2021 ILLINOIS EDUCATOR SHORTAGE SURVEY

Additional Analysis: Teacher Starting Salary

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KEY FINDINGS

Starting salary for teachers varies greatly across Illinois. The minimum starting salary for the 2020-21 SY was **$28,915** and the maximum was **$61,570**.

Broadly, there was **some evidence** supporting a relationship between starting salary and measures of educator shortage.

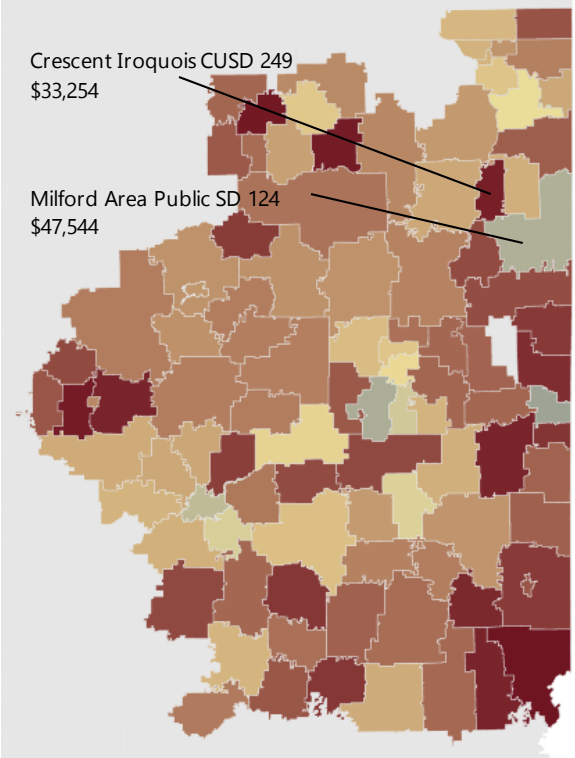
There were also significant negative associations between starting salary and percent of unfilled teacher positions for **high school districts,** and for **districts in Cook County** and **districts in the West Central area.**

Districts in Cook County and the Northeast had **significantly higher** starting salaries than their counterparts across the state.

High school districts, urban districts and large districts had **significantly higher** starting salaries than their counterparts across the state.

In each area, there were **"islands of higher pay"** where one district had a much higher starting salary than neighboring districts.

Bachelor's Beginning Salary by District for East Central Area.



ADDITIONAL ANALYSIS: TEACHER STARTING SALARY

Tom Withee[1], Shereen Oca Beilstein[2a]

ABSTRACT

The Illinois Association of Regional Superintendents of Schools (IARSS) has conducted an annual survey of superintendents for the past five years.[3] Combining results on teacher shortages from the IARSS survey and the Illinois State Board of Education (ISBE) Unfilled Positions report indicate concentrated and persistent hiring challenges in specific content areas (e.g., special education and English as a second language/bilingual education) and geographic areas.[4] To further understand root causes of staffing issues related to teacher recruitment, we compared teachers' starting salary across all districts in Illinois against multiple measures of teacher shortage. Broadly, there was some evidence supporting a relationship between starting salary and measures of teacher shortage. First, a weak positive association was found between starting salary and teacher retention. Second, a weak negative association was found between starting salary and superintendents' perceptions of shortage severity.

A deeper analysis also revealed significant negative associations between starting salary and the percent of unfilled teacher positions for high school districts broadly, for districts in Cook County and the West Central area specifically. Results also linked starting salary with district characteristics, such as urbanicity, size, and funding, as well as community factors like cost of living—potentially influencing the relationship between starting salary and available measures of teacher shortage. Notably, we also observed a repeated pattern of "islands of higher pay" throughout the state where one district had significantly higher pay than surrounding districts. These findings suggest the potentially important role starting salary plays in teachers' employment decisions and migration patterns. These findings reinforce concerns that teacher recruitment and retention vary across the state by geographic area and type of district. Solutions to the teacher shortage will need to be targeted strategies to support the diverse education landscape.

CONTEXT

The 2021-2022 Illinois Association of Regional Superintendents of Schools (IARSS) Educator Shortage Survey found that a great majority (88%) of district superintendents reported struggling with teacher shortages, representing an 11-percentage point increase from the previous year. Furthermore, a series of white papers confirmed that shortages exist and persist across the state in key content areas (e.g., special education and English as a second language/bilingual education) and geographic areas.[4, 5] This report follows up on the series by (1) analyzing teachers' starting salaries across Illinois districts and (2) examining correlations between starting salaries, teacher shortages, retention, and other district and community characteristics.

[a] Acknowledgements: We would like to thank the ISBE Research Department for their insight and collaboration during the review process.

On average, Illinois is consistently ranked in the "top-ten" nationwide for teacher salaries.[6] However, such an aggregated finding can be misleading, as the average teacher salary by district varies widely, ranging from a minimum of $32,315 to a maximum of $121,834 for the 2020-21 school year (SY).[7, 8] Because research has found associations between teacher salary and turnover, this report aims to understand the relationship between variations in starting salary (i.e., bachelor's beginning salary) and teacher shortages and retention across districts statewide.[9, 10, 11] We utilized the starting salary from districts' salary schedules for three reasons:

1) Recently graduated teachers, looking for their first jobs, are likely to compare starting salaries.
2) Starting salaries do not factor in experience, higher levels of education, or number of novice teachers and provide a more consistent comparison across districts.
3) Teachers considering moving districts are likely to compare salaries on the salary schedule for neighboring districts. Starting salary provides a good comparison for considering teacher mobility since later steps on the salary schedule are based on starting salary.
4) Starting salary, in Illinois, is positively correlated with average teacher salary.[b]

Furthermore, the starting salary step on teacher salary schedules were typically used to calculate other salaries and stipends within districts, such as stipends for coaching, which may influence teachers' employment decisions.

METHODOLOGY

Our goal with this study is to develop a better understanding of the complex relationships between teacher starting salary, teacher shortages as well as district and community factors. We pulled data from multiple sources, including IARSS and the Illinois State Board of Education (ISBE), and compiled them by district. Data were combined to compare teachers' starting salaries across the state and uncover correlations between teachers' starting salary, indicators of teacher shortages (e.g., superintendents' perceptions of shortage severity, measures of unfilled positions, retention rates); district factors (e.g., urbanicity, district size, local taxes, and evidence-based funding); and community factors (e.g., cost of living).

Data Sources

IARSS EDUCATOR SHORTAGE SURVEY. The IARSS has annually administered the Educator Shortage Survey to all public-school district superintendents across Illinois.[3] The survey assesses the impact of the educator supply on district operations such as open positions and class offerings. For this study, we focus on superintendents' perceptions of the teacher shortage (severity) and data on how open teacher positions were staffed, both the number of positions that were unfilled and filled with a less than qualified hire (#un/underfilled) as well as the percent of posted open positions that were un/underfilled (%un/underfilled). In Fall 2021, 663 of 853 (78%) district superintendents completed the survey for the 2021-2022 school year (SY).

[b] For example, for the 2020-2021 SY, there was a strong positive correlation between teachers' starting salary and average salary ($r = 0.811$, $p < 0.001$), at the district level.

ISBE Illinois Report Card[c] This annual report includes statewide data on districts such as student enrollments, district types and more.[12] Here, we are reporting on relevant findings from the 2020-2021 SY for teacher retention rates , percent evidence-based funding to meet capacity (%EBF), percent of district funding from local property taxes (%taxes), and percent of student enrollment that were from low-income families (%low income).

ISBE Unfilled Positions. This annual report includes statewide data on unfilled educator positions by district.[13] The data details the total full time equivalent (FTE) positions that were unfilled (#unfilled), the role of the position (teacher, paraprofessional, administrator) and the reason it was unfilled (no applicant or unqualified applicants).

ISBE Teacher Salary Survey. Annually, ISBE publishes compiled data from all Illinois public school teacher salary schedules.[14] For this analysis, we incorporated beginning bachelor's salary, or starting salary, from the 2020-2021 SY dataset.

NCES EDGE Geodata. The National Center for Education Statistics (NCES) EDGE Geodata contains geographic information for public school districts across the United States used to map Illinois school districts.[15]

EPI FAMILY BUDGET CALCULATOR. The Economic Policy Institute (EPI) compiles data from multiple U.S. government agencies to develop the Family Budget Calculator. The Family Budget Calculator estimates "the monthly income a family needs in order to attain a modest yet adequate standard of living".[16] We pulled the estimated total annual budget for a one adult, no child household for each Illinois county (annual family budget).

