



The Geography of New Teacher Pipeline in Illinois

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Background:

The IERC teacher supply pipeline study

- Using data from ACT, National Student Clearinghouse, and state and federal education agencies, we track the 2002 and 2003 cohorts of Illinois high school graduates (N=225,196) for up to 10 years through college enrollment, bachelor's degree completion, teacher certification, and teaching employment in an Illinois public school

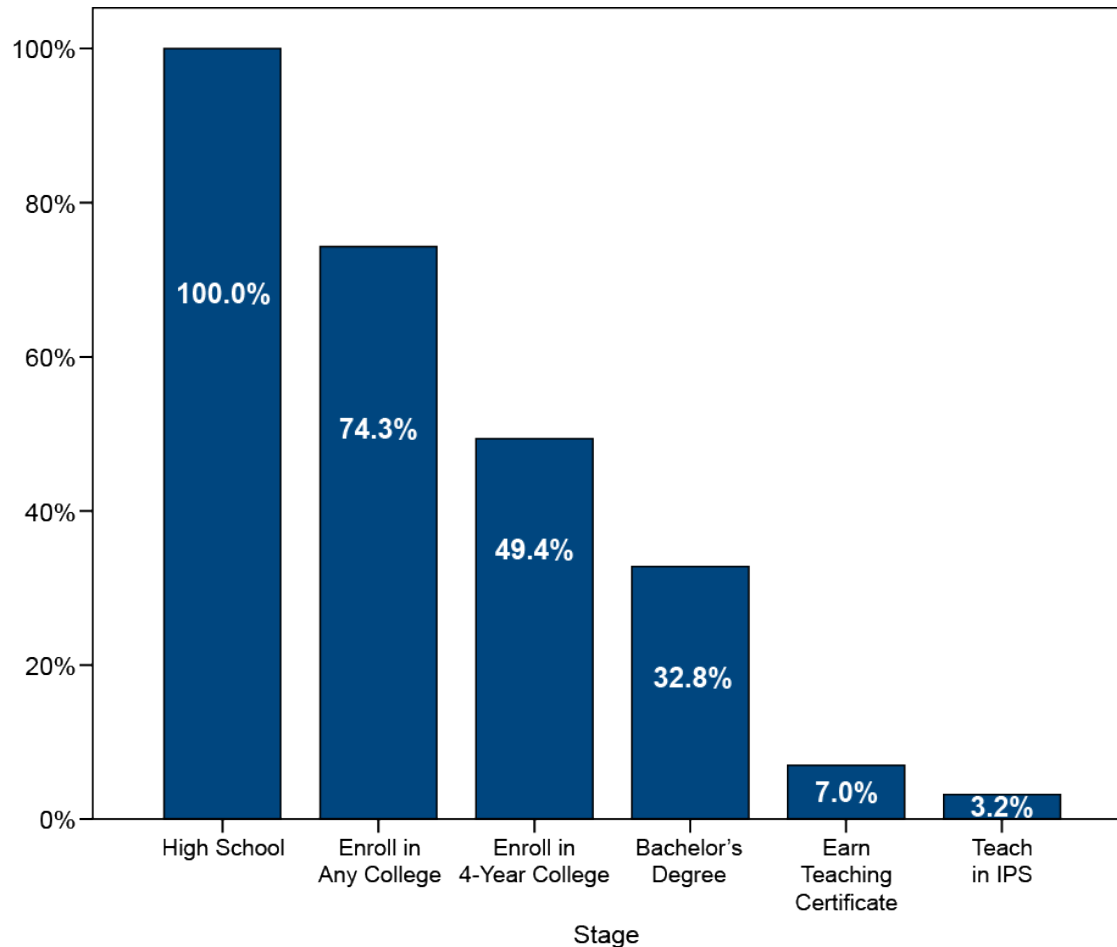
Figure 1.

Conceptual Model of Stages in the Teacher Pipeline



- We examine changes in the composition of the pipeline to measure the extent to which each stage in the new teacher pipeline affects our ability to attract a diverse, academically skilled teaching force

Overview: What proportion of students progresses through each stage of the pipeline?

