rural school districts compare with that in nonrural school districts?

- How does Kentucky superintendent turnover in Appalachian school districts compare with that in non-Appalachian school districts?

MAP 1
Kentucky public school districts, by Appalachian and non-Appalachian region, 2007/08

■ **Appalachian school districts**
☐ **Non-Appalachian school districts**
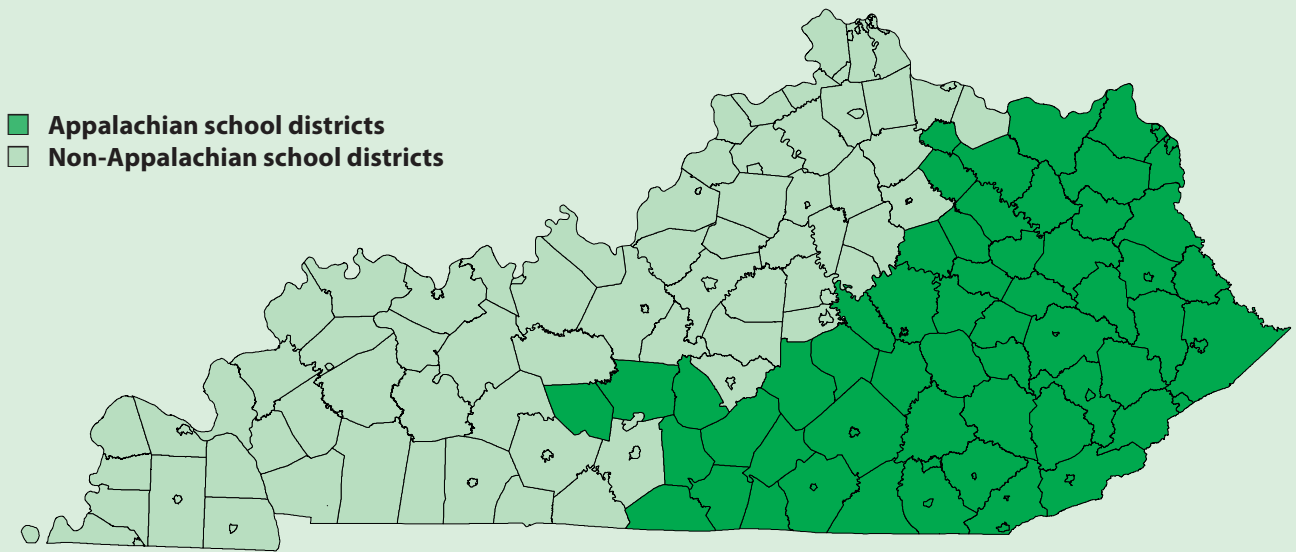
Source: Authors' map based on data from the Appalachian Regional Commission 2008.

