

TEACHER ATTRITION AND RETENTION IN RURAL STATES: *The Case of Kansas*



Fall 2019

Tuan D. Nguyen, PhD.
Department of Curriculum and Instruction
College of Education
Kansas State University
nguyetd1@ksu.edu

EXECUTIVE SUMMARY

TEACHER labor markets have strong implications for learning outcomes and equity for students, and consequently much research has examined teacher shortages and relatedly, teacher retention. Policy makers and educators have spent considerable amount of time working to ensure that classrooms are staffed with qualified teachers, and yet these efforts have fallen short in many areas of the country. For instance, there are annual on-going, state-wide teacher shortages in Kansas, and early reports suggest this shortage may have worsened recently (Bisaha, 2018). This annual teacher shortage is likely to be a combination of weakening teacher pipeline and the high rate of teacher attrition (KSDE, 2016; Weaver & Perez, 2016). And yet, little is known about how what is driving teachers to turnover in Kansas or how teacher characteristics and the conditions of the schools in which they teach have changed over time. This report then examines teacher and school characteristics in Kansas over time as well as the attrition rate and the factors that are associated with teacher mobility patterns in Kansas.

Using multiple waves of data from the Schools and Staffing Survey (SASS) and its supplement, the Teacher Follow-Up Survey (TFS), by the National Center for Educational Statistics (NCES), I examine the teacher and school characteristics of Kansas teachers from 1988-2012. Then I describe the teacher mobility patterns for Kansas from 2000-2012, compare them against the national average, the Midwest region, and the Great Plains states. In particular, I examine whether younger teachers, teachers with graduate degrees, and specialty teachers (STEM and special education) in Kansas are more or less likely to attrit. Lastly, I examine how certain teacher and school characteristics are associated with teacher attrition.

Key Findings:

- 1 *Teacher salary in 2012 is at the same level as it was in 1988 (adjusted for inflation).*
- 2 *Over time, teachers are substantially more likely to teach in majority low-income and majority minority schools.*
- 3 *The overall attrition rate (switchers and leavers) for Kansas is higher than the national rate and the Midwest region's but slightly lower than the Great Plains'. In particular, Kansas teachers are more likely to switch schools.*
- 4 *Younger teachers and specialty (STEM and special education) teachers in Kansas are not more likely to attrit relative to their peers in the Midwest or the Great Plains.*
- 5 *For Kansas teachers specifically, younger teachers and SE teachers are substantially more likely to attrit than older and non-specialty teachers, while graduate degree, union membership and better administrative support are associated with decreased likelihood of attrition.*

Teacher attrition in rural states: The case of Kansas

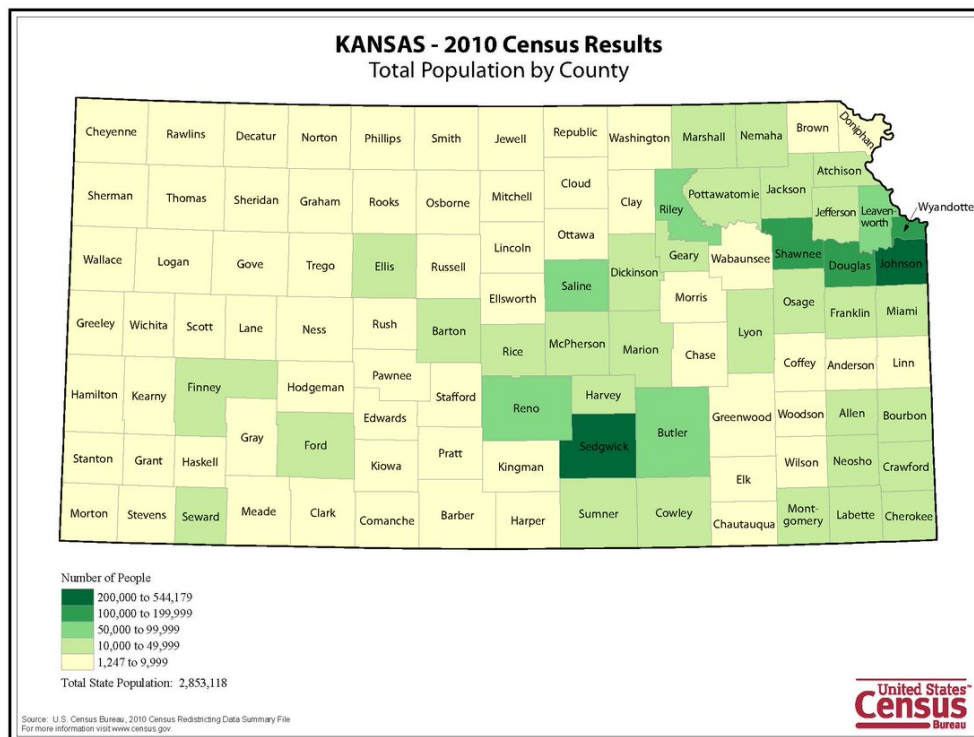


Figure 1: Kansas - 2010 Census Results: Total Population by County

Research on teacher attrition has generally focused in large urban areas, and it is only recently that there is the recognition that there should be more focus on the unique challenges that rural teachers face and how they could drive attrition. Using nationally representative data as well as state-level data, recent studies do not consistently find that urban teachers are more likely to leave teaching than rural teachers; in some studies, rural teachers are, on average, less likely to attrit than their urban counterparts (Crouch & Nguyen, under review; Donaldson & Johnson, 2010; Imazeki, 2005; Kelly, 2004; Moore, 2011; Smith, 2006). These findings indicate that the variations of teacher attrition are not neatly split by the rural and urban divide but rather by the specific context of the studies and the local teacher labor market.