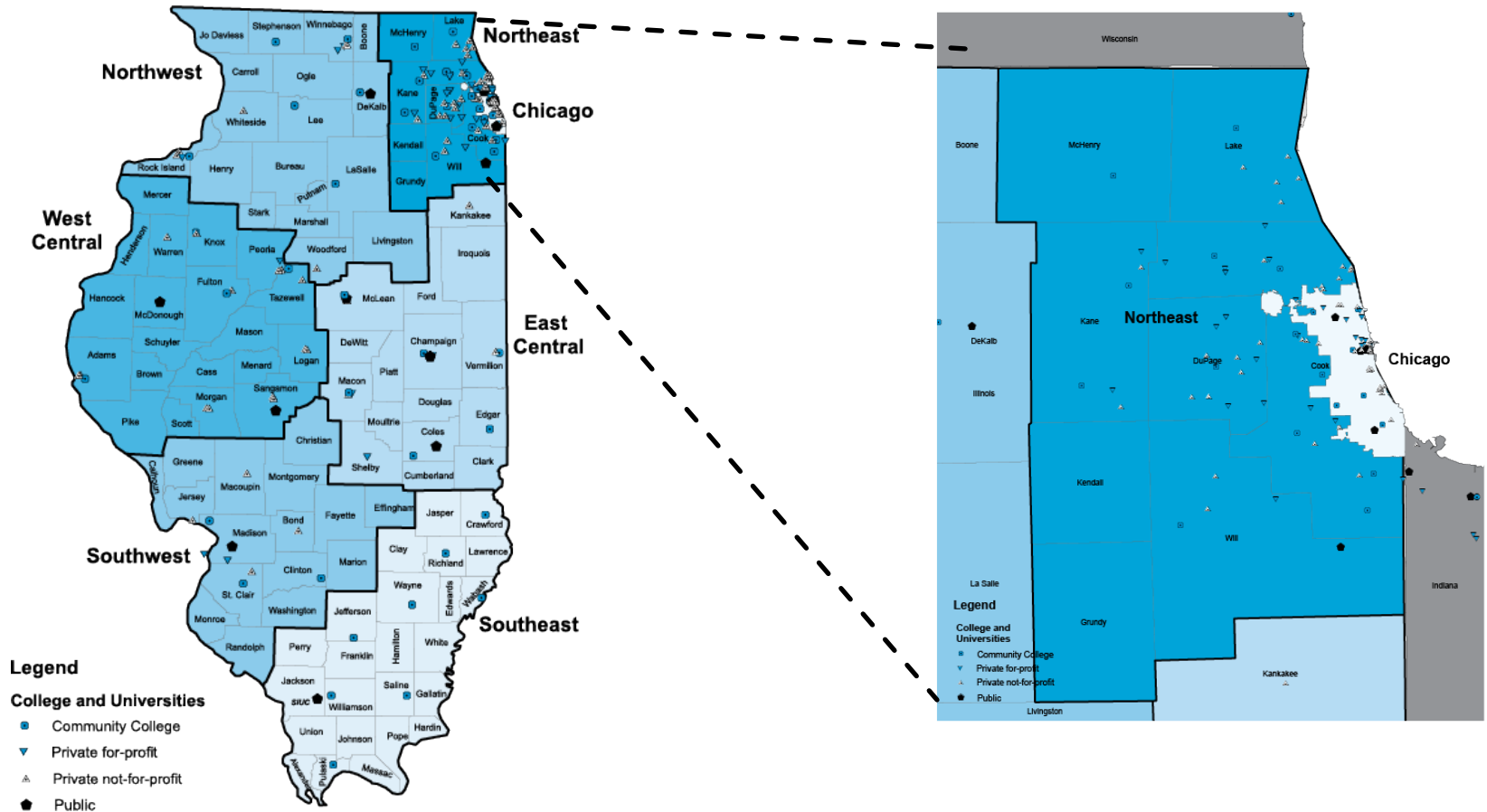


- 3.2% (7,209) of the 225,196 students from these cohorts became teachers in Illinois public schools