MAP 2
Kentucky public school districts, by rural status, 2007/08

■ **Rural school districts**
☐ **Nonrural school districts**
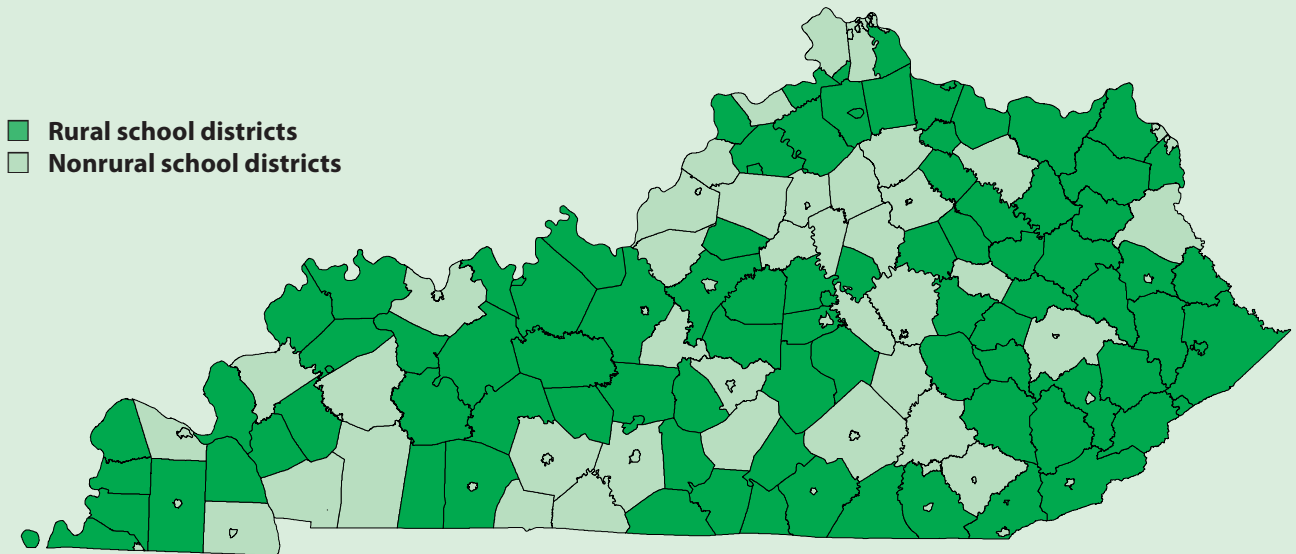
Source: Authors' map based on data from the U.S. Department of Education 2008.

TABLE 1
Kentucky school districts, by Appalachian and non-Appalachian region and rural status, 2007/08

Region	Rural	Nonrural	Total
In Appalachian county	45	28	73
In non-Appalachian county	48	53	101
Total	93	81	174

Source: Authors' analysis based on data from Appalachian Regional Commission (2008), U.S. Department of Education (2008), and Kentucky Department of Education (2008a).

TABLE 2
Number of counties with a given number of school districts

Number of districts in county	Number of counties
1	81
2	30
3	7
4	0
5	1
6	0
7	1
Total	120

Source: Authors' analysis based on data from Kentucky Department of Education (2008a).

- How does superintendent turnover in Kentucky school districts vary by school district characteristics in 2007/08, and how do these numbers vary by rural status and by region?

The report, using four data sources, calculates descriptive statistics to answer these questions (see box 2 and appendix A).

FINDINGS

School districts averaged one turnover during the study period, varying only slightly between rural and nonrural districts and between Appalachian and non-Appalachian districts. For school district fiscal characteristics and student demographic and achievement characteristics, different patterns were observed, but there was little to suggest associations between characteristics and superintendent turnover.

What is the level of superintendent turnover in Kentucky school districts?

Kentucky school districts averaged one superintendent turnover during 1998/99–2007/08 (table 3), meaning they employed an average of two superintendents.

In the 174 school districts, it was more common for districts to have had one turnover than to have had two or none; 45 districts had no turnovers

BOX 2
Data and methodology

Data. Data were obtained from four sources: the Center for Educational Research in Appalachia, the Kentucky Department of Education, the National Center for Education Statistics, and the Appalachian Regional Commission.

Methodology. To determine superintendent turnover, a variable was created that measures the number of times a district changed superintendents over 1998/99–2007/08. To calculate the statewide level of turnover, the mean, standard deviation, and median were computed for the turnover variable among all public school districts in Kentucky. The same statistics were computed to compare rural school districts ($n = 93$) with nonrural school districts ($n = 81$) and Appalachian school districts ($n = 73$) with non-Appalachian school districts ($n = 101$).

To determine how turnover varied by 2007/08 school district characteristics, subsets of districts were created based on superintendent turnover over 1998/99–2007/08 (districts with no turnovers, districts with one turnover, and districts with two turnovers), and the mean, median, and standard deviation were computed for each subset. Data were then disaggregated by rural status and by region for the three subsets.

See appendix A for more detail.

TABLE 3

Descriptive statistics of superintendent turnover in Kentucky public school districts, 1998/99–2007/08

Mean	Standard deviation	Median
1.00	0.721	1.00

Source: Authors' analysis based on data from Center for Educational Research in Appalachia (2008).

