Stated Briefly

An examination of the movement of educators within Iowa

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This brief examines the mobility of public school teachers and principals (including assistant principals) in Iowa and presents annual and five-year mobility rates between 2006/07 and 2010/11. An average of 6.7 percent of teachers changed schools between consecutive years, and 18.9 percent changed schools within a five-year span. Teachers were more likely to move to another school if they were male, had less teaching experience, were in an urban school, or taught in a school with lower academic performance, fewer students, or more economically disadvantaged students. For principals the annual mobility rate averaged 9.2 percent, and the five-year mobility rate was 27.5 percent. Principals were more likely to move to another school if they had less experience or were in a school with fewer students.

This brief summarizes Iowa-specific findings of Podgursky, M., Ehlert, M., Lindsay, J., & Wan, Y. (2016). *An examination of the movement of educators within and across three Midwest Region states* (REL 2017–185). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest. That report is available at http://ies.ed.gov/ncee/edlabs/projects/project.asp?projectID=387.

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Why this study?

Teachers and school administrators change schools for a variety of reasons. For example, public school teachers in a national sample rated personal life factors, salary and other job benefits, and assignment and classroom factors as the most important reasons in their decision to move (Goldring, Taie, & Riddles, 2014).

Some mobility is inevitable, even desirable, and can be beneficial to schools and students if it results in a better person–job match or replacement of ineffective educators by higher-quality educators (see, for example, Ingle, 2009); but policymakers are concerned about the potential negative effects of mobility. High rates of mobility pose substantial challenges to the development of strong and stable faculties (Allensworth, Ponisciak, & Mazzeo, 2009).

An educator's decision to leave a position in one school to take a position in another school incurs a cost to schools, districts, and students (Barnes, Crowe, & Schaefer, 2007; Feng & Sass, 2011; Coggshall & Sexton, 2008). At the state level, educator mobility may counteract initiatives to create equitable distributions of highly qualified educators across different types of districts and across subject areas. For example, research suggests that educators are more likely to move from schools with a larger racial/ethnic minority population, from schools with a larger population of economically disadvantaged students, and from schools showing chronic low performance (see, for example, Feng & Sass, 2011; Hanushek, Kain, & Rivkin, 2004; Plecki, Elfers, Loeb, Zahir, & Knapp, 2005). Previous research also suggests that teachers in some subject areas, particularly special education teachers, have higher mobility rates than teachers in other subject areas (Boe, Cook, & Sunderland, 2008; Goldring et al., 2014; Texas Education Agency, 1995).

Examining educator mobility may help states better understand where mobility is having its greatest impact. But many states do not monitor educator mobility. Such was the case in fall 2012, when members of the Midwest Educator Effectiveness Research Alliance[1] partnered with Regional Educational Laboratory Midwest to examine patterns of educator mobility within and among Iowa, Minnesota, and Wisconsin.

This brief presents findings on educator mobility within Iowa. The study team analyzed Iowa school staffing data from 2006/07 to 2011/12 to determine the mobility rates among public school teachers and principals (including assistant principals) and to determine whether educator and school characteristics and mobility rates were related. The study team also prepared similar briefs on Minnesota and Wisconsin using the same methodology.[2]

The findings can provide policymakers and staff at the Iowa Department of Education with information on educator mobility within the state as well as characteristics of schools that educators are more likely to leave and whether certain educators have characteristics that make them more prone to relocating.

What the study examined

This study addressed the following research questions:

- What were intrastate mobility rates for teachers, principals, and assistant principals in Iowa between 2006/07 and 2010/11?

- Did mobility rates differ by
  - Administrative level (teacher or principal)?
  - The subject area teachers taught?
  - Region within the state?

Box 1. Data and methods

Data

This study used two types of data for school years 2006/07–2011/12:

- Listing of licensed staff in each public school in each year between 2006/07 and 2011/12.
- School-level data, including characteristics of the student populations served and student performance on state standardized tests.