Kansas has experienced and continues to experience substantial teacher shortages in the last decade and data suggest this shortage is further exacerbated in recent years (Bisaha, 2018; Kansas Commissioner of Education, 2016). In recognition of this on-going issue, in 2016 the Kansas Commissioner of Education, Dr. Randy Watson, created the Blue Ribbon Task Force charged with the task

of studying teacher shortages and vacancy. One of the main conclusions of this report is that teacher attrition is a critical part of teacher shortages in Kansas (KSDE, 2016). Relatedly, much of Kansas by area is rural and it is a good representation of states with large rural areas (Economic Research Service, 2007). As such, it makes for a good case study of teacher attrition in a rural state.

For this study, I use all seven iterations of SASS to examine the teacher characteristics of Kansas teachers and the schools in which they teach. More specifically, I use the 1987-1988, 1990-1991, 1993-1994, 1999-2000, 2003-2004, 2007-2008, and 2011-2012 waves. For the turnover analysis, I use the most recent four waves of SASS, the 1999-2000, 2003-2004, 2007-2008, and 2011-2012 SASS waves. I employ sampling weights to make the results representative for Kansas. The overall sample size for the descriptive analysis is 5,100 unique teacher-year observations, representing 215,740 Kansas teachers from 1987-2012, and 2,910 observations, representing 131,790 Kansas teachers from 1999-2012, for the turnover analysis.