Data from these multiple sources were compiled by district. The final correlation matrix included 13 variables (Table 1).

Table 1. Variables and Classifications for Correlation Matrix.

Shortage Measures	District Characteristics	Community Characteristics
#unfilled	starting salary	%EBF
severity[d]	avg. teacher experience	%taxes
#un/underfilled	teacher avg. salary	%low income
%un/underfilled		annual family budget
teacher retention rate		
%unfilled[e]		

[c] The ISBE Teacher Salary Survey and Illinois Report Card data are from the 2020-21 SY. All other data are from the 2021-22 SY. The Illinois Report Card for 2021-22 SY was not yet released when this analysis was conducted.

[d] We include superintendents' perceptions of the shortage as a gauge of the quality of applicants and the day-to-day impact of educator shortages on school operations (such as class offerings and class sizes).

[e] utilizing #unfilled from ISBE Unfilled Positions and total FTE from ISBE Illinois Report Card .

Analytic Approach

Descriptive statistics for base salary were tabulated in Microsoft Excel. Microsoft PowerBI was used to create maps of base salary by district. ANOVA and post-hoc comparisons were performed in Jamovi to account for different subgroups of districts (geographic area, type of district, urbanicity, and size of district).[17, 18, 19] Correlation matrices were performed in Microsoft Excel.

This correlation analysis looks at trends between variables related to teacher shortages, and district and community characteristics. While **correlation does not imply causation**, we provide interpretations of the data. However, we wish to emphasize that these interpretations do not explain the underlying relationships between variables. We also note that these interpretations are hypotheticals and are not exhaustive. These variables are likely interconnected and part of a complex model that explains teacher shortages and retention. We see the correlations presented here as a preliminary step toward understanding the role salary plays in teacher shortages and retention, providing a base for future research.

RESULTS

In this section, we first present findings related to measures of teacher shortages. We then move to consider the relationship between starting salary and district and community characteristics, highlighting key findings. Finally, we conclude with area case studies by region. Heat maps of teacher shortage measures, district characteristics and community characteristics are clustered on pps. 8-9 for easy comparison. Additionally results from the correlation analysis can be found in Appendix A.

Broadly, we found that, across all districts, the relationship between starting salary and measures of teacher shortages were small. A small positive correlation was found between starting salary and school retention. There was also a small negative correlation between starting salary and perceived shortage severity. Furthermore, district characteristics such as urbanicity, district size, and funding, as well as community factors, such as cost of living were moderately related to starting salary. Notably, results demonstrate that within specific areas, districts with higher salaries often were surrounded by districts with lower salaries. We explore how the school, district, and community factors may—or may not—contribute to creating islands of higher pay.

STARTING SALARY BY TEACHER SHORTAGE MEASURES

We examined six measures of the teacher shortage from several IARSS and ISBE datasets: severity, %un/underfilled, #un/underfilled, teacher retention rate, #unfilled and %unfilled. The correlation analysis revealed a strong positive association ($r = 0.639$, $p < 0.001$) between #un/underfilled and #unfilled. There was also a weak positive association ($r = 0.219$, $p < 0.001$) between %un/underfilled and %unfilled. These intercorrelations, though collected by two different organizations, provide validation for both sets of measures in the ways they capture staffing challenges. See Appendix A for the full correlation matrix.

In general, we found small evidence associating starting salary and teacher shortage. Figure 1 through Figure 6 show heat maps of the six measures of teacher shortages. Figure 7 shows a heat map of starting salary by district.

- There was a weak positive association ($r = 0.276$, $p < 0.001$) between starting salary and teacher retention rate. This implies that **districts that had higher starting salaries also had higher retention rates**.
- There was also a weak negative association ($r = -0.222$, $p < 0.001$) between starting salary and severity. This implies that **districts that had lower starting salaries had superintendents who rated the shortage as more severe**.
- There was very weak to no association with starting salary among the other four measures of teacher shortages.

However, teacher starting salaries vary widely based on the many characteristics of districts. Separate correlations were performed to examine the relationship between starting salary and measures of teacher shortages across districts with varying characteristics (see Appendix B). In addition to the correlations described above, we note six more correlations that account for specific district characteristics.

- There were also weak positive associations between starting salary and #unfilled in the East Central area ($r = 0.358$, $p < 0.001$). This implies that **for districts in the East Central area, those districts that had higher starting salary also had higher #unfilled**. There were little

to no associations between starting salary and the other five measures of teacher shortage. More research is recommended to untangle the underlying causes for teacher shortages in the East Central region.

- Several correlational results were found for Cook County. First, there were weak negative associations between starting salary and #un/underfilled ($r = -0.311$ $p < 0.001$). This implies that **for districts in the Cook County area, those districts that had higher starting salaries also had lower #un/underfilled.** Second, there were weak negative associations between starting salary and %unfilled ($r = -0.303$ $p < 0.001$). This implies that **for districts in the Cook County area, those districts that had higher staring salary also had lower %unfilled.** And third, there were weak negative associations between starting salary and %un/underfilled ($r = -0.281$ $p < 0.001$). This implies that **for districts in the Cook County area, those districts that had higher starting salaries also had lower %un/underfilled.**
- There were weak positive associations between starting salary and #unfilled for unit districts ($r = 0.303$, $p < 0.001$). This implies that **for unit districts, those districts that had higher starting salaries also had higher #unfilled**. One possible interpretation is that some unit districts are larger than others. Larger unit districts employ more teachers and would likely have higher numbers of unfilled positions. Larger unit districts also could have higher starting salaries. For unit districts, there were little to no associations between starting salary and four of the other five measures of teacher shortage, which include percent of unfilled positions. This further indicates that the number of unfilled teacher positions is likely related to the size of the district.
- There were weak positive associations between starting salary and #un/underfilled in the Southwest area ($r = 0.269$ $p < 0.001$). This implies that **for districts in the Southwest area, those districts that had higher starting salaries also had higher #un/underfilled.** There were little to no associations between starting salary and the other five measures of teacher shortage. More research is recommended to untangle the underlying causes for teacher shortages in the Southwest region.
- There were weak negative associations between starting salary and %un/underfilled in the West Central area ($r = -0.254$ $p < 0.001$). This implies that **for districts in the West Central area, those districts that had higher starting salaries also had lower %un/underfilled.**

There was some evidence supporting a relationship between district funding and teacher shortage. Figure 8 and Figure 9 display heat maps of %taxes and %EBF by district. There was a weak positive association ($r = 0.227$ $p < 0.001$) between teacher retention rate and %taxes. **Districts that had higher funding through local property taxes also had higher teacher retention rates**. There was also a weak negative association ($r = -0.212$ $p < 0.001$) between severity and %taxes. **Districts that had higher funding through local property taxes also had superintendents who rated the shortage as less severe**. There were very weak to no associations between the other measures of teacher shortage %taxes. There were very weak to no associations between all six measures of teacher shortage and %EBF. This implies that **teacher shortages exist in both well-funded and poorly funded districts.**

There was moderate evidence supporting a relationship between local poverty and teacher shortage. Figure 10 displays a heat map of %low income by district. There was moderate negative association ($r = -0.356$, $p < 0.001$) between %low income and teacher retention. This implies that **districts that had a lower percent of the student enrollment who were from low-income households also**

had higher teacher retention. There was a weak positive association (r = 0.212, $p < 0.001$) between %low income and %unfilled. This implies that **districts that had a higher percent of the student enrollment who were from low-income households also had higher percent of unfilled positions.**

There was little to no evidence supporting a relationship between cost of living and teacher shortage. Figure 11 displays a heat map of cost of living by district. There were very weak to no associations between the multiple measures of teacher shortage and costs of living. This implies that **teacher shortages exist in communities that have high as well as low costs of living**.

Note: Gray districts indicate no data available.

Figure 1. Teacher Retention Rate.

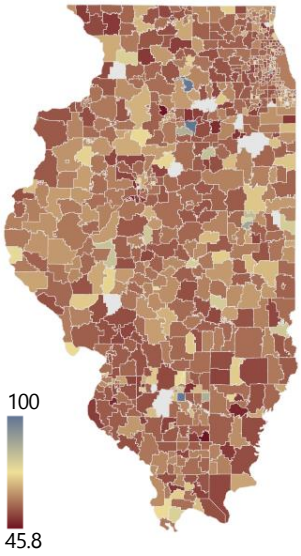


Figure 2. Shortage Severity.