Data were obtained through a data-sharing agreement between the Iowa Department of Education and Regional Educational Laboratory Midwest. Educators' folder numbers (license numbers) and school identification numbers served as unique identifiers, allowing the study team to merge data files for different years by educator and school.

Methods

This brief focuses on the movement of two groups of educators within Iowa: teachers and principals (including assistant principals). To examine educator mobility, the study team merged the state's public school employment files for each pair of consecutive years by educator identifier for all years between 2006/07 and 2011/12. A professional educator working in both years but in a different school within the state was classified as a mover and included in the count of school movers. Annual mobility rates were calculated by dividing the number of school movers by the total number of educators working in the first of the consecutive years. For example, the teacher mobility rate for 2006/07 was calculated by dividing the number of teachers working in 2006/07 who moved to another Iowa public school in 2007/08 by the total number of teachers working in 2006/07. Five-year mobility rates were calculated by dividing the number of educators working in 2006/07 who were still employed in the state's public schools in 2011/12 (after five years) but were working in a different school by the total number of educators employed in 2006/07.

To determine whether specific educator and school characteristics were associated with whether an educator moved from year to year or was working in a different school at the end of the five-year span, the study team used multivariate logistic regressions to analyze annual and five-year mobility rates. The results of the regressions indicated how educator characteristics and the characteristics of the exited schools (the schools educators moved from) were related to the odds that educators continuing their employment would change schools rather than stay employed in the same school.

- Were mobility rates reliably predicted by
  - Educator characteristics (gender, racial/ethnic minority status, or years of experience working in public education in the state)?
  - School characteristics (academic performance, size, percentage of economically disadvantaged students, or urbanicity)?

The study team obtained annual educator staffing data and data on school-level performance and demographics from the Iowa Department of Education. Staff records across years were linked by unique staff identification numbers. The longitudinal data permitted employment information for the same educators to be analyzed over a given period, which revealed mobility behavior (entry into the workforce, exit from the workforce, and changes in work locations). See box 1 for a summary of the data and methods used for the study.

What the study found

The average annual intrastate mobility rate was 6.7 percent for Iowa teachers and 9.2 percent for Iowa principals (table 1). Mobility rates were related to several educator and school characteristics.

Table 1. Average annual and five-year intrastate mobility rates for Iowa public school educators, 2006/07–2010/11 (percent)

Mobility rate	Teachers	Principals[a]
Average annual	6.7	9.2
Five-year	18.9	27.5

Note: Average annual mobility rates are the averages of year-to-year mobility rates from 2006/07 to 2010/11, where the mobility rate for each year reflects the movement of educators between that year and the subsequent year (for example, the rate for 2006/07 reflects the percentage of educators employed in 2006/07 who worked in a different school in 2007/08). Five-year mobility rates are the percentage of educators employed in 2006/07 who worked in a different school in 2011/12.

a. Includes assistant principals.

Source: Authors' analysis of data from the Iowa Department of Education.