Teacher characteristics in Kansas

1 Teacher salary in 2012 is at the same level as it was in 1988 (adjusted for inflation).

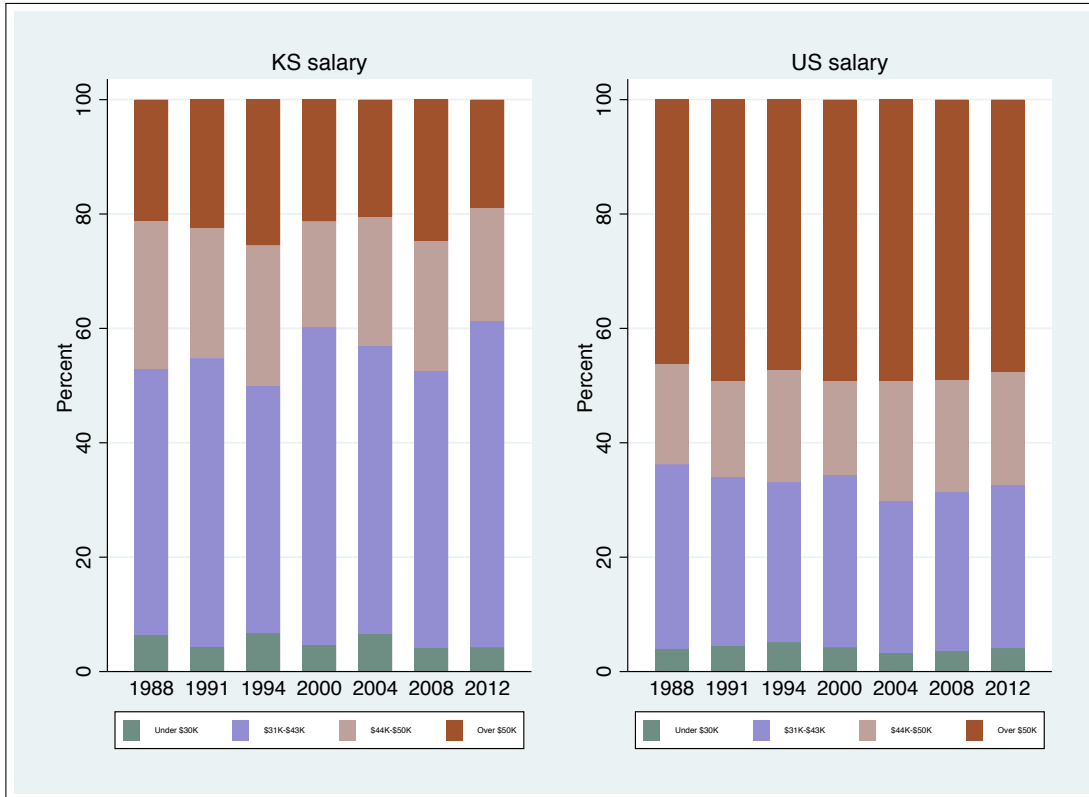


Figure 2: Proportion of salary ranges for Kansas teachers and nationally

Appendix Table 1 presents the teacher characteristics and school characteristics by wave. Generally, most teacher characteristics are stable across time, so I focus the discussion on Model 8 where the data are pooled together. We observe Kansas teachers tend to be women (74 percent) and nearly all are White (96 percent). Eleven percent are novice teachers in their first or second year of teaching, 16 percent are under 30 years old, 45 percent have graduate degrees and 11 percent and 9 percent are STEM and special education teachers respectively. Due to the relatively high degree of collinearity between novice teachers and younger teachers (under 30 years old) and limited sample size for Kansas teachers, I drop the novice teachers as a variable in subsequent analysis, but the results are substantively similar using novice teachers or younger teachers. In terms of certification,

only one percent of Kansas teachers does not have certification. About 60 percent of Kansas teachers have union membership. These results are comparable to the national average (Nguyen, under review).

What does stand in stark contrast is the average salary in constant 2012 dollar is about \$42,840, which is nearly the same average salary in 1988 adjusted for inflation. Moreover, the proportion of teachers who make below the national average has been rising over the years. In 2012, a little over 60 percent of teachers make \$43,000 or less relative to 37 percent nationally. There are no data on how satisfied teachers are with their salary before 1994, but the existing data indicate Kansas teachers have been less satisfied with their salary over time and by 2004, they are, on average, negatively satisfied with their salary relative to the national pool of teachers.

School characteristics in Kansas

- 2 Over time, teachers are substantially more likely to teach in majority low-income and majority minority schools.

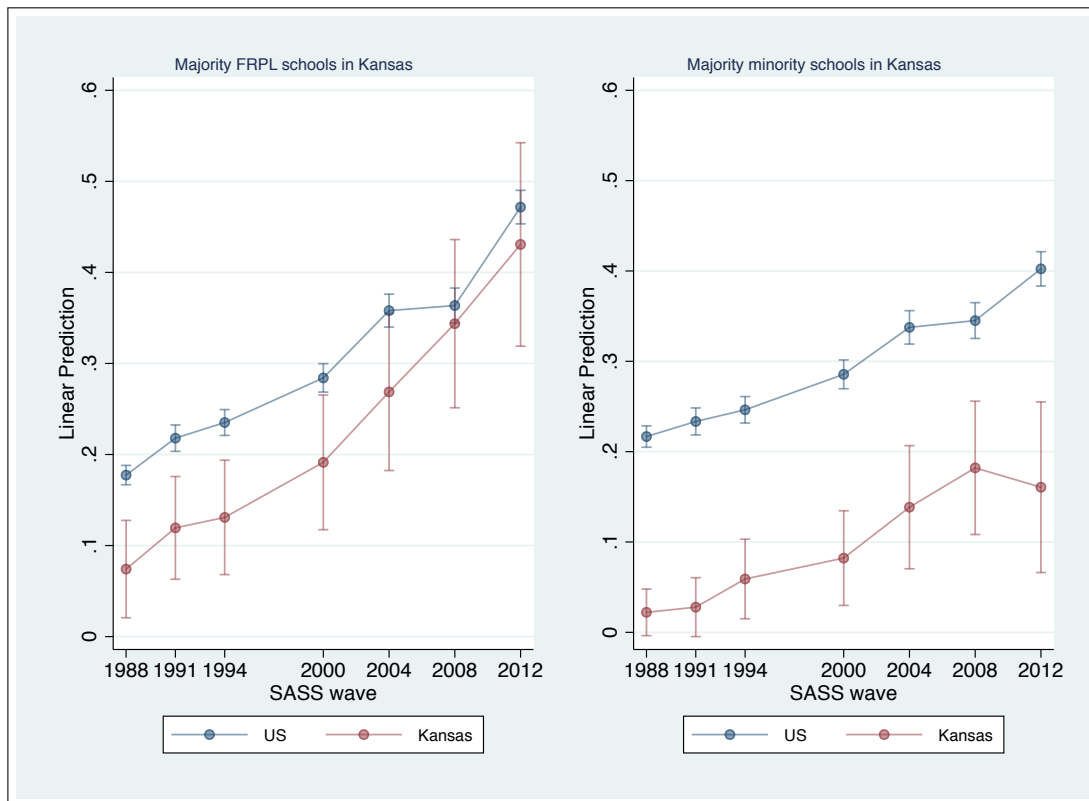


Figure 3: Linear predictions of Kansas teachers working majority FRPL or majority minority schools

In terms of school characteristics, on average, about 18 percent of Kansas teachers work in urban areas. The average school size has risen from 388 students to about 500 students in 2012. Notably, from 1988 to 2012, the percent of students eligible for free-and-reduced-price lunch (FRPL) has increased from 23 percent to 46 percent. Moreover, the percent of schools where the majority of students are FRPL-eligible has increased from seven percent in 1988 to 43 percent in 2012. Similarly, the percent of majority minority schools has increased from two percent in 1988 to 16 percent in 2012. Figure 2 shows the predicted probability of Kansas teachers working in majority FRPL schools (left panel) or majority minority schools (right panel). Kansas teachers were less likely to

have taught in majority low-income schools in 1988 and the 90s but over time, they have become more likely to teach in these schools and by 2012, they are at comparable rates with the national average. Kansas teachers have become more likely to teach in majority minority schools as well, but at substantially lesser rates than the national average.