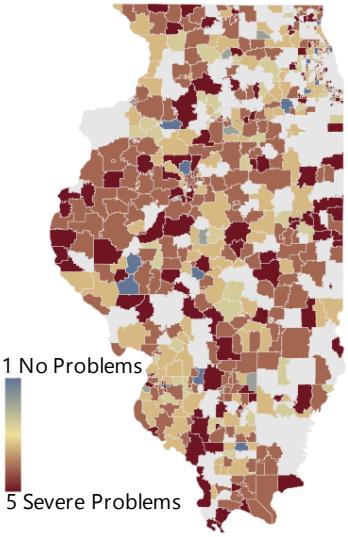


Figure 3. #Unfilled.

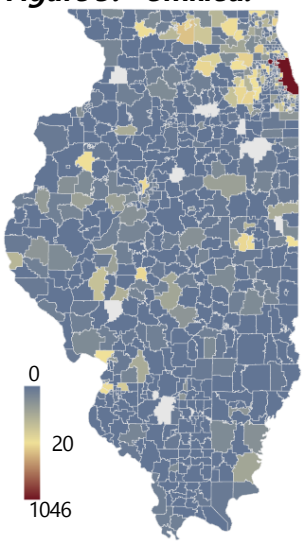


Figure 4. %Unfilled.

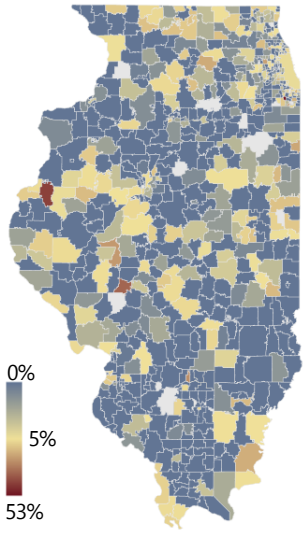


Figure 5. #Un/underfilled.

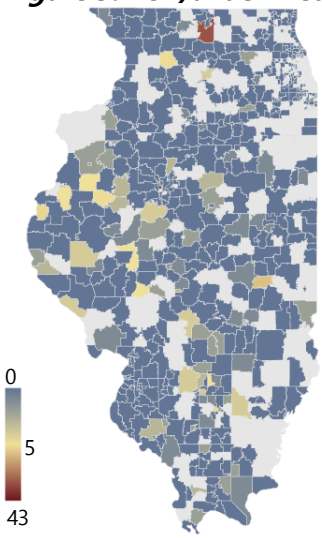


Figure 6. %Un/underfilled.

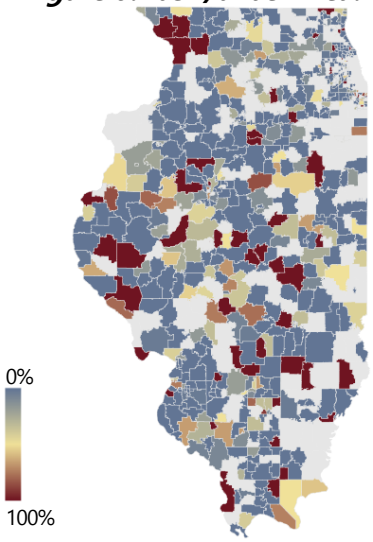


Figure 7. Starting Salary.

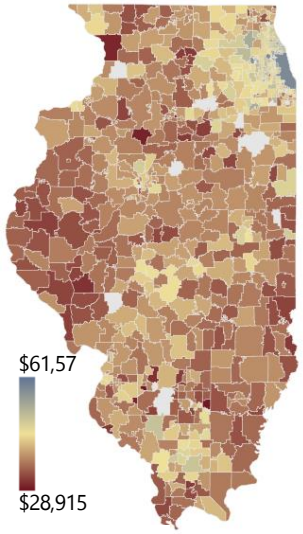


Figure 8. %EBF.

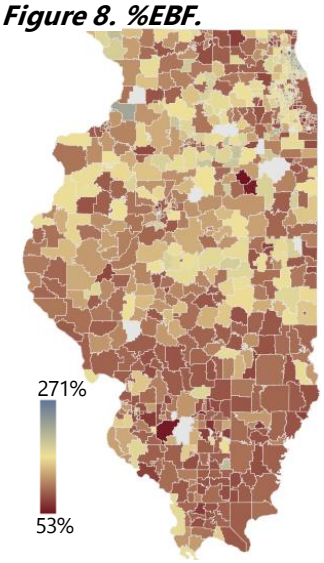


Figure 9. %Taxes.

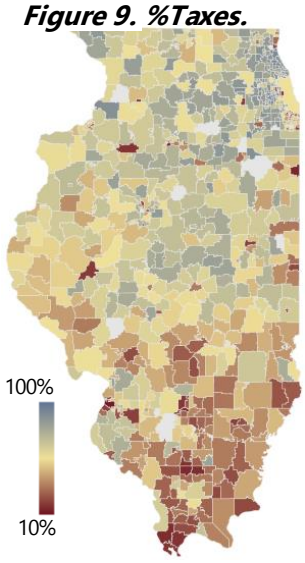


Figure 10. %Low Income.

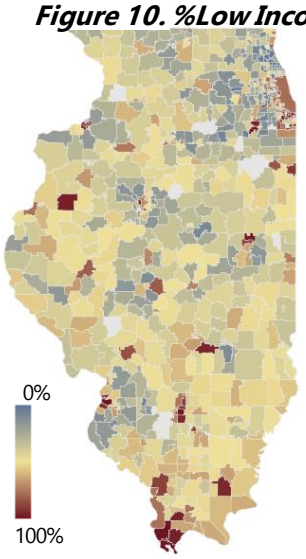


Figure 11. Annual Family Budget.

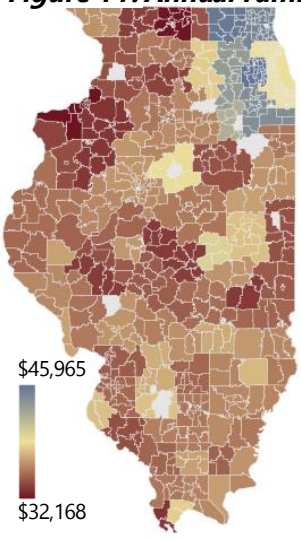


Figure 12. IARSS Area.

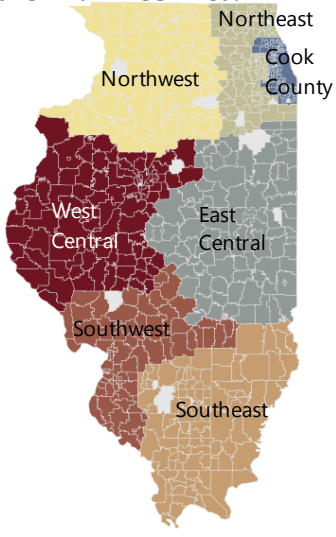


Figure 13. Urbanicity.

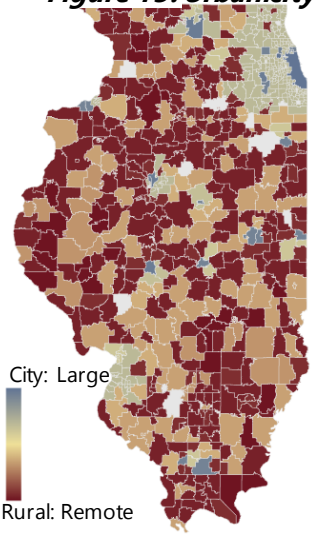


Figure 14. Size of District.

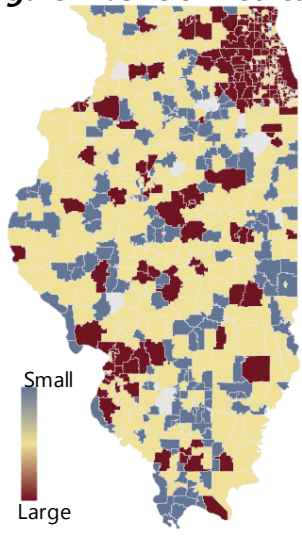
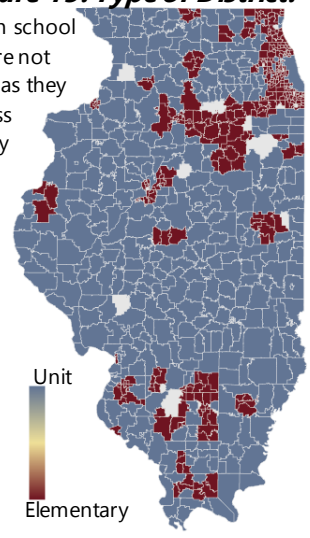


Figure 15. Type of District.