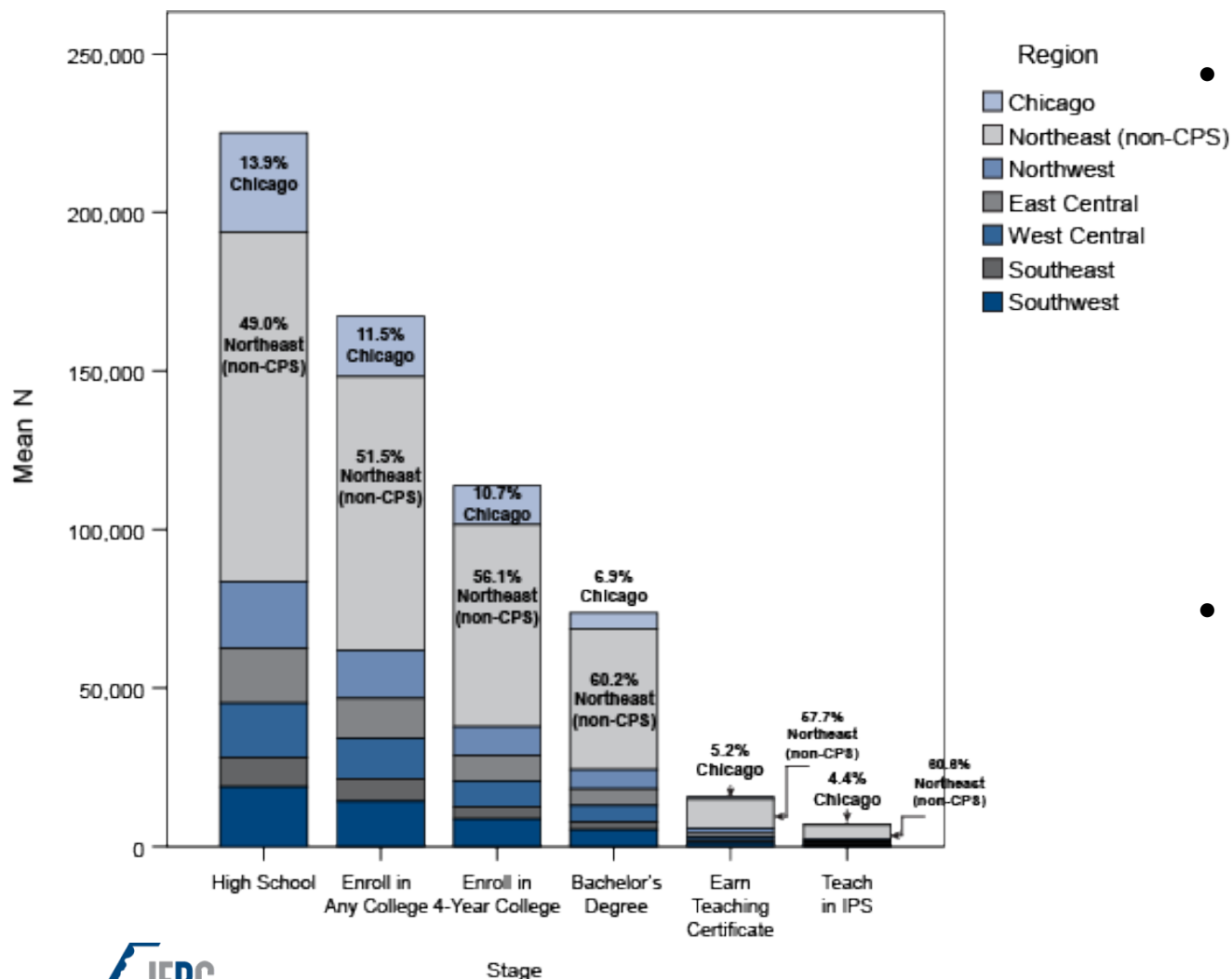
The role of geography in the new teacher pipeline

- Student characteristics and college access, enrollment, and completion patterns differ widely between regions in Illinois
- Teacher labor markets are considerably more constrained geographically than those of similarly-aged college graduates in non-teaching occupations (*Boyd et al., 2005; Reininger, 2012*)
 - About 60% of first-year public school teachers work in schools within 15 miles of “home” (where they attended HS)
- New teachers also tend to initially work in schools with high proportions of students sharing their race and from similar socio-economic backgrounds (*Cannata, 2008; Engel 2014*)
- Younger workers tend to have more geographic mobility than older workers, so initial sorting is likely to persist to some extent
- Together, these factors contribute to the inequitable distribution of teacher characteristics, whereby the highest need students are typically the most shortchanged
 - Summarized in a previous IERC report, ***Leveling Up: Narrowing the Teacher Academic Capital Gap in Illinois*** (2008)

We divide Illinois into 7 geographic regions



How does the geographic composition of the pipeline change at each stage?