With regards to IEP and LEP, about 13 percent of Kansas students have individualized education program (IEP) and about five percent have limited English proficiency (LEP) status. Relative to the national average, there is less report of disciplinary problems in Kansas schools while there are more positive reports of administrative support and teacher cooperation.

3 The overall attrition rate (switchers and leavers) for Kansas is higher than the national rate and the Midwest region's but slightly lower than the Great Plains'. In particular, Kansas teachers are more likely to switch schools.

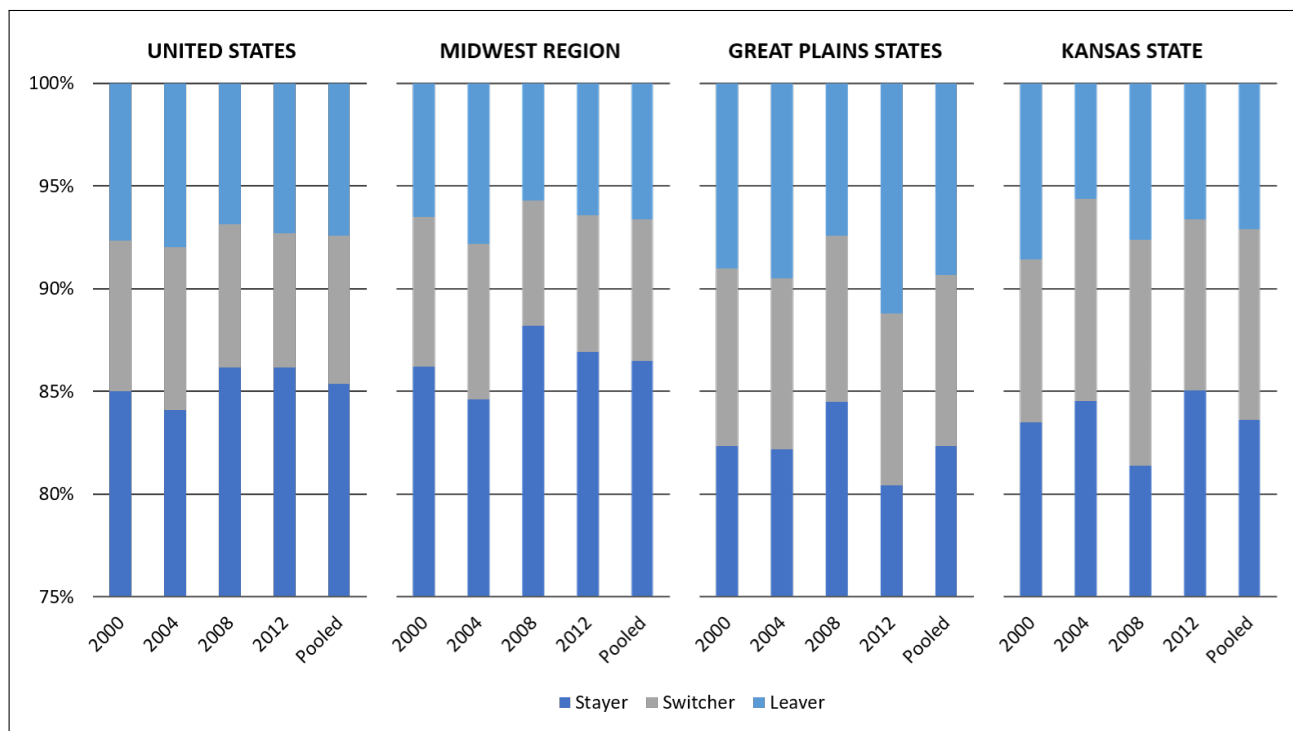


Figure 4: Teacher mobility patterns for the US, Midwest, Great Plains states, and Kansas (see p.10 for full scale)

Figure 4 presents the rates of attrition for teachers nationally, in the Midwest region (excluding Kansas teachers), in the Great Plains states (excluding Kansas again) and for Kansas teachers specifically. Table 2 includes the exact rates. Nationally, from 2000-2012, about 85 percent of teachers stayed in the school in which they taught previously. About half of those who left their school switched to another school and about half left the teaching profession altogether. Similarly, 86.5 percent of teachers in the Midwest are stayers with half of the attrition rates for Midwest teachers are switchers and half are leavers. Another comparison worth considering is to examine the Great Plains states where there are more geographic and cultural similarities. In Panel C, we observe that only 82 percent of teachers in the Great Plains region

are stayers with 8 percent switching from one school to another and 9 percent leaving the profession altogether.