TABLE 4

Superintendent turnover in Kentucky public school districts, by rural status, 1998/99–2007/08

Rural status	Mean	Standard deviation	Median
Rural (*n* = 93)	1.01	0.723	1.00
Nonrural (*n* = 81)	0.988	0.745	1.00

Source: Authors' analysis based on data from Center for Educational Research in Appalachia (2008) and U.S. Department of Education (2008).

FIGURE 1

Frequency of superintendent turnovers in Kentucky public school districts, 1998/99–2007/08

Source: Authors' analysis based on data from Center for Educational Research in Appalachia (2008).

(employing one superintendent; 25.9 percent), 82 had one turnover (employing two superintendents; 47.1 percent), and 47 had two turnovers (employing three superintendents; 27.0 percent; figure 1).
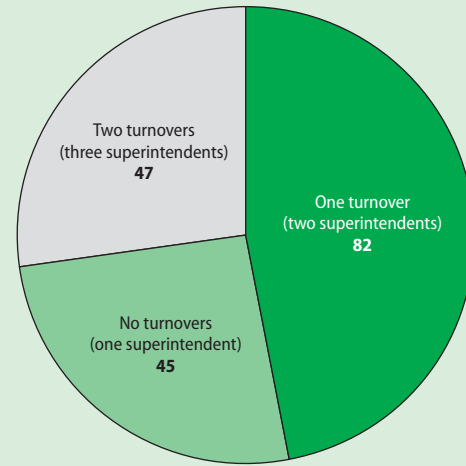
How does Kentucky superintendent turnover in rural school districts compare with that in nonrural school districts?

Rural school districts averaged approximately the same rate of turnover as nonrural school districts over 1998/99–2007/08 (table 4). To one-tenth of a point, the means and standard deviations were identical. The medians were exactly the same (1.00).

How does Kentucky superintendent turnover in Appalachian school districts compare with that in non-Appalachian school districts?

Appalachian school districts averaged approximately the same rate of turnover as non-Appalachian school districts over the 10-year period (table 5) To one-tenth of a point, the means and standard deviations were identical. The medians were exactly the same (1.00).

How does superintendent turnover in Kentucky school districts vary by school district characteristics in 2007/08, and how do these numbers vary by rural status and by region?

School districts with one turnover averaged higher enrollment (3,952 students) than districts with no turnovers (3,057) and districts with two turnovers (2,635; table 6). School districts in all three turnover subsets averaged approximately the same rate of students eligible for free or reduced-price meals (56–57 percent).

TABLE 5

Superintendent turnover in Kentucky public school districts, by Appalachian and non-Appalachian region, 1998/99–2007/08

Region	Mean	Standard deviation	Median
Appalachian (*n* = 73)	0.986	0.732	1.00
Non-Appalachian (*n* = 101)	1.01	0.717	1.00

Source: Author's analysis based on data from Center for Educational Research in Appalachia (2008) and Appalachian Regional Commission (2008).

TABLE 6

Kentucky public school district characteristics in 2007/08, by superintendent turnover rate during 1998/99–2007/08

Characteristic	No turnovers (*n* = 45)	One turnover (*n* = 82)	Two turnovers (*n* = 47)
Enrollment			
Mean	3,057	3,952	2,635
Standard deviation	3,020	9,799	2,305
Median	2,216	2,026	2,131
Eligibility for free or reduced-price meals			
Mean (percent)	56.7	56.3	56.4
Standard deviation (percentage points)	13.5	15.0	17.1
Median (percent)	54.5	57.2	55.8
State and local revenue per student (dollars)			
Mean	7,005	7,129	7,570
Standard deviation	1,008	1,216	2,720
Median	6,913	7,099	7,473
Expenditure per student (dollars)			
Mean	7,523	7,784	8,146
Standard deviation	1,202	1,216	2,543
Median	7,444	7,640	7,473
District accountability index[a]			
Mean	87.0	85.6	85.2
Standard deviation	6.0	6.7	7.2
Median	88.4	84.6	85.3

a. A composite measure of school district performance calculated and reported by the Kentucky Department of Education every two years. The index includes both academic measures (assessments of student performance on the state-prescribed core content) and nonacademic measures (student attendance rates). In 2007/08, indices ranged from 66 to 116 on a scale of 1–140.