Note: High school districts are not displayed as they encompass elementary districts.



STARTING SALARY BY COMMUNITY CHARACTERISTICS

Broadly, there was evidence that starting salary is related to community characteristics, which include variables related to cost of living (annual family budget), sources of district funding (%EBF and %taxes), and student demographics (%low income). Figure 8 through Figure 11 show heat maps of these variables.

- There was a moderate positive association (r = 0.503, p <0.001) between the annual family budget and starting salary. This implies that districts that fall in geographic areas where family budgets should be higher also had starting salaries that were higher.
- There was a moderate positive association (r = 0.416, p <0.001) between starting salary and %taxes. Districts that received a larger percent of their funding from local property taxes were also likely to have higher starting salary.
- There was a weak positive association (r = 0.343, p <0.001) between %EBF and starting salary. This implies that districts that had higher capacity to meet expectations were also likely to have higher starting salaries.
- There was a very weak or no association (r = -0.186, p <0.001) between %low income and starting salary.

STARTING SALARY BY DISTRICT CHARACTERISTICS

Starting salary varied greatly across the state, within geographic areas and counties. Figure 7 shows a map of Illinois school districts color coded by their posted starting salary. Figures 12 through 15 show district characteristics (area, urbancicity, size and type) by district. The lowest starting salary was $28,915 in the southeast area. This highest was $61,570 in the Cook County area. Overall, there was a large difference of $32,655 from the highest to the lowest starting salary with the highest starting salary being over twice the lowest.

The IARSS divides the state into seven geographic areas (see Figure 12). Districts in the Cook County area and the Northeast area had signficantly (p <0.001) higher starting salaries than in the other areas of the state (see Appendix C). Districts in the Cook County area had an estimated mean starting salary of $47,261 compared to districts in the West Central area that had an estimated mean starting salary of $38,251 (see Figure 16[f]).

Figure 16: Mean Starting Salary by IARSS Area.

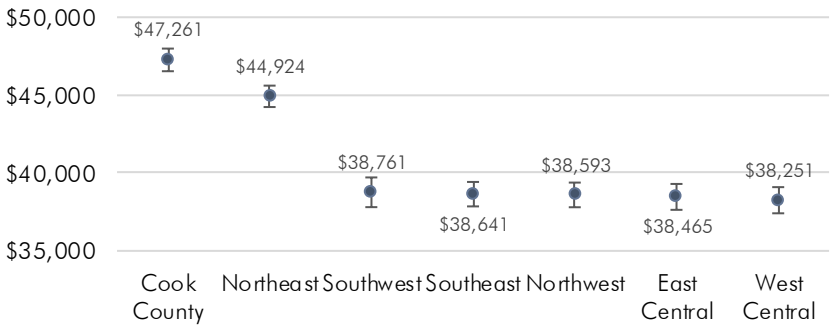


Figure 17: Mean Starting Salary by Urbanicity.

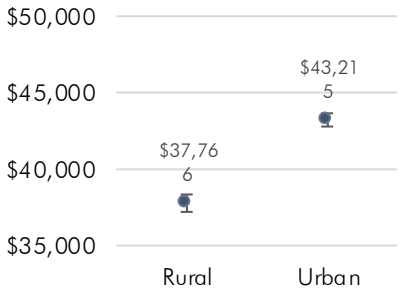


Figure 18: Mean Starting Salary by Size of District.

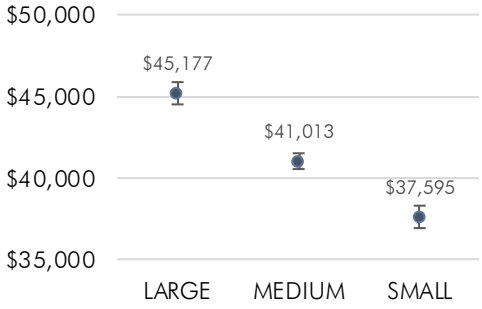
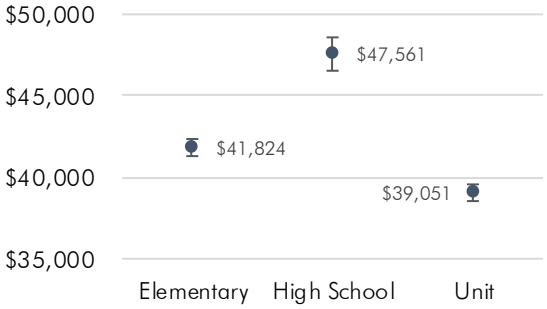


Figure 19: Mean Starting Salary by Type of District.



Within Illinois, there are both dense population centers and areas of sparse population (see Figure 13). Across Illinois, there were 529 urban districts and 306 rural districts. Districts in urban areas payed significantly (p <0.001) higher than districts in rural areas (see Appendix D). The estimated mean salary for urban districts was $43,215 and for rural districts $37,766 (see Figure 17).

Across Illinois, school districts vary greatly in size, small (less than 500 students), medium (500 to 1,500 students) and large (over 1,500 students; see Figure 14). Across Illinois, there were 207 small districts, 417 medium districts and 211 large districts. Significant differences (p <0.001) in starting salary existed between all three sizes of district (see Appendix E). Large districts payed more than medium districts, which payed more than small districts (see Figure 18).

In Illinios, public school districts are classified by type: high school (9-12), elementary (preK-8), or unit (preK-12) (see Figure 15). Across Illinois, there were 95 high school districts, 379 unit districts and 361 elementary districts. High school districts had significantly (p <0.001) higher starting salaries than

[f] The error bars in Figures 3 – 6 represent the upper and lower confidence intervals of the estimated mean starting salary for that subgroup.

unit or elementary districts (see Appendix F). For high school districts, the estimated mean starting salary was $47,561 compared to $41,824 for elemenary and $39,051 for unit school districts (see Figure 19).

ADDITIONAL FINDINGS

Within our analysis, we compared several variables related to teacher retention. In addition to the results already mentioned, there was a moderate positive association ($r = 0.506$, $p < 0.001$) between average teacher experience and teacher retention rate. This implies that districts that have more experienced teachers also have higher teacher retention. There are multiple ways to interpret this finding. One possibility is that the same teachers are staying in the districts (increasing both the average teacher experience and teacher retention). Another possible interpretation worth investigating is that districts who hired experienced teachers increased the retention of less experienced teachers, for example through teacher mentoring programs.[20]

AREA CASE STUDIES

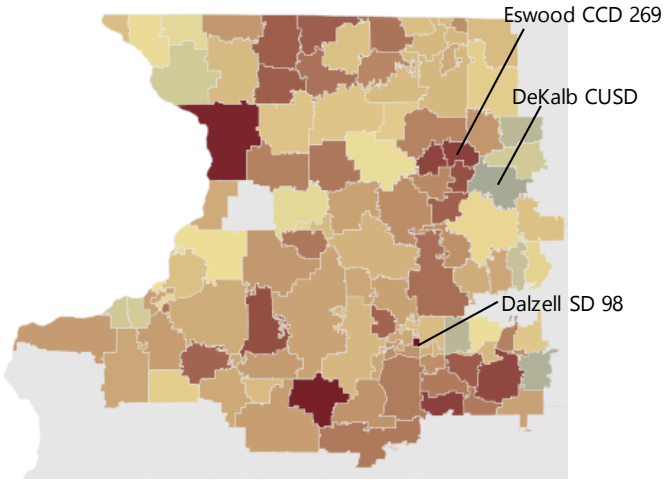
Teacher salaries vary greatly across the state. To dive deeper, we present the following case studies for each IARSS area. Broadly, the largest difference between the highest and lowest salary, within one region, was in Cook County, with a difference of $25,625. The smallest difference within one region was in the West Central area, with a difference of $17,078.

We also noted that within IARSS areas there were "islands of higher pay" or geographic areas where one district had a significantly higher starting salary than similar surrounding districts. These "islands of higher pay" are of interest as questions of teacher mobility between districts are a concern expressed by superintendents in the IARSS survey.[3] For example in the Southeast area, Opdyke-Belle River CCSD 5 had a starting salary of $45,892. Neighboring Opdyke-Belle River is Bluford USD 318 with a starting salary of $29,190, a $16,702 difference. The following case studies provide a close examination of these "islands of higher pay".