In comparison, Kansas teachers, on average, stay in their school at a lower rate than Midwest teachers but at a higher rate than the Great Plains teachers (also see Panel D of Table 2). In either comparison, however, they are more likely to switch to another school. About 83.60 percent of Kansas teachers stayed in their school while 9 percent switched schools and 7 percent left teaching. This attrition rate in Kansas was very high in the 2007-2008 school year with only 81 percent of Kansas teachers staying in their original school. In sum, relative to the national average, Kansas teachers are more likely to leave their current school for another school, and they leave teaching at similar rates.

4 Younger teachers and specialty (STEM and special education) teachers in Kansas are not more likely to attrit relative to their peers in the Midwest or the Great Plains.

Table 1: Teacher mobility in Kansas relative to the Midwest and Great Plains regions

Variables	Midwest region			Great Plains region		
	(1) Overall turnover	(2) Switching turnover	(3) Leaving turnover	(4) Overall turnover	(5) Switching turnover	(6) Leaving turnover
Kansas	0.043* (0.017)	0.040** (0.013)	0.010 (0.013)	0.018 (0.018)	0.029* (0.014)	-0.007 (0.014)
Age under 30	0.088** (0.009)	0.080** (0.008)	0.024** (0.007)	0.093** (0.016)	0.084** (0.015)	0.030* (0.013)
Grad. degree	-0.010 (0.006)	-0.005 (0.005)	-0.006 (0.005)	0.029* (0.013)	0.017+ (0.010)	0.018+ (0.010)
SPED	0.029** (0.009)	0.029** (0.008)	0.004 (0.007)	0.041+ (0.023)	0.024 (0.016)	0.026 (0.021)
STEM	-0.011 (0.007)	-0.013* (0.005)	0.000 (0.006)	-0.006 (0.014)	-0.010 (0.009)	0.003 (0.012)
Kansas # Under 30	0.004 (0.037)	0.000 (0.035)	0.009 (0.025)	-0.003 (0.039)	-0.005 (0.037)	0.001 (0.027)
Kansas # Grad. deg	-0.048* (0.020)	-0.046** (0.017)	-0.011 (0.015)	-0.089** (0.023)	-0.068** (0.019)	-0.037* (0.017)
Kansas # SPED	0.049 (0.036)	0.045 (0.035)	0.013 (0.023)	0.038 (0.042)	0.050 (0.038)	-0.008 (0.030)
Kansas # STEM	0.010 (0.023)	0.016 (0.021)	-0.004 (0.016)	0.004 (0.026)	0.013 (0.022)	-0.008 (0.020)
<i>Observations</i>	38660	35960	35990	32820	30100	30230

Note. Nationally-representative weights are employed. Sample sizes weighted to the nearest 10 in accordance with NCES non-disclosure rule. Year fixed effects are employed. Heteroskedastic-robust standard errors are in parentheses.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

While it is important to consider the attrition rate, it may be more useful to consider how the attrition rate varies for teachers who are particularly at risk for turning over or highly qualified teachers, namely teachers with graduate degrees, young teachers, and specialty teachers (STEM and special education). In Model 1, we observe that, relative to the Midwest region, Kansas teachers are 4.3 percentage points, which is about 30 percent of the Midwest turnover rate, more likely to attrit from their current school. Even though younger teachers are generally more likely to attrit than older teachers, younger Kansas teachers are not more like to attrit relative to other younger teachers in the Midwest region. Relatedly, I find younger teachers, special education teachers, and STEM teachers in Kansas are not more likely to attrit relative to the Midwest region. Kansas teachers with graduate degrees, however, are 4.8 percentage points less likely to attrit compare to teachers with graduate degrees in the Midwest. In other words, even though teachers with graduate degrees, on average, are not more

or less likely to attrit compared to teachers without graduate degrees, those with graduate degrees in Kansas are substantially less likely to attrit relative to their peers in the Midwest. In Models 2 and 3, when I separate out the specific form of attrition, I find that most of the previous findings are concentrated in teachers switching from one school to another (Model 2) and less on teachers leaving the profession (Model 3).

Relative to the Great Plains states, Kansas teachers are not more likely to attrit over all (Model 4), but they are more likely to switch schools (Model 5). Teachers with graduate degrees are more likely to attrit in the Great Plains, possibly due to more available job opportunities in this area. We also observe that Kansas teachers with graduate degrees are less likely to attrit relative to other teachers in the Great Plains. What these two results indicate is that overall teachers with graduate degrees are more likely to attrit in the Great Plains, but Kansas teachers with graduate degrees are substantially less likely to turn over.

5 For Kansas teachers specifically, younger teachers and special education teachers are substantially more likely to attrit than older teachers and non-specialty teachers, while graduate degree, union membership and better administrative support are associated with decreased likelihood of attrition.