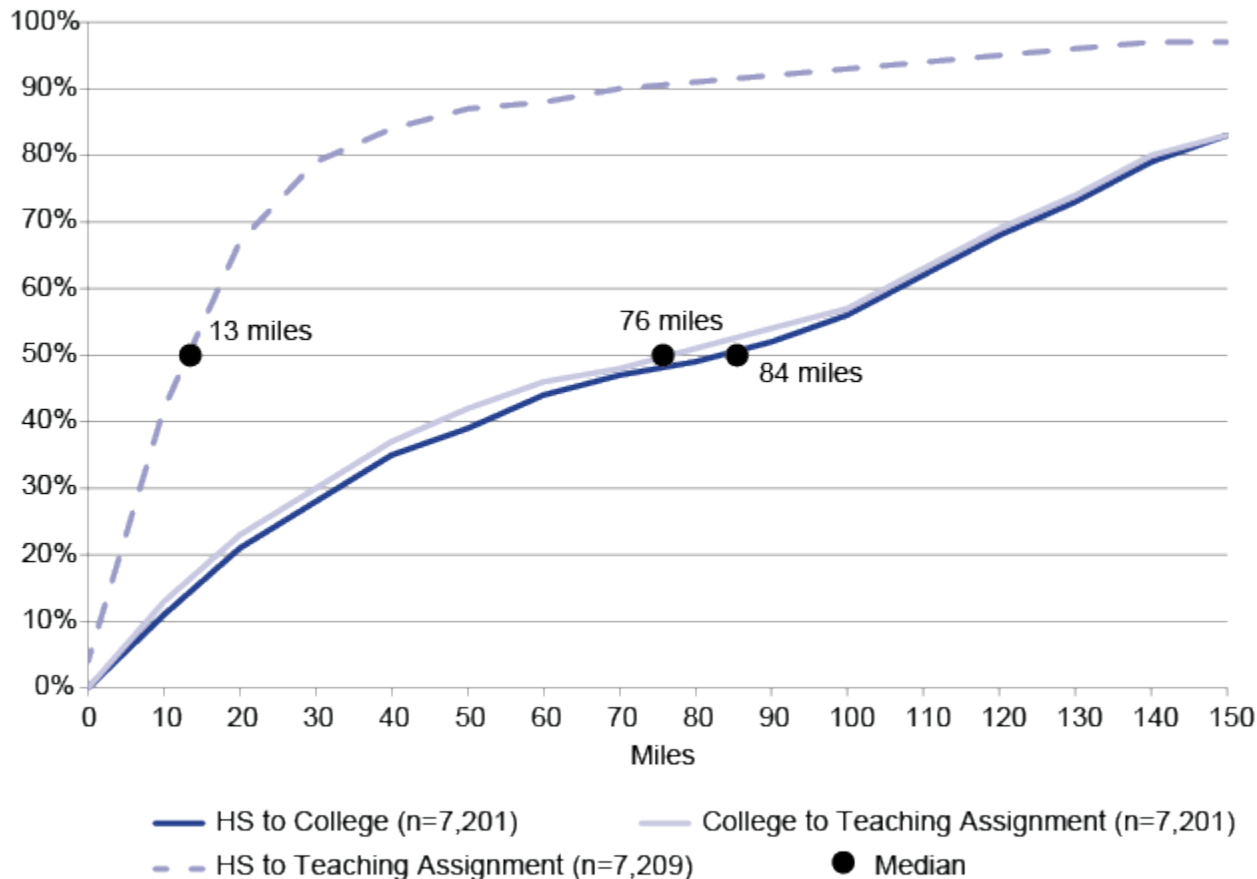


- Throughout the college pipeline and through teacher certification, the proportion of students who graduated from CPS drops, while the proportion who started in the NE region grows.
- Chicago under-produces teachers relative to the size of their student population, whereas the Northeast region over-produces

Teacher Geography Study

- Research questions:
 1. What does the spatial geography of new teacher labor markets look like in Illinois?
 2. Does the spatial geography of new teacher labor markets differ by the teachers' demographic and academic characteristics?
 3. What are the relationships between the demographics of teachers, the schools they attended, and the schools where they initially teach?
- These analyses focus solely on the 7,209 teachers who emerged from our cohorts
- We use the location of the high school from which a student graduated as a proxy for hometown
- We used latitude and longitude coordinates to calculate distances between three key points in the new teacher pipeline:
 - Hometown (high school) → college (Bachelor's granting institution)
 - College → first teaching assignment
 - Hometown → first teaching assignment
- We also examine differences between the *characteristics* associated with these 3 points.

Distances between Home, College, and First Teaching Assignment



- Teachers tend to travel considerably farther from home to attend college than they do for their first teaching position
- There is some evidence of a small secondary teacher labor market around one's college.