Northwest Area

In the Northwest Area, see Figure 20, there was a large difference between the highest and lowest starting salary. Dalzell SD 98 posted the lowest starting salary at $29,350. Seneca Township HSD 160 posted the highest starting salary at $54,106. Within the Northwest area, that is a $24,756 difference between the highest and lowest paying districts. As an example of islands of higher pay, DeKalb CUSD 428 had a starting salary of $48,095. Neighboring DeKalb CUSD 428 is Eswood CCD 269 with a starting salary of $32,009, a $16,086 difference.

Figure 20: Bachelor's Beginning Salary by District for Northwest Area.



Note: High School districts are not shown as they have overlapping geographic boundaries with multiple elementary school districts but are included in the analysis.

Table 2: Characteristics of Select Districts in the Northwest Area.

ISBE District Name	Dalzell SD 98	Eswood CCSD 269	DeKalb CUSD 428	Seneca Twp HSD 160
Starting Salary	$29,350	$32,009	$48,095	$54,106
Teacher Retention Rate	80%	90.5%	87.4%	91.7%
Severity	5	5	3	4
#Unfilled	0	0	75	0
#Un/Underfilled	0	4	20	0
%Unfilled	0%	0%	18%	0%
%Un/Underfilled	0%	67%	4%	0%
Type	Elementary	Elementary	Unit	High school
Size (#Students)	Small (62)	Small (68)	Large (6472)	Small (398)
Rural (NCES Designation)	Urban (Town: Distant)	Rural (Rural: Distant)	Urban (Suburb: Small)	Rural (Rural: Distant)
%EBF	63.1%	119.4%	67.3%	204.5%
%Taxes	35%	75%	49.4%	87.3%
%Low-Income	21%	45.6%	64.8%	34.9%
Annual Family Budget	$35,535	$35,607	$38,370	$36,022

Northeast Area

In the Northeast area, see Figure 21, there were still large differences between higher and lower starting salary, though they appeared to be more geographically driven. Districts surrounding Cook County paid higher than districts further out. Fox Lake GSD 114 posted the lowest starting salary at $33,144. Twp HSD 113 in Highland Park posted the highest starting salary at $57,222. Within the Northeast area, that is a $24,078 difference between the highest and lowest paying districts. As another example of "islands" of higher pay, Laraway CCSD 70C has a starting salary of $53,032. Neighboring Laraway CCSD 70C is Manhattan SD 114 with a starting salary of $38,929, a $14,103 difference between neighboring districts.

Figure 21: Bachelor's Beginning Salary by District for Northeast Area.

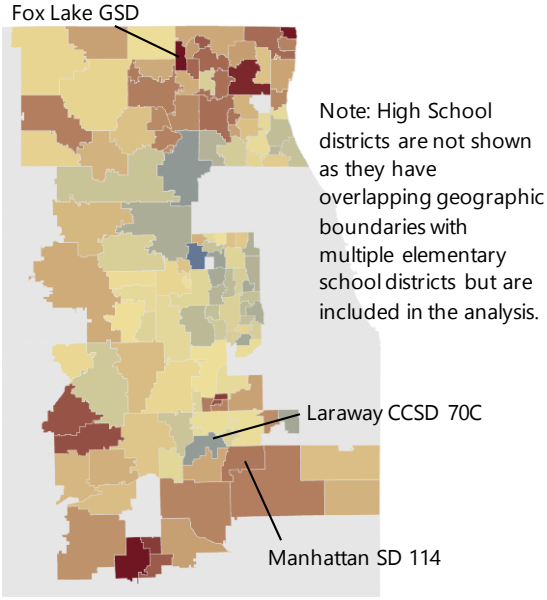


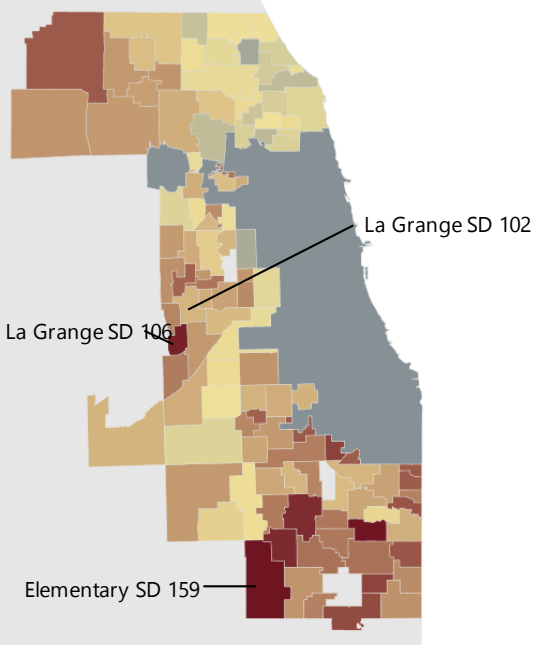
Table 3: Characteristics of Select Districts in the Northeast Area.

ISBE District Name	Fox Lake GSD 114	Manhattan SD 114	Laraway CCSD 70C	Twp HSD 113
Starting Salary	$33,144	$38,929	$53,032	$57,222
Teacher Retention Rate	80.7%	90.5%	86.3%	95%
Severity		4	2	
#Unfilled	6	0	6	0
#Un/Underfilled		1	0	
%Unfilled	9%	0%	13%	0%
%Un/Underfilled		5%	0%	
Type	Elementary	Elementary	Elementary	High School
Size (#Students)	Medium (688)	Medium (1640)	Medium (419)	Large (3303)
Rural (NCES Designation)	Urban (Suburb: Large)	Urban (Suburb: Large)	Urban (Suburb: Large)	Urban (Suburb: Large)
%EBF	80%	64.3%	160.4%	181.1%
%Taxes	69.9%	67%	80.5%	89.6%
%Low-Income	47.2%	8.5%	97.1%	4.2%
Annual Family Budget	$44,913	$44,341	$44,341	$44,913

Cook County

In Cook County, see Figure 22, there were large differences between higher and lower starting salary. Northfield Twp HSD 225 posted the highest starting salary at $61,570. Elementary School District 159 posted the lowest starting salary of $35,945. There was a $25,625 difference between these two extremes. Generally, districts north of Chicago Public Schools pay higher than districts south of Chicago Public Schools. There are still considerable differences. LaGrange SD 102, starting salary of $45,950, sits next to LaGrange Highlands SD 106, starting salary of $36,684, a difference of $9,266.

Figure 22: Bachelor's Beginning Salary by District for Cook County.



Note: High School districts are not shown as they have overlapping geographic boundaries with multiple elementary school districts but are included in the analysis.

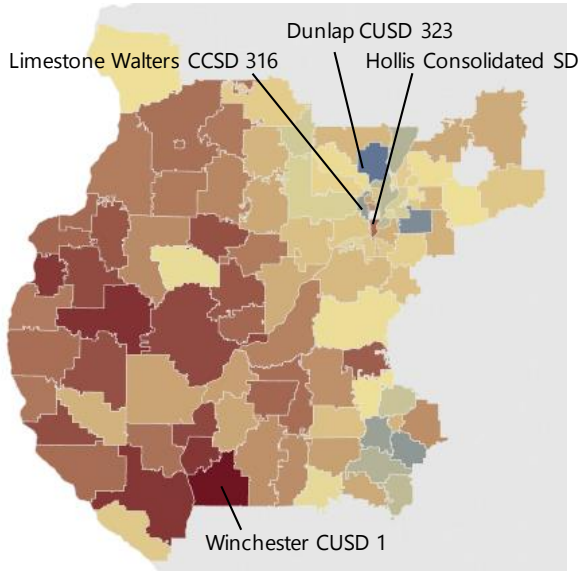
Table 4: Characteristics of Select Districts in Cook County.

ISBE District Name	ESD 159	LaGrange Highlands SD 106	La Grange SD 102	Northfield Twp HSD 225
Starting Salary	$35,945	$36,684	$45,950	$61,570
Teacher Retention Rate	82.3%	91.8%	54.1%	94.7%
Severity		4	3	1
#Unfilled	14	3	2	0
#Un/Underfilled		0	0	0
%Unfilled	11%	4%	1%	0%
%Un/Underfilled		0%	0%	0%
Type	Elementary	Elementary	Elementary	High School
Size (#Students)	Large (1750)	Medium (913)	Large (2989)	Large (5096)
Rural (NCES Designation)	Urban (Suburb: Large)	Urban (Suburb: Large)	Urban (Suburb: Large)	Urban (Suburb: Large)
%EBF	96.7%	117.1%	89.5%	154.8%
%Taxes	75.2%	88.5%	83.6%	90.6%
%Low-Income	83.2%	3.4%	14.8%	12%
Annual Family Budget	$39,204	$39,204	$39,204	$39,204

West Central Area

In the West Central area, see Figure 23, there was a large difference between the highest and lowest starting salary. Winchester CUSD 1 posted the lowest starting salary at $31,353. Dunlap CUSD 323 posted the highest starting salary at $48,431. Within the West Central area, that is a $17,078 difference between the highest and lowest paying districts. Generally, districts in the east part of the area (located centrally of the state) pay higher than districts in the western part of the area (along the state line). However, there are still pockets of disparity. Hollis Consolidated SD 328, starting salary of $34,949, sits next to Limestone Walters CCSD 316, starting salary of $45,348. A difference of $10,399 between these neighboring districts.