Source: Authors' analysis based on data from Center for Educational Research in Appalachia (2008) and Kentucky Department of Education (2008a,b).

The pattern for the two fiscal variables was noteworthy. For state and local revenue per student and expenditure per student, the average level of fiscal resources rose with the number of turnovers. School districts with two turnovers received, on average, $441 more per student in state and local funding than did districts with one turnover and $565 more than did districts with no turnovers. And school districts with two turnovers reported spending, on average, $362 more per student than did districts with one turnover and $623 more than did districts with no turnovers.

The pattern for the district accountability index was also noteworthy. The average district accountability index (see box 1) fell with the number of

turnovers. The difference in indices, however, was just 1.84 points: school districts with no turnovers had the highest average index (87.0), followed by districts with one turnover (85.6) and districts with two turnovers (85.2).

School district characteristics, by rural status. Patterns differed for rural and nonrural school districts for all characteristics except district enrollment.

District enrollment. In both rural and nonrural school districts, the largest enrollments were observed in districts with one superintendent turnover, followed by districts with no turnovers and districts with two turnovers (table 7).

TABLE 7

Kentucky public school district characteristics in 2007/08, by superintendent turnover rate during 1998/99–2007/08 and rural status

Characteristic	Rural			Nonrural		
	No turnovers ($n = 22$)	One turnover ($n = 45$)	Two turnovers ($n = 26$)	No turnovers ($n = 23$)	One turnover ($n = 37$)	Two turnovers ($n = 21$)
Enrollment						
Mean	2,497	2,623	2,332	3,592	5,569	3,010
Standard deviation	1,356	2,519	1,427	3,983	14,262	3,068
Median	2,205	1,899	2,424	2,216	2,146	1,969
Eligibility for free or reduced-price meals						
Mean (percent)	57.3	58.9	58.7	56.2	53.0	53.6
Standard deviation (percentage points)	13.0	13.7	14.8	14.3	16.1	19.6
Median (percent)	54.8	61.5	56.3	53.1	53.6	51.9
State and local revenue per student (dollars)						
Mean	6,917	7,143	6,895	7,088	7,112	8,405
Standard deviation	883	395	588	1,268	1,771	3,906
Median	6,907	7,155	6,890	7,066	6,979	7,104
Expenditure per student (dollars)						
Mean	7,355	7,927	7,561	7,685	7,611	8,870
Standard deviation	870	742	864	1,454	1,612	3,598
Median	7,550	7,844	7,422	7,069	7,530	7,818
District accountability index[a]						
Mean	86.3	84.7	85.2	87.8	86.6	85.2
Standard deviation	5.3	6.0	5.1	6.6	7.6	9.3
Median	88.1	83.5	85.2	88.9	85.8	85.3

a. A composite measure of school district performance calculated and reported by the Kentucky Department of Education every two years. The index includes both academic measures (assessments of student performance on the state-prescribed core content) and nonacademic measures (student attendance rates). In 2007/08, indices ranged from 66 to 116 on a scale of 1–140.

Source: Authors' analysis based on data from Center for Educational Research in Appalachia (2008), U.S. Department of Education (2008), and Kentucky Department of Education (2008a,b).

Eligibility for free or reduced-price meals. Rural school districts with one turnover had the highest free or reduced-price meal eligibility rates, followed by districts with two turnovers and districts with no turnovers. Nonrural school districts with no turnovers had the highest eligibility rates, followed by districts with two turnovers and districts with one turnover.

State and local revenue per student. Nonrural school districts followed the statewide pattern, with revenue increasing with the number of turnovers. Rural school districts with one turnover had the highest revenue per student, followed by districts with no turnovers and districts with two turnovers.