Table 2: The association of select teacher and school characteristics and teacher mobility in Kansas

	(1)	(2)	(3)
	Overall turnover	Switching schools	Leaving schools
Age under 30	0.077* (0.036)	0.064+ (0.034)	0.031 (0.026)
Graduate degree	-0.039+ (0.021)	-0.030 (0.019)	-0.012 (0.016)
Special ED.	0.069* (0.035)	0.069* (0.033)	0.013 (0.022)
Union	-0.044* (0.020)	-0.034+ (0.018)	-0.018 (0.012)
Admin support	-0.032** (0.011)	-0.004 (0.009)	-0.035** (0.009)
Teacher coop	-0.001 (0.010)	-0.003 (0.008)	0.001 (0.007)
N	2910	2680	2670

Note. Nationally-representative weights are employed. Sample sizes weighted to the nearest 10 in accordance with NCES non-disclosure rule. Heteroskedastic-robust standard errors are in parentheses.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

In the last analysis, I limit the sample to only Kansas teachers to better isolate how these variables could potentially influence attrition behavior for Kansas specifically. I note the inclusion of many important teacher and school characteristics decreases the likelihood that the individual estimates would be biased by omitting key factors. Furthermore, the use of year fixed effects is able to account for any temporal shock that may alter the relationships of these characteristics and teacher attrition (such as the 2007-2008 recession).

In Model 1, I find that younger teachers are more likely to leave their current school relative to older teachers and graduate teachers are less likely to leave relative to teachers without graduate degrees (but this result is only marginally significant due to the substantially re-

duced sample size). Special education teachers in Kansas are more likely to leave than non-STEM non-special-education teachers. Teachers with union membership are less likely to leave than teachers without union membership. Lastly, teachers who report higher level of administrative support are less likely to leave than teachers who report lower level of administrative support. Separate these results out into switchers and leavers, I find that younger teachers and special education teachers are more likely to switch schools but not leave the profession. Teachers with union membership are less likely to switch but the result is only marginally significant. Lastly, I find that better administrative support is associated with reduced likelihood of teachers leaving the profession.

CONCLUSION AND IMPLICATIONS

THE descriptive analyses illustrate how the teacher labor force has generally remained stable from 1988 to 2012 and the conditions in which teachers work have changed during this time. For instance, Kansas teachers are mainly female, which generally reflects the teacher work force nationally. However, Kansas teachers are nearly all White (96 percent) relative to the national average of 84 percent (Nguyen, under review). We also observe Kansas teachers are more and more likely to teach in majority low-income schools as well as majority minority schools, reflecting the broader trends nationally. With research indicating that there are substantial benefits to student outcomes when the teacher workforce is more diversified and is representative of the student populations (Redding, 2019), these findings suggest diversifying the teacher workforce in Kansas should be an important consideration, particularly in serving the traditionally underserved student populations that are growing over time.

During this period, the average teacher salary in Kansas has dropped back to nearly the same amount in 1988. The pattern of average salary and teacher satisfaction with salary suggest that, up to 1994 where teacher salary was increasing in Kansas, Kansas teachers were relatively satisfied with their salary compared to other teachers nationally. As the average salary dropped, teachers became more dissatisfied with their salary, and by 2012, they reported lower satisfaction compared to their peers nationally. We also observe Kansas teachers are more and more likely to teach in majority low-income schools as well as majority minority schools, reflecting the broader trends nationally (Nguyen, under review). In short, these results suggest that, while many trends in Kansas do reflect national trends, there are some substantial differences in Kansas that separates it from what is going on nationally.

Relative to other Midwest states, Kansas teachers are more likely to switch schools. To this point, a recent study examining teachers in the Midwest provides corroborating evidence that teacher background characteristics are correlated to their longevity as teachers (Jones, 2018). Relative to the Great Plains states, Kansas teachers are less likely to attrit overall, specifically in the form of leaving the profession. However, Kansas teachers remain more likely to switch schools. One limitation

of this analysis is that I am unable to determine whether these teachers are switching schools but remaining in Kansas or if they are moving to other states to teach.

When we examine the teacher characteristics and school characteristics that are associated with attrition specifically to Kansas, the results indicate younger teachers and special education teachers are more at risk of attriting than their peers. Surprisingly, STEM teachers are not more likely to turn over, which recent studies using national and Kansas-specific data have also found (Nguyen & Redding, 2018; Stewart, 2018). This indicates that shortages for STEM teachers may be due to a lack of STEM teachers produced in Kansas or wanting to work in Kansas rather than that Kansas is losing too many STEM teachers. Few characteristics have significant association with attrition, but this may be due to the severe reduction in sample size when the analysis was limited to only Kansas teachers. Using longitudinal administrative data from Kansas would provide more power to detect whether the other characteristics have significant associations with attrition.

We do have some suggestive evidence that there may be some pathways to reduce teacher attrition in Kansas, such as by providing more opportunities and support for teachers to attain graduate degrees, considering the use and political viability of teacher unions, and training administrators to be more supportive and encouraging to teachers (Northup, 2018). This study indicates future research should consider where Kansas teachers are relocating when they leave their school, whether the attrition behaviors have changed in recent years, how teacher salary and teacher satisfaction with salary may influence turnover behavior, and what other mechanisms can be employed to reduce attrition for the state of Kansas or to increase the supply of Kansas teachers such as the Robert Noyce Teaching Scholarship Program at Kansas State University that may attract highly qualified teachers to teach in high-needs rural schools.