Figure 23: Bachelor's Beginning Salary by District for West Central Area.



Note: High School districts are not shown as they have overlapping geographic boundaries with multiple elementary school districts but are included in the analysis.

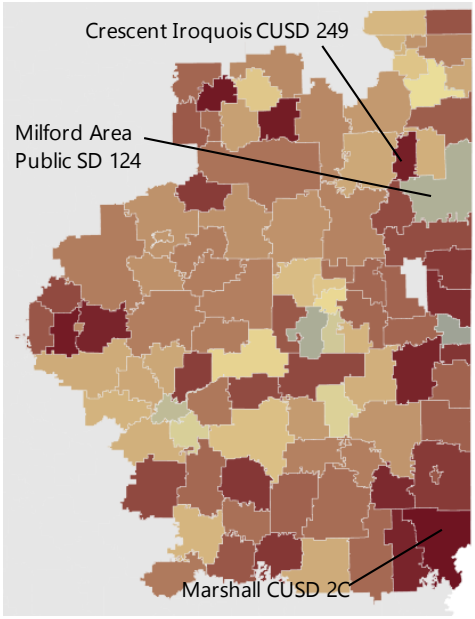
Table 5: Characteristics of Select Districts in the West Central Area.

ISBE District Name	Winchester CUSD 1	Hollis Cons SD 328	Limestone Walters CCSD 316	Dunlap CUSD 323
Starting Salary	$31,353	$34,949	$45,348	$48,431
Teacher Retention Rate	91.5%	92.5%	96.7%	88.8%
Severity		3	3	
#Unfilled	0	1	0	1.2
#Un/Underfilled	0	41	0	0
%Unfilled	0%	7%	0%	0%
%Un/Underfilled	0%	68%	0%	0%
Type	Unit	Elementary	Elementary	Unit
Size (#Students)	Medium (592)	Small (131)	Small (197)	Large (4577)
Rural (NCES Designation)	Rural (Rural: Remote)	Rural (Rural: Fringe)	Rural (Rural: Fringe)	Rural (Rural: Fringe)
%EBF	71.1%	179.4%	79.3%	87.9%
%Taxes	36.9%	70.4%	74.4%	78.8%
%Low-Income	47.6%	18.3%	21.3%	15.0%
Annual Family Budget	$35,432	$36,529	$36,529	$36,529

East Central Area

In the East Central area, see Figure 24, there was a large difference between the highest and lowest starting salary. Marshall CUSD 2C posted the lowest starting salary at $32,719. St. Anne CHSD 302 posted the highest starting salary at $53,052. Within the East Central area, that is a $20,333 difference between the highest and lowest paying districts. As one example of "islands" of higher pay, Milford Area Public SD 124 has a starting salary of $47,544. Just to the northeast is Crescent Iroquois CUSD 249 with a starting salary of $33,254, a $14,290 difference.

Figure 24: Bachelor's Beginning Salary by District for East Central Area.



Note: High School districts are not shown as they have overlapping geographic boundaries with multiple elementary school districts but are included in the analysis.

Table 6: Characteristics of Select Districts in the East Central Area.

ISBE District Name	Marshall CUSD 2C	Crescent Iroquois CUSD 249	Milford Area PSD 124	St Anne CHSD 302
Starting Salary	$32,719	$33,254	$47,544	$53,052
Teacher Retention Rate	88.3%	82.6%	89.3%	86.0%
Severity	3	4		
#Unfilled	0	1	1	0
#Un/Underfilled	3	0		
%Unfilled	0%	14%	2%	0%
%Un/Underfilled	43%	0%		
Type	Unit	Unit	Unit	High school
Size (#Students)	Medium (1216)	Small (60)	Medium (468)	Small (170)
Rural (NCES Designation)	Urban (Town: Distant)	Rural (Rural: Distant)	Rural (Rural: Distant)	Rural (Rural: Fringe)
%EBF	67.9%	125.6%	84.9%	79.6%
%Taxes	37.5%	78.3%	65.3%	51.4%
%Low-Income	35.9%	41.7%	50.2%	72.9%
Annual Family Budget	$34,919	$36,429	$36,429	$35,547

Southwest Area

In the Southwest area, see Figure 25, there was a large difference between the highest and lowest starting salary. St. Libory CSD 30 posted the lowest starting salary at $30,150. Roxana CUSD 1 posted the highest starting salary at $48,579. Within the Southwest area, that is a $18,429 difference between the highest and lowest paying districts. As one example of "islands" of higher pay, Cahokia CUSD 187 posted a starting salary of $46,581. Neighboring Cahokia is Millstadt CCSD 160 with a starting salary of $34,194. That is a $12,387 difference just one district over.

Figure 25: Bachelor's Beginning Salary by District for Southwest Area.

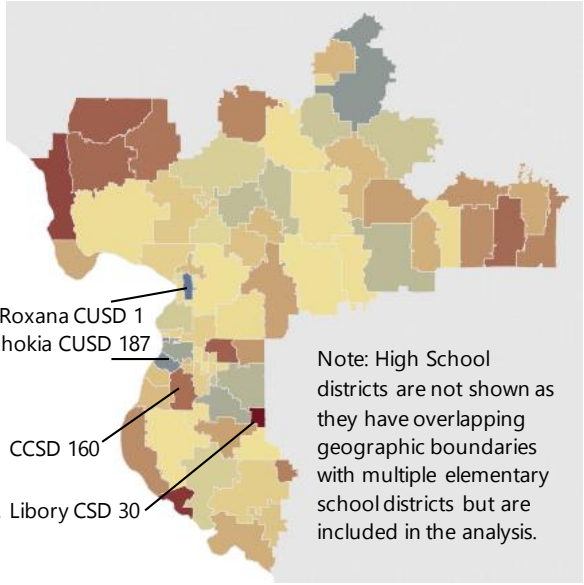


Table 7: Characteristics of Select Districts in the Southwest Area.

ISBE District Name	St Libory Cons SD 30	Millstadt CCSD 160	Cahokia CUSD 187	Roxana CUSD 1
Starting Salary	$30,150	$34,194	$46,581	$48,579
Teacher Retention Rate	89.5%	90.8%	83.9%	90.9%
Severity	3	4	5	2
#Unfilled	0	0	21	0
#Un/Underfilled	0	0	0	0
%Unfilled	0%	0%	10%	0%
%Un/Underfilled	0%	0%	0%	0%
Type	Elementary	Elementary	Unit	Unit
Size (#Students)	Small (54)	Medium (721)	Large (3143)	Large (1714)
Rural (NCES Designation)	Rural (Rural: Distant)	Urban (Town: Fringe)	Urban (Suburb: Large)	Urban (Suburb: Small)
%EBF	90.4%	87.0%	72.1%	105.6%
%Taxes	40.6%	68.1%	19.0%	78.6%
%Low-Income	22.2%	22.3%	93.6%	52.5%
Annual Family Budget	$35,032	$35,032	$35,032	$34,670

Southeast Area

In the Southeast area, see Figure 26, there was a large difference between the highest and lowest starting salary. Damiansville SD 62 posted the lowest starting salary at $28,915. Pinckneyville SD 50 posted the highest starting salary at $49,945. Within the Southeast area, that is a $21,030 difference between the highest and lowest paying districts. As one example of "islands" of higher pay, Opdyke-Belle River CCSD 5 had a starting salary of $45,892. Just north of Opdyke-Belle River is Bluford USD 318 with a starting salary of $29,190, a $16,702 difference.

Figure 26: Bachelor's Beginning Salary by District for Southeast Area.