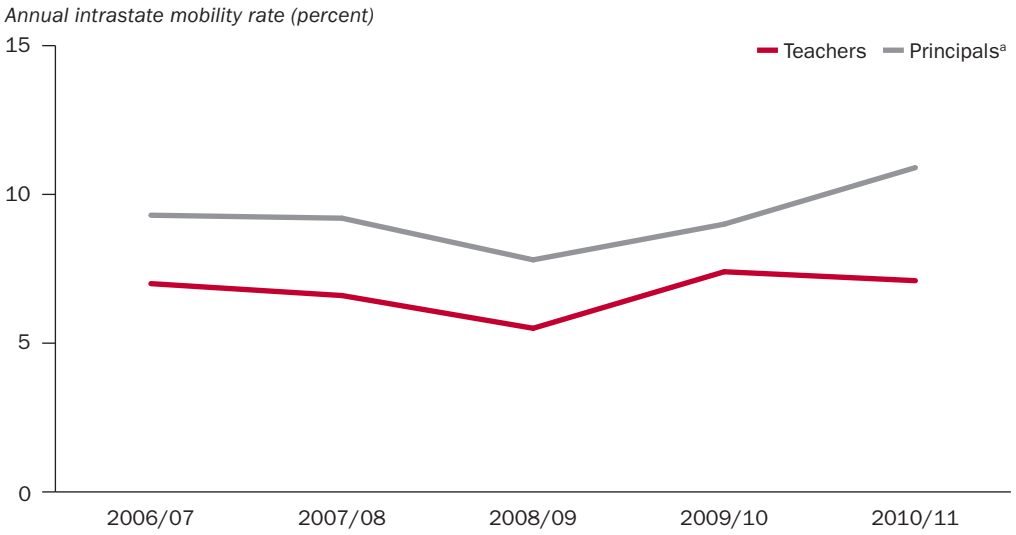
Between 2006/07 and 2010/11 the annual intrastate mobility rate for teachers ranged from 5.5 percent to 7.4 percent, and the five-year mobility rate was 18.9 percent

The annual intrastate mobility rate for Iowa teachers ranged from 5.5 percent to 7.4 percent (figure 1). Of the teachers who were employed in Iowa public schools in 2006/07, 18.9 percent had changed schools within the state by 2011/12.

Teacher mobility was related to teachers' gender, years of experience, and licensure area

Male teachers were more likely than female teachers to change schools within a five-year span (table 2). The relationship between annual intrastate mobility rate and teachers' years of experience was also statistically significant. As teachers advanced in their career, the likelihood of moving to another public school

Figure 1. The annual intrastate mobility rate for Iowa public school educators ranged from 5.5 percent to 10.9 percent between 2006/07 and 2010/11



Note: The mobility rate displayed for each year reflects the movement of educators between that year and the subsequent year. For example, the rate for 2006/07 reflects the percentage of educators employed in 2006/07 who worked in a different school in 2007/08.

a. Includes assistant principals.

Source: Authors' analysis of data from the Iowa Department of Education.

Table 2. Relationship between annual and five-year intrastate mobility rates for Iowa public school educators and educator and school characteristics, 2006/07–2010/11 (odds ratio)

Predictor	Teachers		Principals[a]	
	Annual mobility rate	Five-year mobility rate	Annual mobility rate	Five-year mobility rate
Educator characteristics				
Female	0.992	0.917**	1.012	1.017
Racial/ethnic minority	1.030	1.083	1.209	0.941
Years of experience teaching in Iowa	0.964***	0.970	0.979**	0.962***
School characteristics				
Academic performance (percent proficient)	0.992***	0.987***	0.999	0.992
Size (per 100 students)	0.930***	0.918***	0.903***	0.914***
Urban versus nonurban	1.196***	1.487***	0.877	0.708
Percentage of economically disadvantaged students	1.004***	1.006***	1.004	1.007

** Significant at $p < .01$; *** significant at $p < .001$.

Note: Estimates are based on a multivariate logit model and indicate how each predictor variable is related to the odds that an educator moves versus stays at the same school in the following year. Values greater than 1 indicate that increases in the predictor variable are associated with higher odds that an educator changes schools. Values less than 1 indicate that increases in the predictor variable are associated with lower odds. For example, the odds of moving versus staying in the same school over the five-year period are 1.487 times higher for an urban teacher than for a nonurban teacher. The analysis of annual mobility used data for 2006/07 and 2007/08; the analysis of five-year mobility used data for 2006/07 and 2011/12.

a. Includes assistant principals.

Source: Authors' analysis of data from the Iowa Department of Education.

in Iowa decreased (figure 2). The difference in mobility rates for teachers in different subject areas was also statistically significant ($p < .01$; table 3). Among elementary school teachers the average annual mobility rate was 2.7 percentage points higher for special education teachers than for general education teachers, and the five-year mobility rate was 5.2 percentage points higher for special education teachers than for general education teachers. Among secondary school teachers the average annual mobility rate was 7.2 percentage points higher for special education teachers than for teachers in core subjects, and the five-year mobility rate was 12.8 percentage points higher for special education teachers than for teachers of core subjects.