There are some trends in Kansas that separate it from what is going on nationally and regionally.

REFERENCES

- Bihasa, S. (2018). Kansas' worsening teacher shortage in four graphs. Retrieved from <https://www.kmuw.org/post/kansas-worsening-teacher-shortage-four-graphs>
- *Crouch, M., & *Nguyen, T.D. (under review). Examining the intersection of school choice and rural education: Evidence from national data.
- Donaldson, M. L., & Johnson, S. M. (2010). The price of misassignment: The role of teaching assignments in Teach for America teachers' exit from low-income schools and the teaching profession. *Educational Evaluation and Policy Analysis*, 32(2), 299–323.
- Economic Research Service. (n.d.) U.S. Department of Agriculture. Retrieved from <https://www.ers.usda.gov/>
- Imazeki, J. (2005). Teacher salaries and teacher attrition. *Economics of Education Review*, 24(4), 431–449.
- Jones, J.O.N. (2018). *Persistence and Commitment to Teaching: The Stories of Three Suburban and Three Urban Teachers* (Doctoral dissertation, University of Kansas).
- Kansas Commissioner of Education's Blue Ribbon Task Force (KSDE) on Teacher Vacancies and Supply. (2016). Final report. Retrieved from <http://www.ksde.org/Portals/0/Communications/Publications/BRTF%20Final.pdf>
- Kelly, S. (2004). An event history analysis of teacher attrition: Salary, teacher tracking, and socially disadvantaged schools. *The Journal of Experimental Education*, 72(3), 195–220.
- Moore, C. M. (2011). *Why do teachers quit? An investigation of the influence of school environment and teacher characteristics on discontent and attrition*. (Doctoral dissertation). Philadelphia, PA: Temple University.
- Nguyen, T.D. (under review). Linking school organizational characteristics and teacher retention: Evidence from repeated cross-sectional national data.
- Nguyen, T.D. & Redding, C. (2018). Changes in the Demographics, Qualifications, and Turnover of American STEM Teachers, 1988-2012. *AERA Open*, 4(3), 1-13.
- Redding, C. (2019). A Teacher Like Me: A Review of the Effect of Student-Teacher Racial/Ethnic Matching on Teacher Perceptions of Students and Student Academic and Behavioral Outcomes. *Review of Educational Research*, 89(4), 499-535.
- Smith, T. M. (2006). How do state-level induction and standards-based reform policies affect induction experiences and turnover among new teachers?. *American Journal of Education*, 113(2), 273-309.
- Weaver, K. A., & Perez, R. (2016). Teacher Shortages in Kansas and in the Nation. *The Advocate*, 23(3), 8.
- * denotes equal co-authorship and are in alphabetical order.

Acknowledgement

I thank Chanh Lam for providing excellent research assistance on this project.

TABLES AND FIGURES

Appendix Table 1: Descriptive Statistics of Kansas Teachers

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Waves:	Waves:	Waves:	Waves:	Waves:	Waves:	Waves:	Pooled
	1988	1991	1994	2000	2004	2008	2012	
Teacher Characteristics								
Female	0.71	0.75	0.70	0.74	0.74	0.76	0.76	0.74
Black	0.02	0.02	0.01	0.02	0.01	0.02	0.01	0.02
Asian	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00
Am. Indian	0.02	0.01	0.01	0.01	0.01	0.02	0.01	0.01
Hispanic	0.02	0.01	0.01	0.02	0.01	0.02	0.02	0.02
White	0.95	0.95	0.96	0.95	0.96	0.95	0.97	0.96
Novice teachers	0.07	0.07	0.10	0.13	0.09	0.12	0.10	0.11
Under 30	0.14	0.13	0.12	0.20	0.16	0.17	0.20	0.16
Grad. degree	0.46	0.43	0.46	0.39	0.44	0.45	0.54	0.45
STEM	0.09	0.10	0.10	0.13	0.12	0.10	0.13	0.11
SPED	0.03	0.05	0.06	0.10	0.12	0.12	0.11	0.09
No certification	0.01	0.01	0.01	0.04	0.00	0.02	0.01	0.01
Most sel. college	0.00	0.00	0.02	0.01	0.02	0.00	0.01	0.01
Very sel. college	0.02	0.00	0.05	0.04	0.29	0.12	0.14	0.10
Salary per \$1,000	42.83	42.92	43.61	41.72	42.30	43.53	43.01	42.84
Satis. with salary	.	.	0.15	0.07	-0.11	-0.06	-0.11	-0.02
Union member	.	.	0.66	0.59	0.63	0.54	0.60	0.60
School Characteristics								
Urban school	0.17	0.19	0.11	0.19	0.24	0.19	0.17	0.18
K-12 enrollment	388	441	482	518	452	537	502	478
Secondary school	0.38	0.35	0.39	0.40	0.32	0.36	0.33	0.36
Comb. elem-sec.	0.03	0.02	0.03	0.01	0.03	0.04	0.04	0.03
Percent FRPL	0.23	0.26	0.28	0.31	0.40	0.39	0.46	0.34
Majority FRPL	0.07	0.12	0.13	0.19	0.27	0.34	0.43	0.23
Percent minority	0.10	0.13	0.13	0.16	0.21	0.24	0.28	0.18
Majority minority	0.02	0.03	0.06	0.08	0.14	0.16	0.16	0.10
Percent IEP	.	.	.	0.12	0.14	0.13	0.13	0.13
Percent LEP	.	.	.	0.02	0.05	0.06	0.09	0.05
Discipline prob.	-0.25	-0.25	-0.32	-0.24	-0.16	-0.33	-0.17	-0.23
Admin. support	.	.	0.13	0.19	-0.01	0.05	0.12	0.09
Teacher coop.	.	.	0.09	0.16	0.03	0.02	0.07	0.07
Observations	500	860	830	750	730	720	720	5100