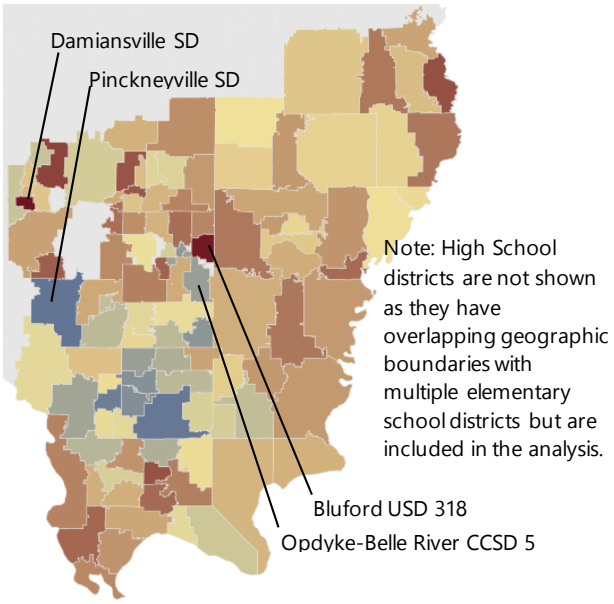


Table 8: Characteristics of Select Districts in the Southeast Area.

ISBE District Name	Damiansville SD 62	Bluford Unit School District 318	Opdyke-Belle-Rive CCSD 5	Pinckneyville SD 50
Starting Salary	$28,915	$29,190	$45,892	$49,945
Teacher Retention Rate	69.2%	90.6%	85.0%	89.9%
Severity	3	5	2	5
#Unfilled	0	0	0	0
#Un/Underfilled	0	3	0	2
%Unfilled	0%	0%	0%	0%
%Un/Underfilled	0%	43%	0%	67%
Type	Elementary	Unit	Elementary	Elementary
Size (#Students)	Small (113)	Small (360)	Small (147)	Medium (496)
Rural (NCES Designation)	Rural (Rural: Distant)	Rural (Rural: Distant)	Rural (Rural: Distant)	Urban (Town: Distant)
%EBF	76.3%	60.8%	89.4%	66.9%
%Taxes	59.1%	32.0%	33.3%	30.2%
%Low-Income	19.5%	36.9%	63.9%	45.0%
Annual Family Budget	$37,303	$35,547	$35,547	$35,778

CONCLUSION

Combining results on teacher shortages from the IARSS survey and the ISBE Unfilled Positions report indicate concentrated and persistent hiring challenges in specific content areas (e.g., special education and English as a second language/bilingual education) and geographic locations.[4] As education leaders and policymakers seek to address the educator shortage, conversations around compensation for teachers continue.[21] Recently, Illinois passed legislation raising the minimum teacher salary to $40,000.[22]

To understand the relationship between starting salary and teacher shortages, we compared data from multiple sources. Looking at all Illinois districts together, there was some evidence that starting salary was weakly correlated with such measures of the teacher shortage as retention rates and superintendents' perceptions of shortage severity. However, starting salaries vary greatly across Illinois. When analyzing variation in starting salary by geographic area and type of district, there were patterns worth mentioning. For unit districts and districts in the East Central area, districts with higher starting salaries had higher numbers (count) of unfilled full time equivalent teacher positions.

Correlations were also found between starting salary and district and community characteristics that could possibly explain why the relationship between teacher shortages and starting salary is not necessarily straightforward. Significant differences were found between starting salaries based on area of the state, district type, district size, and urbanicity. Districts in Cook County and the Northeast, high school districts, large districts, and urban districts all had significantly higher salaries than their counterparts. Furthermore, throughout the state in each area, there were islands of higher pay, where one district had significantly higher starting salaries than their neighboring districts. As superintendents and school boards are setting salary schedules, teacher mobility between neighboring districts can be a real concern.

When considering teacher salary, district funding and costs of living are important factors to weigh. Our analysis indicates that to some extent teacher starting salaries correlate with local property taxes. To a degree, starting teacher salaries were aligned with the annual family budget for the districts' geographic area.

Results from the IARSS Educator Shortage survey reveal acute and persistent educator shortage issues. Looking closely at starting teacher salary sheds some light on concerns around compensation related to teacher recruitment and retention. However, the many correlations found in this report between starting salary, measures of teacher shortages, and district and community characteristics indicate that the relationship between these variables are complex. This study provides a first glimpse at a variety of important variables that may influence teacher salaries and shortages simultaneously, showing the complexity of the issue and giving a picture of how they might relate that future models should estimate. This analysis also reinforces that teacher shortage issues and their solutions should be focused on specific geographic areas and types of school districts. Policymakers and advocates for education need to invest in all parts of the education pipeline from recruitment and preparation to educator induction and retention.

APPENDIX

Appendix A: Correlation Matrix

Table 13: Correlation Matrix

		Bachelor's Base Salary	Teacher Retention Rate	Teacher Shortage Severity	Unfilled FTE	#Un/ Under-filled	%Unfilled	%Un/ Under-filled	%EBF	%Taxes	Annual Family Budget	% Low Income	Avg Teacher Exp
Teacher Retention Rate	r	0.276	—										
	p	< .001	—										
	N	835	—										
Teacher Shortage Severity	r	-0.222	-0.156	—									
	p	< .001	< .001	—									
	N	624	624	—									
Unfilled FTE	r	0.136	-0.024	0.043	—								
	p	< .001	0.495	0.287	—								
	N	835	835	624	—								
#Un/ Under-filled	r	0.012	-0.076	0.077	0.639	—							
	p	0.762	0.054	0.053	< .001	—							
	N	645	645	624	645	—							
%Unfilled	r	-0.037	-0.181	0.116	0.153	0.274	—						
	p	0.287	< .001	0.004	< .001	< .001	—						
	N	835	835	624	835	645	—						
%Un/ Under-filled	r	-0.128	-0.103	0.12	0.045	0.291	0.219	—					
	p	0.001	0.009	0.003	0.252	< .001	< .001	—					
	N	645	645	624	645	645	645	—					

Data Sources:

Illinois Report Card

IARSS Educator Shortage Survey

Teacher Salary Survey

EPI Family Budget Calculator

		Bachelor's Base Salary	Teacher Retention Rate	Teacher Shortage Severity	Unfilled FTE	#Un/ Under-filled	%Unfilled	%Un/ Under-filled	%EBF	%Taxes	Annual Family Budget	% Low Income	Avg Teacher Exp
%EBF	r	0.343	0.118	-0.149	-0.043	-0.087	-0.037	0.023	—				
	p	< .001	< .001	< .001	0.211	0.027	0.289	0.563	—				
	N	835	835	624	835	645	835	645	—				
%Taxes	r	0.416	0.227	-0.212	-0.018	-0.098	-0.078	-0.096	0.624	—			
	p	< .001	< .001	< .001	0.604	0.013	0.024	0.015	< .001	—			
	N	835	835	624	835	645	835	645	835	—			
Annual Family Budget	r	0.503	0.098	-0.183	0.048	0.034	0	-0.091	0.274	0.445	—		
	p	< .001	0.005	< .001	0.163	0.386	0.993	0.021	< .001	< .001	—		
	N	835	835	624	835	645	835	645	835	835	—		
% Students Low Income	r	-0.186	-0.356	0.159	0.081	0.151	0.212	0.14	-0.394	-0.645	-0.265	—	
	p	< .001	< .001	< .001	0.019	< .001	< .001	< .001	< .001	< .001	< .001	—	
	N	835	835	624	835	645	835	645	835	835	835	—	
Avg Teacher Exp	r	0.104	0.506	-0.109	-0.041	-0.088	-0.076	-0.077	0.152	0.176	-0.048	-0.27	—
	p	0.003	< .001	0.006	0.239	0.026	0.027	0.051	< .001	< .001	0.165	< .001	—
	N	835	835	624	835	645	835	645	835	835	835	835	—
Teacher Avg Salary	r	0.811	0.377	-0.223	0.083	0.001	-0.088	-0.149	0.43	0.502	0.487	-0.314	0.342
	p	< .001	< .001	< .001	0.017	0.983	0.011	< .001	< .001	< .001	< .001	< .001	< .001
	N	835	835	624	835	645	835	645	835	835	835	835	835

Note: r = Pearson's r, p = p-value , and N = count

Note: There is a difference in the N based on districts that responded to the Educator Shortage survey.

Correlation Associations were categorized as very weak or no association (0 – 0.2), weak association (.2 - .4) , moderate association (.4 - .6), strong association (.6 - .8) and very strong association (.8 – 1.0).