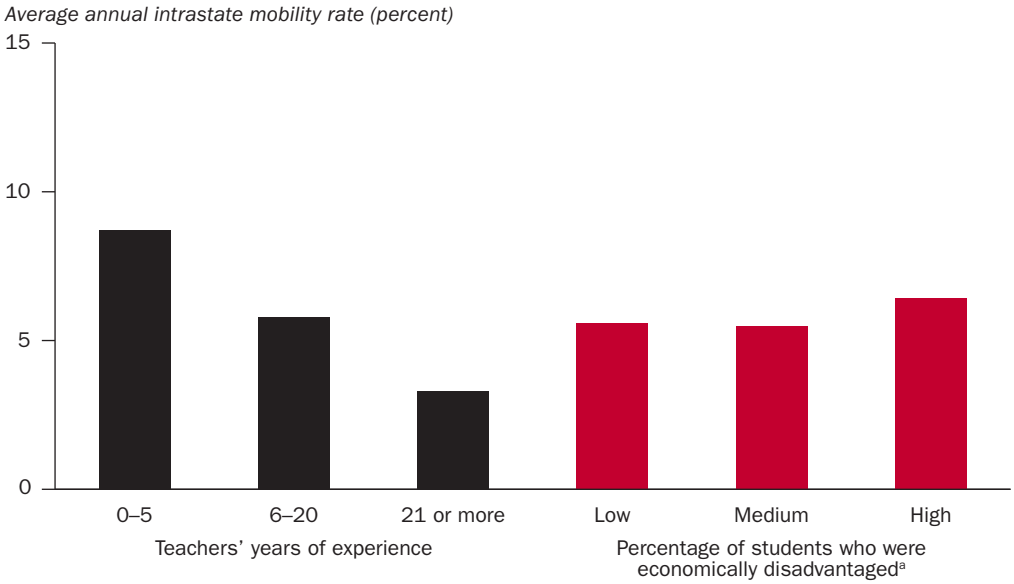
The likelihood of teachers changing schools within Iowa during a one- or five-year span was related to schools' academic performance, size, urbanicity, and percentage of students who were economically disadvantaged

Teachers were more likely to move from schools with a lower percentage of students meeting the state's academic proficiency standards, smaller schools, urban schools, and schools with a larger percentage of students who were economically disadvantaged (see table 2 and figure 2). All these relationships were statistically significant.

Annual and five-year teacher intrastate mobility rates were highest in the Prairie Lakes and Heartland regions

Teachers in some of the state's area education agency regions were more likely to change schools than were teachers in other regions ($p < .001$), with more than 7 percent average annual mobility and 20 percent five-year mobility in the Prairie Lakes and Heartland regions (table 4). Mobility rates tended to be higher within regions than across them (see shaded cells in table 4).

Figure 2. Average annual intrastate mobility rates for Iowa public school teachers were associated with teachers' years of experience in the state and schools' percentage of students who were economically disadvantaged, 2006/07–2010/11



a. Low-poverty schools are those in the lowest quartile of percentage of students eligible for the school lunch program; medium-poverty schools are those in the middle two quartiles of percentage of students eligible for the school lunch program; high-poverty schools are those in the highest quartile of percentage of students eligible for the school lunch program.

Source: Authors' analysis of data from the Iowa Department of Education.