Note. Novice teachers have less than three years of experience. Nationally-representative weights are employed. Sample sizes weighted to the nearest 10 in accordance with NCES non-disclosure rule.

TABLES AND FIGURES

Appendix Table 2: Rate of attrition for Kansas and US teachers

Teacher Status	(1)	(2)	(3)	(4)	(5)
	Wave: 2000	Wave: 2004	Wave: 2008	Wave: 2012	Pooled
Panel A: US teachers (excluding KS)					
Stayer	85.00	84.11	86.15	86.17	85.37
Switcher	7.35	7.92	6.99	6.54	7.19
Leaver	7.65	7.97	6.85	7.29	7.43
Observations	38420	38510	32700	33250	142880
Panel B: Midwest teachers (excluding KS)					
Stayer	86.23	84.63	88.21	86.94	86.49
Switcher	7.29	7.54	6.10	6.63	6.89
Leaver	6.48	7.83	5.69	6.43	6.62
Observations	9010	8980	8280	9490	35760
Panel C: Great Plains teachers (excluding KS)					
Stayer	82.37	82.19	84.49	80.45	82.34
Switcher	8.63	8.32	8.08	8.35	8.33
Leaver	9.01	9.50	7.43	11.20	9.32
Observations	9050	8250	7040	5570	29910
Panel D: Kansas teachers					
Stayer	83.51	84.53	81.38	85.06	83.60
Switcher	7.92	9.85	11.02	8.32	9.32
Leaver	8.57	5.62	7.60	6.63	7.08
Observations	750	730	720	720	2910

Note. Nationally-representative weights are employed. Sample sizes weighted to the nearest 10 in accordance with NCES non-disclosure rule. Stayers are teachers who remain in the school where they taught in the previous year. Switchers are teachers who remain in teaching but have moved to a different school. Leavers are teachers who leave teaching altogether.

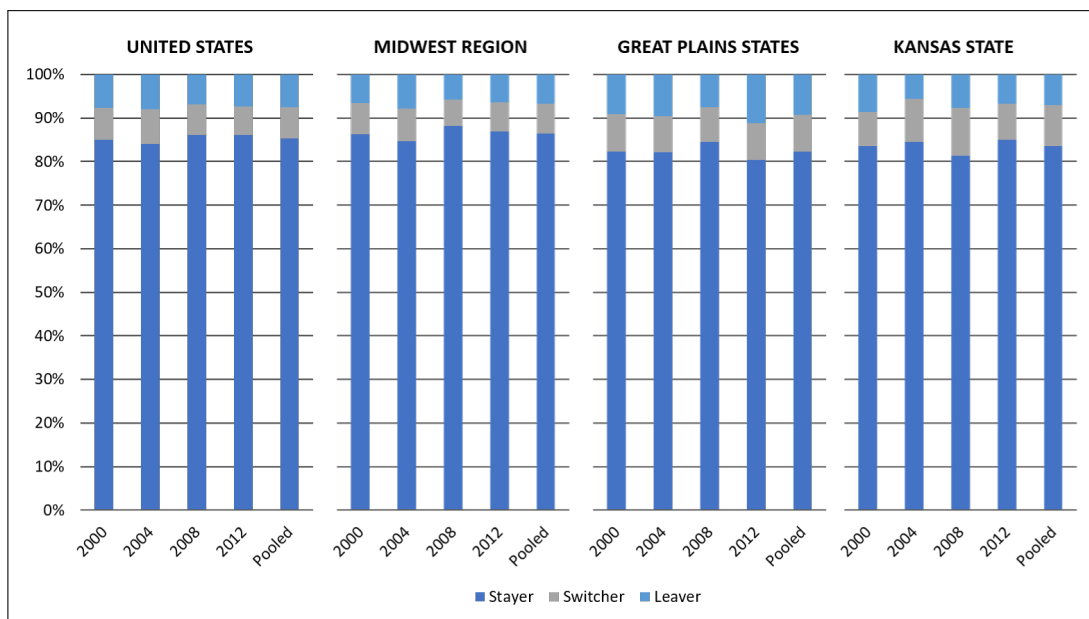


Figure 5: Full-scale generated, teacher mobility patterns for the US, Midwest, Great Plains, and Kansas