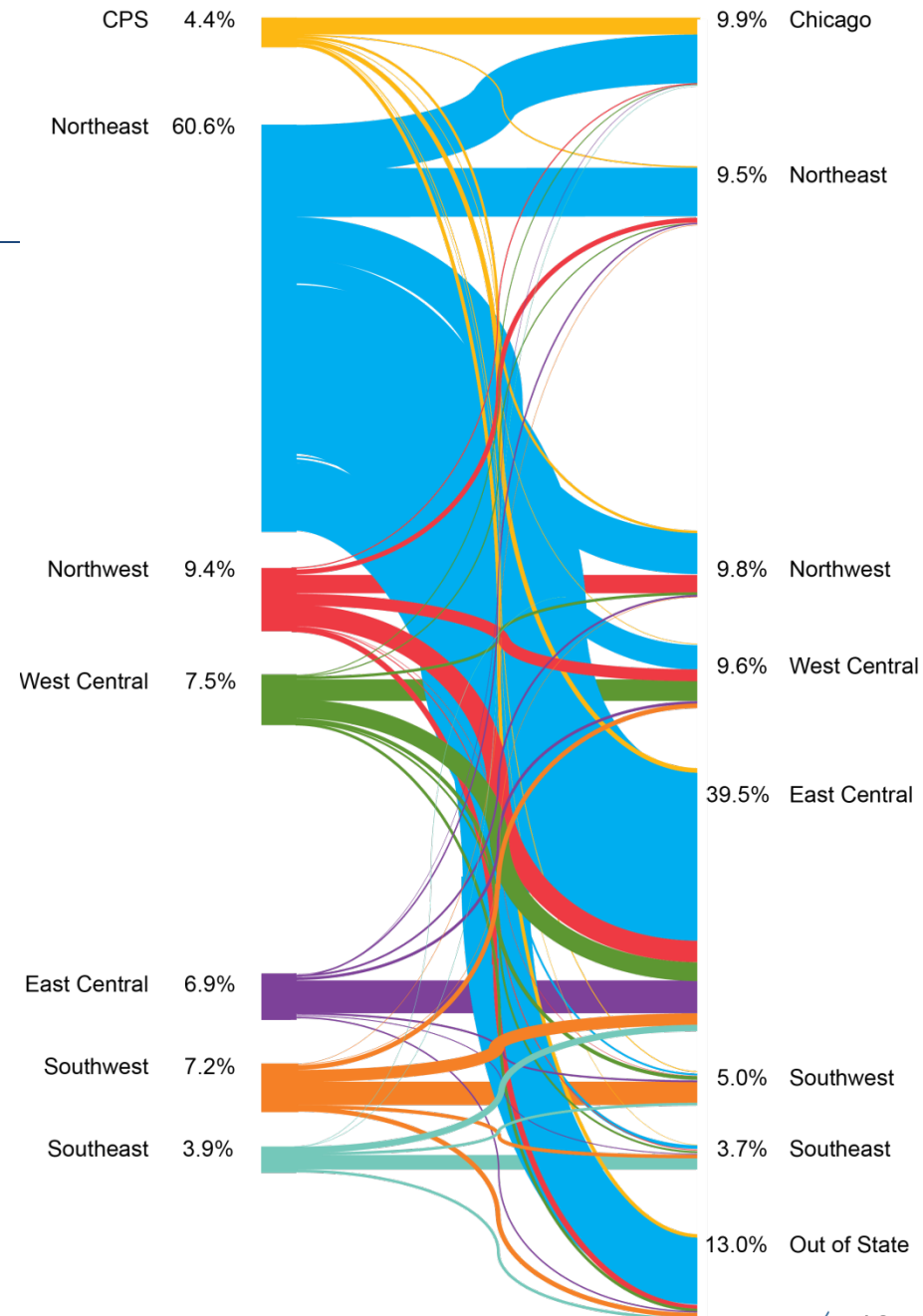
Median Distance from Home to First Teaching Position by Home Region

HS Region	HS to College	HS to First Teaching Assignment	College to First Teaching Assignment
Chicago	9.2	5.4	10.7
Northeast	108.9	11.1	105.5
Northwest	71.8	20.2	59.7
West Central	52.5	17.6	47.9
East Central	46.3	24.2	52.5
Southwest	41.7	16.6	44.5
Southeast	42.0	16.6	41.7

- Teachers from Chicago were the least mobile by a considerable degree (more than 50% began teaching in CPS)
- Teachers from the Northeast (who were the most mobile for college) still tended to start teaching quite close to home