Expenditure per student. Rural school districts with one turnover spent the most per student, followed by districts with two turnovers and districts with no turnovers. Nonrural school districts with two turnovers spent the most per student, followed by districts with no turnovers and districts with one turnover.

District accountability index. Nonrural school districts followed the statewide pattern, with district accountability indices increasing as turnovers fell.

TABLE 8

Kentucky public school district characteristics in 2007/08, by superintendent turnover rate during 1998/99–2007/08 and Appalachian and non-Appalachian region

	Appalachian			Non-Appalachian		
Characteristic	No turnovers ($n = 22$)	One turnover ($n = 31$)	Two turnovers ($n = 20$)	No turnovers ($n = 23$)	One turnover ($n = 51$)	Two turnovers ($n = 27$)
Enrollment						
Mean	2,248	2,235	2,810	3,648	4,995	2,507
Standard deviation	1,729	1,463	2,547	3,610	12,302	2,150
Median	1,969	2,146	1,984	2,431	1,853	2,217
Eligibility for free or reduced-price meals						
Mean (percent)	64.0	63.5	63.8	51.4	51.9	50.9
Standard deviation (percentage points)	10.5	11.5	14.1	13.2	15.3	17.3
Median (percent)	64.6	66.3	61.0	50.9	52.3	52.8
State and local revenue per student (dollars)						
Mean	6,568	6,997	6,935	7,323	7,209	8,041
Standard deviation	860	463	536	1,140	1,500	3,512
Median	6,744	6,926	6,874	7,080	7,155	7,030
Expenditure per student (dollars)						
Mean	7,400	8,022	7,917	7,614	7,639	8,315
Standard deviation	983	743	760	1,352	1,417	3,309
Median	7,603	7,970	7,850	7,111	7,580	7,319
District accountability index[a]						
Mean	87.1	84.4	83.8	87.0	86.3	86.2
Standard deviation	6.8	5.1	5.5	5.5	7.6	8.2
Median	88.4	83.0	83.2	88.3	84.8	86.2

a. A composite measure of school district performance calculated and reported by the Kentucky Department of Education every two years. The index includes both academic measures (assessments of student performance on the state-prescribed core content) and nonacademic measures (student attendance rates). In 2007/08, indices ranged from 66 to 116 on a scale of 1–140.

Source: Authors' analysis based on data from Center for Educational Research in Appalachia (2008), Kentucky Department of Education (2008a,b), and Appalachian Regional Commission (2008).

In rural school districts, the highest index was also in districts with no turnovers, but the pattern differed from there, with the next highest indices in districts with two turnovers and the lowest indices in districts with one turnover.

School district characteristics, by region. Patterns differed for Appalachian and non-Appalachian school districts for all characteristics except the district accountability index.

District enrollment. Appalachian school districts with two turnovers had the largest average

enrollment, followed by districts with no turnovers and districts with one turnover (table 8). Non-Appalachian school districts with one turnover had the largest, followed by districts with no turnovers and districts with two turnovers.

Eligibility for free or reduced-price meals. Appalachian school districts with no turnovers had the highest free or reduced-price meal eligibility rates, followed by districts with two turnovers and districts with one turnover. Non-Appalachian school districts with one turnover had the highest eligibility rates, followed by districts with no turnovers

and districts with two turnovers. Appalachian school districts averaged higher percentages of students eligible for free or reduced-price meals than non-Appalachian school districts for all three turnover subsets.

State and local revenue per student. Appalachian school districts with one turnover had the highest revenue per student, followed by districts with two turnovers and districts with no turnovers. Non-Appalachian school districts with two turnovers had the highest revenue per student, followed by districts with no turnovers and districts with one turnover.

Expenditure per student. Non-Appalachian school districts followed the statewide pattern, with more spending per student as turnovers rose. Appalachian school districts with one turnover spent the most per student, followed by districts with two turnovers and districts with no turnovers.