Table 3. Average annual and five-year intrastate mobility rates for Iowa public school teachers, by subject taught, 2006/07–2010/11 (percent)

Subject taught	Average annual mobility rate	Five year mobility rate
Elementary school level		
General education	6.0	17.8
Special education	8.7	23.0
Other	7.7	20.0
Secondary school level		
English language arts	5.0	12.5
Math	4.4	12.2
Science	4.1	12.8
Social studies	4.3	12.4
Special education	12.0	26.4
Foreign languages	4.5	12.5
Other	6.2	19.0

Note: Average annual mobility rates are the averages of year-to-year mobility rates from 2006/07 to 2010/11, where the mobility rate for each year reflects the movement of teachers between that year and the subsequent year (for example, the rate for 2006/07 reflects the percentage of teachers employed in 2006/07 who worked in a different school in 2007/08). Five-year mobility rates are the percentage of teachers employed in 2006/07 who worked in a different school in 2011/12. Analyses of variance showed that the overall differences in average annual and five-year mobility rates between teachers who taught different subjects were statistically significant at $p < .01$.

Source: Authors' analysis of data from the Iowa Department of Education.

Table 4. Teacher average annual and five-year mobility rates across area education agency regions within Iowa, 2006/07–2010/11 (percent)

Region that teachers leave	Region to which teachers move									Total mobility from region***
	Area Education Agency 267	Grant Wood	Great Prairie	Green Hills	Heartland	Keystone	Mississippi Bend	Northwest	Prairie Lakes	
Area Education Agency 267	5.6	0.3	0.1	0.1	0.4	0.1	0.1	0.0	0.2	6.9
	14.7	0.7	0.2	0.2	1.2	0.3	0.2	0.1	0.5	18.4
Grant Wood	0.2	5.6	0.1	0.0	0.2	0.1	0.1	0.0	0.0	6.4
	0.5	16.2	0.3	0.1	0.8	0.4	0.4	0.1	0.1	19.0
Great Prairie	0.2	0.3	4.2	0.1	0.3	0.0	0.1	0.0	0.0	5.3
	0.4	0.9	11.9	0.2	1.1	0.1	0.2	0.1	0.1	15.2
Green Hills	0.1	0.1	0.0	5.1	0.5	0.0	0.0	0.2	0.1	6.4
	0.4	0.4	0.2	12.7	1.2	0.1	0.0	0.5	0.3	16.0
Heartland	0.2	0.1	0.1	0.1	7.1	0.0	0.0	0.0	0.1	7.7
	0.6	0.3	0.3	0.2	19.2	0.1	0.1	0.2	0.2	21.2
Keystone	0.3	0.2	0.0	0.0	0.1	5.0	0.1	0.0	0.0	5.8
	1.0	0.6	0.1	0.2	0.4	14.2	0.3	0.1	0.1	16.9
Mississippi Bend	0.1	0.2	0.1	[a]	0.2	0.1	4.6	0.0	0.0	5.3
	0.3	0.9	0.4	0.0	0.6	0.2	13.2	0.1	0.1	15.9
Northwest	0.1	0.0	0.0	0.1	0.2	0.0	0.0	4.8	0.3	5.6
	0.3	0.1	0.1	0.4	0.6	0.0	0.1	14.3	0.8	16.8
Prairie Lakes	0.3	0.1	0.1	0.1	0.5	0.0	0.0	0.2	5.8	7.5
	1.0	0.5	0.3	0.3	1.7	0.0	0.1	0.8	17.5	22.4

*** Significantly different across regions at $p < .001$ for both annual mobility rates and five-year mobility rates.

Note: In each row the top number is the average annual mobility rate, and the bottom number is the five-year mobility rate. Shaded cells along the diagonal indicate the percentage of teachers within the region who relocated to another school within the region. Average annual mobility rates are the averages of year-to-year mobility rates from 2006/07 to 2010/11, where the mobility rate for each year reflects the movement of teachers between that year and the subsequent year (for example, the rate for 2006/07 reflects the percentage of teachers employed in 2006/07 who worked in a different school in 2007/08). Five-year mobility rates are the percentage of teachers employed in 2006/07 who worked in a different school in 2011/12.

a. No teachers moved from the region representing the row to the region representing the column.

Source: Authors' analysis of data from the Iowa Department of Education.