Appendix B: Correlations Controlled for Subgroups

Table 14: Correlations (Pearson's r) Between Measures of Teacher Shortage and Starting Salary Controlled for Categorical Variables

Category	Variable	Number of Districts	Teacher Retention Rate	Severity	#Unfilled	#Un/ Under-filled	%Un-filled	%Un/ Under-filled
All	All	835	0.276	-0.222	0.136	0.012	-0.037	-0.128
Urbanicity	Rural	306	0.285	-0.162	-0.004	-0.064	-0.068	-0.013
	Urban	529	0.256	-0.242	0.123	-0.024	-0.052	-0.094
Size	Large	211	0.339	-0.311	0.131	-0.064	-0.166	-0.034
	Medium	417	0.259	-0.266	0.044	-0.133	-0.034	-0.149
	Small	207	0.258	-0.146	-0.035	-0.023	-0.056	0.070
Type	Elementary	361	0.242	-0.113	0.129	-0.022	0.015	-0.063
	High	95	0.128	-0.262	0.192	-0.047	-0.077	-0.191
	Unit	379	0.183	-0.209	0.303	0.140	0.013	-0.094
Area	Cook County	141	0.398	-0.312	0.151	-0.311	-0.303	-0.281
	East Central	108	0.038	0.072	0.358	0.176	0.033	0.030
	Northeast	158	0.346	-0.139	0.076	0.032	0.063	-0.031
	Northwest	119	0.332	0.030	0.094	0.025	-0.002	-0.156
	Southeast	121	0.345	-0.199	-0.073	0.008	-0.110	-0.012
	Southwest	82	0.123	-0.107	0.197	0.269	0.040	0.156
	West Central	106	0.228	-0.300	0.159	-0.096	-0.129	-0.254

Appendix C: Analysis of Starting Salary by Geographic Area

Table 1: Estimate Marginal Means of Starting Salary by IARSS Area

Area	Mean	SE	Lower C.I.	Upper C.I.	Number of Districts
Cook County	47261	371	46534	47989	141
East Central	38465	424	37634	39297	108
Northeast	44924	350	44236	45611	158
Northwest	38593	404	37801	39385	119
Southeast	38641	400	37855	39426	121
Southwest	38761	486	37807	39715	82
West Central	38251	428	37412	39091	106

Table 2: ANOVA – Starting Salary by IARSS Area

	Sum of Squares	df	Mean Square	F	p
Area	1.12e+10	6	1.86e+9	96.2	< .001
Residuals	1.60e+10	828	1.94e+7		

Table 3: Post Hoc Comparisons of Starting Salary by IARSS Area

Area		Area	Mean Difference	SE	df	t	$p_{bonferroni}$	Cohen's d
Cook County	-	East Central	8795.8	563	828	15.6255	< .001	1.9981
	-	Northeast	2337.6	510	828	4.5836	< .001	0.5310
	-	Northwest	8668.5	548	828	15.8190	< .001	1.9692
	-	Southeast	8620.5	546	828	15.8024	< .001	1.9583
	-	Southwest	8500.3	611	828	13.9038	< .001	1.9309
	-	West Central	9009.7	566	828	15.9207	< .001	2.0467
East Central	-	Northeast	-6458.3	550	828	-11.7504	< .001	-1.4671
	-	Northwest	-127.3	585	828	-0.2176	0.828	-0.0289
	-	Southeast	-175.3	583	828	-0.3008	0.764	-0.0398
	-	Southwest	-295.6	645	828	-0.4584	0.647	-0.0671
	-	West Central	213.9	602	828	0.3554	0.722	0.0486

Area		Area	Mean Difference	SE	df	t	$p_{bonferroni}$	Cohen's d
Northeast	-	Northwest	6331.0	534	828	11.8486	< .001	1.4382
	-	Southeast	6282.9	532	828	11.8146	< .001	1.4273
	-	Southwest	6162.7	599	828	10.2858	< .001	1.3999
	-	West Central	6672.2	553	828	12.0721	< .001	1.5157
Northwest	-	Southeast	-48.0	568	828	-0.0845	0.933	-0.0109
	-	Southwest	-168.3	632	828	-0.2663	0.790	-0.0382
	-	West Central	341.2	588	828	0.5803	0.562	0.0775
Southeast	-	Southwest	-120.2	630	828	-0.1910	0.849	-0.0273
	-	West Central	389.2	586	828	0.6646	0.506	0.0884
Southwest	-	West Central	509.5	647	828	0.7869	0.432	0.1157

Note. Comparisons are based on estimated marginal means

Appendix D: Analysis of Starting Salary by Type of District

Table 4: Estimate Marginal Means of Starting Salary by Type of District

Type	Mean	SE	Lower C.I.	Upper C.I.	Number of Districts
Elementary	41824	268	41299	42349	361
High School	47561	522	46537	48585	95
Unit	39051	261	38539	39564	349

Table 5: ANOVA – Starting Salary by Type of District

	Sum of Squares	df	Mean Square	F	p
Overall model	5.73e0+9	2	2.87e+9	111	< .001
Type	5.73e0+9	2	2.87e+9	111	< .001
Residuals	2.15e+10	832	2.58e+7		

Table 6: Post Hoc Comparisons of Starting Salary by Type of District

Type		Type	Mean Difference	SE	df	t	$p_{bonferroni}$	Cohen's d
Elementary	-	High School	-5737	586	832	-9.79	< .001	-1.129
	-	Unit	2773	374	832	7.42	< .001	0.545
High School	-	Unit	8510	583	832	14.59	< .001	1.674

Note. Comparisons are based on estimated marginal means

Appendix E: Analysis of Starting Salary by Urbanicity

Table 7: Estimate Marginal Means of Starting Salary by Urbanicity of District

Rural	Mean	SE	Lower C.I.	Upper C.I.	Number of Districts
Rural	37766	290	37197	38336	306
Urban	43215	221	42781	43648	529

Table 8: ANOVA – Starting Salary by Urbanicity of District

	Sum of Squares	df	Mean Square	F	p
Rural	5.75e0+9	1	5.75e+9	223	< .001
Residuals	2.15e+10	833	2.58e+7		

Table 9: Post Hoc Comparisons of Starting Salary by Urbanicity of District

Urbanicity		Urbanicity	Mean Difference	SE	df	t	$p_{bonferroni}$
Rural	-	Urban	-5448	365	833	-14.9	< .001

Note. Comparisons are based on estimated marginal means

Appendix F: Analysis of Starting Salary by Size of District

Table 10: Estimate Marginal Means of Starting Salary by Size of District

Size	Mean	SE	Lower C.I.	Upper C.I.	Number of Districts
LARGE	45177	347	44495	45859	211
MEDIUM	41013	247	40528	41498	417
SMALL	37595	351	36907	38284	207

Table 11: ANOVA – Starting Salary by Size of District

	Sum of Squares	df	Mean Square	F	p
Size	6.04e0+9	2	3.02e+9	119	< .001
Residuals	2.12e+10	832	2.55e+7		

Table 12: Post Hoc Comparisons of Starting Salary by Size of District

Size		Size	Mean Difference	SE	df	t	$p_{bonferroni}$
LARGE	-	MEDIUM	4164	426	832	9.76	< .001
	-	SMALL	7582	494	832	15.36	< .001
MEDIUM	-	SMALL	3418	429	832	7.97	< .001

Note. Comparisons are based on estimated marginal means

Appendix G: Intercorrelations Related to Funding for School Districts

The evidence-based funding (EBF) formula factors in several community and school district characteristics. Public Act 100-0465 enacted EBF and changed the way that school districts receive state funds.[23] According to ISBE, EBF allocates "more resources to Illinois' most under-resourced students."[23] Within our analysis, we noted several intercorrelations that corroborate the EBF formula.

- There was a strong negative association (r = -0.645, p <0.001) between %taxes and %low income. For example, districts that received a larger percent of their funding from local property taxes also had a lower percent of their student enrollment who were from low-income households.
- There was a strong positive association (r = 0.624, p <0.001) between %taxes and %EBF. In other words, most districts who received a larger percent of their funding from local property taxes also had higher capacity to meet expectation.
- There was a moderate positive association (r = 0.445, p <0.001) between %taxes and annual family budget. This implies that areas where the costs of living are higher were also areas where districts received a larger percent of their funding from local property taxes.
- There was a weak negative association (r = -0.394, p <0.001) between %EBF and %low income. This implies that districts that had higher capacity to meet expectations also had a lower percent of their student enrollment that were from low-income households.
- There was a weak positive association (r = 0.274, p <0.001) between %EBF and annual family budget. This implies that districts that had higher capacity to meet expectations also were in areas where costs of living were higher.
- There was a weak negative association (r = -0.265, p <0.001) between annual family budget and %low income. This implies that districts that were located in areas that had higher costs of living also had lower percentages of their student enrollment who were from low-income households.

ENDNOTES

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