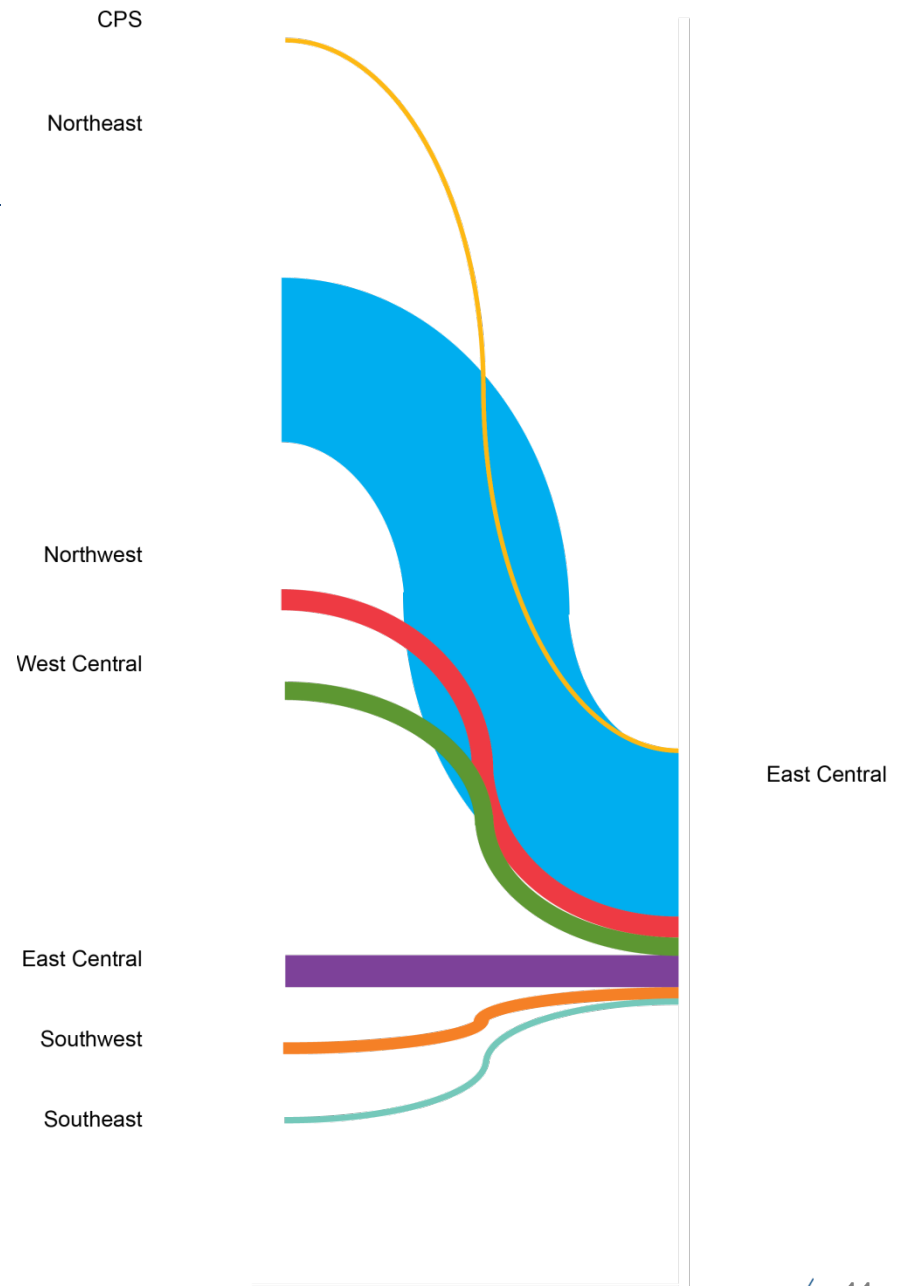
Flow from Home to College

- Sankey diagrams – depict size and direction of flow from one region to another
- While most new teachers graduated from HS in the Northeast region, the greatest number of new teachers earned their degree in the East Central region
- The second most popular college “region” for Illinois teachers was out-of-state



Flow into the East Central Region

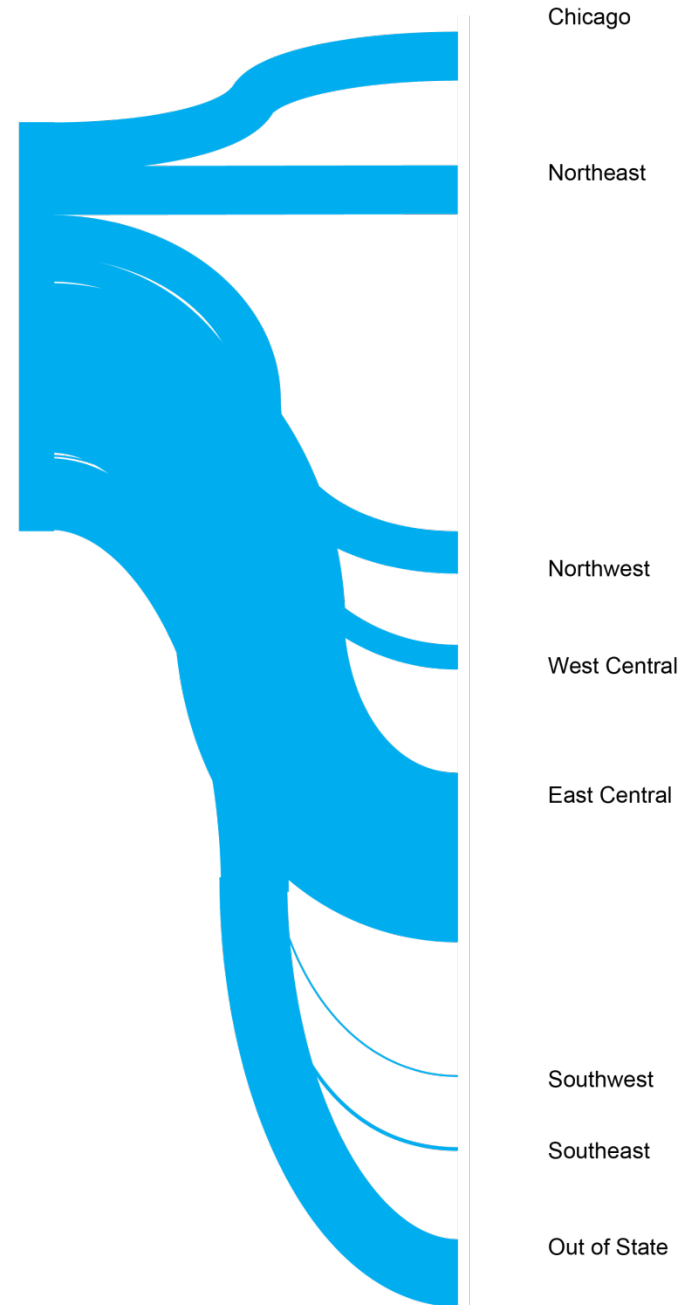
- The majority of the new teachers trained in colleges in the East Central region are originally from the Chicago suburbs (Northeast Region).