Between 2006/07 and 2010/11 the annual intrastate mobility rate for principals ranged from 7.8 percent to 10.9 percent, and the five-year mobility rate was 27.5 percent

The annual intrastate mobility rate for Iowa principals ranged from 7.8 percent to 10.9 percent (see figure 1). Of the principals who were employed in Iowa public schools in 2006/07, 27.5 percent had changed schools within the state by 2011/12. Principal mobility rates were 1.6–3.8 percentage points higher than teacher mobility rates.

Principal intrastate mobility rates were related to principals' years of experience as well as school size

Principals' years of experience were the only principal characteristic with a statistically significant relationship to mobility rate (see table 2). For every year of experience, the odds of changing schools within a five-year span decreased 4 percent. Of the school characteristics tested, only size was found to be related to annual and five-year intrastate mobility rates: principals were less likely to leave schools that were larger.

Table 5. Principal average annual and five-year mobility rates across area education agency regions within Iowa, 2006/07–2010/11 (percent)

Region that principals[a] leave[a]	Region to which principals[a] move									Total mobility from region*
	Area Education Agency 267	Grant Wood	Great Prairie	Green Hills	Heartland	Keystone	Mississippi Bend	Northwest	Prairie Lakes	
Area Education Agency 267	7.2	0.5	0.3	0.3	0.6	0.2	0.1	0.3	0.1	9.9
	19.0	3.0	[b]	0.5	2.0	0.5	[b]	[b]	0.5	25.5
Grant Wood	0.5	5.6	0.3	[b]	0.5	0.3	0.4	0.1	0.1	7.8
	1.6	19.6	0.5	0.5	1.6	1.1	0.5	[b]	0.5	26.1
Great Prairie	0.8	1.0	9.3	0.2	0.8	0.2	0.2	[b]	0.3	12.9
	3.4	1.7	28.6	0.8	0.8	[b]	1.7	0.8	0.8	38.7
Green Hills	0.3	0.2	[b]	7.0	0.8	0.2	0.2	[b]	[b]	8.6
	1.7	[b]	[b]	18.8	4.3	0.9	0.9	0.9	[b]	27.4
Heartland	0.5	0.1	0.1	0.1	6.4	0.1	[b]	0.1	0.1	7.4
	1.9	[b]	[b]	[b]	18.0	0.3	[b]	[b]	0.3	20.7
Keystone	1.2	0.5	0.2	[b]	0.2	4.1	0.2	0.2	0.5	7.1
	5.4	2.7	[b]	[b]	[b]	12.5	[b]	0.9	2.7	24.1
Mississippi Bend	0.1	1.1	0.1	0.1	0.1	0.1	8.2	0.1	[b]	10.2
	0.7	4.4	0.7	[b]	1.5	1.5	21.9	1.5	[b]	32.1
Northwest	[b]	0.3	0.2	0.3	0.3	0.2	[b]	7.8	0.6	9.7
	[b]	[b]	[b]	1.6	2.4	0.8	[b]	24.6	0.8	30.2
Prairie Lakes	0.8	0.2	0.8	0.2	0.2	0.2	0.4	0.4	6.9	10.1
	2.1	[b]	2.1	[b]	1.1	[b]	2.1	[b]	20.0	27.4

* Significantly different across regions at $p < .05$.

Note: In each cell the top number is the average annual mobility rate, and the bottom number is the five-year mobility rate. Shaded cells along the diagonal indicate the percentage of principals within the region who relocated to another school within the region. Average annual mobility rates are the averages of year-to-year mobility rates from 2006/07 to 2010/11, where the mobility rate for each year reflects the movement of principals between that year and the subsequent year (for example, the rate for 2006/07 reflects the percentage of principals employed in 2006/07 who worked in a different school in 2007/08). Five-year mobility rates are the percentage of principals employed in 2006/07 who worked in a different school in 2011/12.

a. Includes assistant principals.

b. No principals moved from the region representing the row to the region representing the column.