District accountability index. Both Appalachian and non-Appalachian school districts followed the statewide pattern: districts with no turn-overs had the highest average accountability index, districts with one turnover had the next highest, and districts with two turnovers had the lowest.

STUDY LIMITATIONS

One important limitation of this study is that the descriptive statistics for school district subsets aggregated by number of turnovers cannot suggest an association between turnover rates and a particular variable. The statistics only describe the characteristics of school districts that experience varying levels of turnover.

Another important limitation results from using data from different school years to answer some of the research questions. For the question addressing school district characteristics, 2007/08 data were compared with 10-year turnover rate averages. The rationale for the approach was that the 2007/08 data reflect historical trends (reviews of graphic representations of the data conducted before the analyses indicated that the variables of interest were stable over time) and thus reasonably represent conditions beyond the newest data.

A third limitation is that the data collection process threatened reliability. Errors could have been made in preparing the directories from which superintendent turnover data were compiled or in assembling the superintendent turnover data from the directories. To avoid the latter possibility, the turnover data were assembled by two different people, and the results were compared to identify any errors.

APPENDIX A
DATA AND METHODOLOGY

This appendix describes data collection and analysis in more detail.

Data

District superintendent turnover rates were obtained from the Center for Educational Research in Appalachia at Eastern Kentucky University, which collects and maintains statewide data on superintendent contracts and historical data on superintendent tenure. Data for computing the central variable of interest for this project (the number of superintendent changes over 1998/99–2007/08) was compiled from Kentucky public schools directories by center staff. Demographic and other contextual data collected by state and federal entities was downloaded from the websites of the National Center for Education Statistics, the Kentucky Department of Education, and the Appalachian Regional Commission (table A1).

Data from the Kentucky Department of Education included fiscal data and variables used in the 2003/04–2007/08 editions of the Kentucky Performance Report, an annual publication on academic performance compiled for all school districts in the state. The report includes the district accountability index, the department's biennial composite measure of school and district performance that includes academic components (standardized test scores) and nonacademic components (attendance rates). Fiscal data (state and local revenue per student and expenditure per student) were downloaded from applications on the Kentucky Department of Education website (Kentucky Department of Education 2008b).

National Center for Education Statistics data included school district locale variables from the 2007/08 Common Core of Data (U.S. Department of Education 2008).

Data from the Appalachian Regional Commission included their list of Appalachian counties, downloaded directly from the commission's website (Appalachian Regional Commission 2008).

Methodology

To determine the level of superintendent turnover, a variable was created to measure the number of times the district changed superintendents over 1998/99–2007/08. To figure the statewide level of turnover, the mean, standard deviation, and median were computed for the turnover variable among all public school districts in Kentucky. The same statistics were computed to compare rural school districts ($n = 93$) with nonrural school districts ($n = 81$)

TABLE A1
Variables by data source

Center for Educational Research in Appalachia superintendent survey, 2007/08	Kentucky Department of Education district data, 2007/08 (Kentucky Performance Report and finance reports)	National Center for Education Statistics Common Core of Data, 2007/08	Appalachian Regional Commission data, 2007/08
• Superintendent turnover (number of times the district changed superintendents over 1998/99–2007/08 minus one)	• District accountability index • District enrollment • Free or reduced-price meal eligibility • State and local revenue per student • Expenditure per student	• District locale code	• Appalachian county designation

Source: Authors' compilation.

and Appalachian school districts ($n = 73$) with non-Appalachian school districts ($n = 101$).

To determine how turnover varied by school district characteristics, subsets of districts were created based on superintendent turnover over 1998/99–2007/08 (districts with no turnovers, districts with one turnover, and districts with two turnovers) and the mean, median, and standard deviation were computed for each subset. Data were then disaggregated by rural status and by region for the three subsets.

NOTES

1. This analysis was conducted by determining the full tenure of every superintendent employed over 1900–90, assigning that tenure value to the school district for each year the superintendent was employed, and computing the mean for the full tenure value across all 25 districts in each calendar year.

2. The other 25 studies did not investigate superintendent tenure as a possible influence on student achievement.

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