Flow out of the Northeast Region

- Sankey diagrams – depict size and direction of flow from one region to another

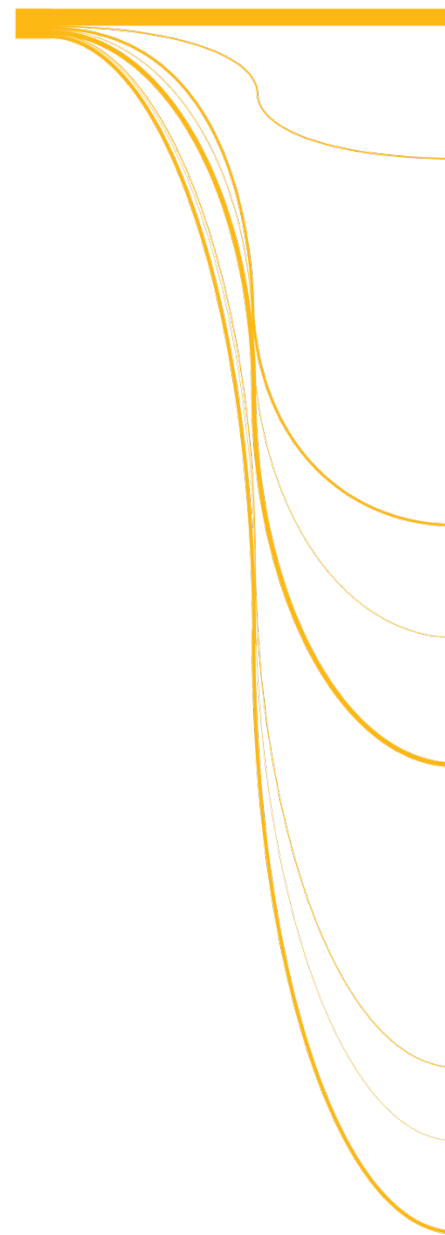
Northeast 60.6%



CPS 4.4%

Flow out of Chicago

- Most of the new teachers originally from CPS were trained as teachers in colleges located in the city of Chicago.