Source: Authors' analysis of data from the Iowa Department of Education.

Average annual and five-year principal intrastate mobility rates were highest in the Mississippi Bend and Great Prairie regions

Average annual principal intrastate mobility rates ranged from 7.1 percent in the Keystone region to 12.9 percent in the Great Prairie region. Five-year principal intrastate mobility rates ranged from 20.7 percent in the Heartland Region to 38.7 percent in the Great Prairie region (table 5). The differences across regions were statistically significant. As with teacher mobility, most principal mobility involved moving to another school within the same region (as indicated by the shaded cells in table 5).

Implications of the study findings

The findings from these analyses have implications for Iowa policymakers, the Iowa Department of Education, and districts statewide.

The mobility rates presented here can serve as a baseline for future studies of mobility among Iowa educators

The annual educator mobility rate in Iowa ranged from 5.5 percent to 10.9 percent between 2006/07 and 2010/11. But no objective standards exist for determining whether these mobility rates merit concern among policymakers. Nonetheless, the mobility rates in this brief can be useful to Iowa policymakers in two ways: they help show patterns of mobility in schools in different regions of the state and in different types of schools, and they can serve as baseline rates for future studies. Although some educator mobility is to be expected given personal life events and individual workplace and community preferences, policymakers may want to continually monitor these rates. Increases either statewide or in individual districts may indicate that districts will have to spend additional funds for recruiting, interviewing, and hiring educators; that districts experiencing inordinate loss of staff because of mobility issues may be challenged to sustain school improvement efforts; and that the state's efforts at equitable distribution of educators may be experiencing challenges.

Public schools serving challenged student populations are more likely to lose teachers to other schools

Educators' self-selection of employers may be leading to an inequitable distribution of educators. Mobility rates were higher for special education teachers than for teachers in other subject areas. Teacher mobility was also related to schools' academic performance, percentage of students who were economically disadvantaged, and urbanicity. That is, teachers were moving from more challenging schools at higher rates than they were moving from less challenging schools. Not only do schools serving challenged student populations lose more resources to the process of hiring replacement teachers, but research suggests that student learning suffers as well (Ronfeldt, Loeb, & Wyckoff, 2013). Thus policymakers may need to consider ways of incentivizing the retention of special education teachers and teachers in low-performing, high-poverty, urban schools and to decide whether to assist the districts that oversee these schools with the costs of hiring educators to replace the movers.

Educator mobility is of greater concern in some regions of the state than in others

Teacher and principal mobility rates were higher in some regions than in others. Specifically, the five-year teacher mobility rates were higher in the Prairie Lakes and Heartland regions than the average of the other regions, and the five-year principal mobility rates were higher in the Great Prairie and Northwest regions than the average for the other regions. The differences in mobility rates across regions were statistically significant. The Iowa Department of Education may want to take a more in-depth look at the mobility rates in those regions to determine whether initiatives are needed to bolster educator retention there.

Limitations of the study

The findings from this study were produced by accepted statistical methods using valid and reliable staffing and certification data provided by the Iowa Department of Education. Despite the strengths of this study, it has two main limitations.

First, the study focuses on the mobility patterns among educators in Iowa public schools only. Mobility rates and patterns cannot be generalized to other states or to private schools in Iowa.

Second, the study is correlational. The findings show patterns of relationships between educator mobility and educator and school characteristics. However, the relationships are not necessarily causal. The administrative employment data used for the study did not include information on why educators moved or whether educators' decisions to change places of employment were voluntary or involuntary.

Notes

1. The Midwest Educator Effectiveness Research Alliance comprises representatives of state education agencies in Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin whose work involves licensing educators and supporting educators' career development.
2. The two other briefs, together with the full report on which the state-specific briefs are based, are available at http://ies.ed.gov/ncee/edlabs/projects/project.asp?projectID=387. The full report also includes analysis of teacher and administrator interstate mobility among the three states.

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