Chicago

Northeast

Northwest

West Central

East Central

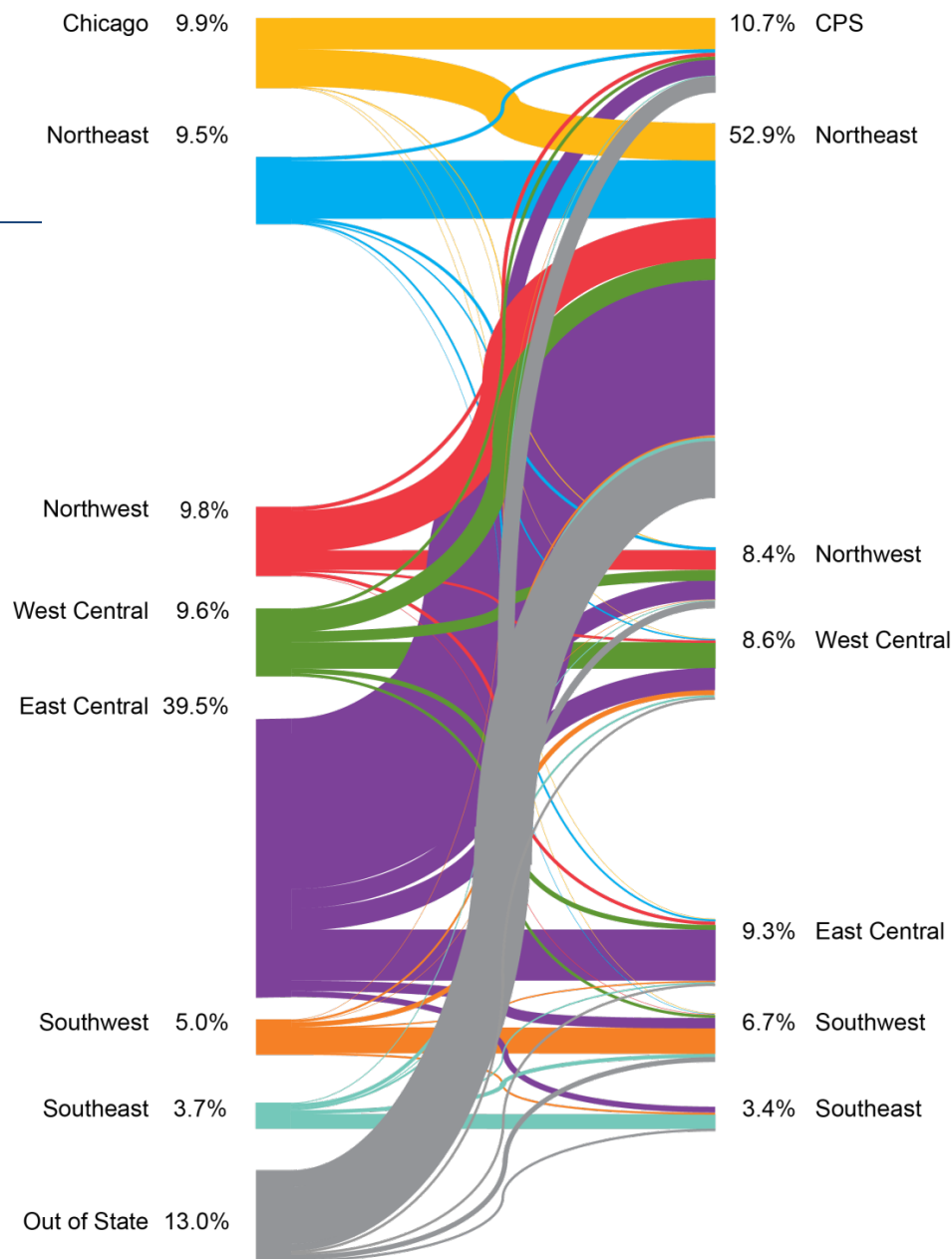
Southwest

Southeast

Out of State

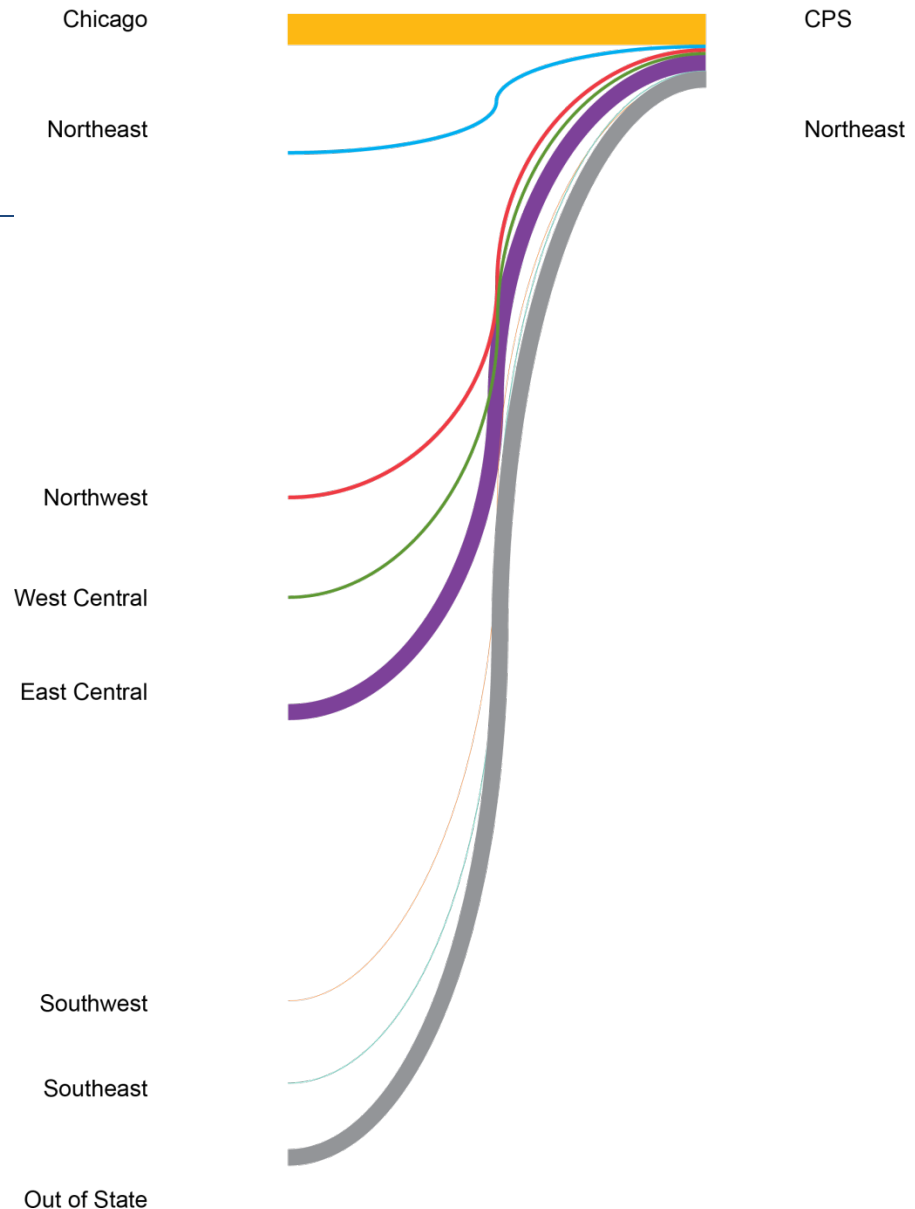
Flow from College to First Teaching Assignment

- Substantial movement from colleges in the East Central to teaching in schools outside of this region
- Substantial movement to teaching at schools in the Northeast from colleges outside of these regions



Flow from College into Chicago Public Schools

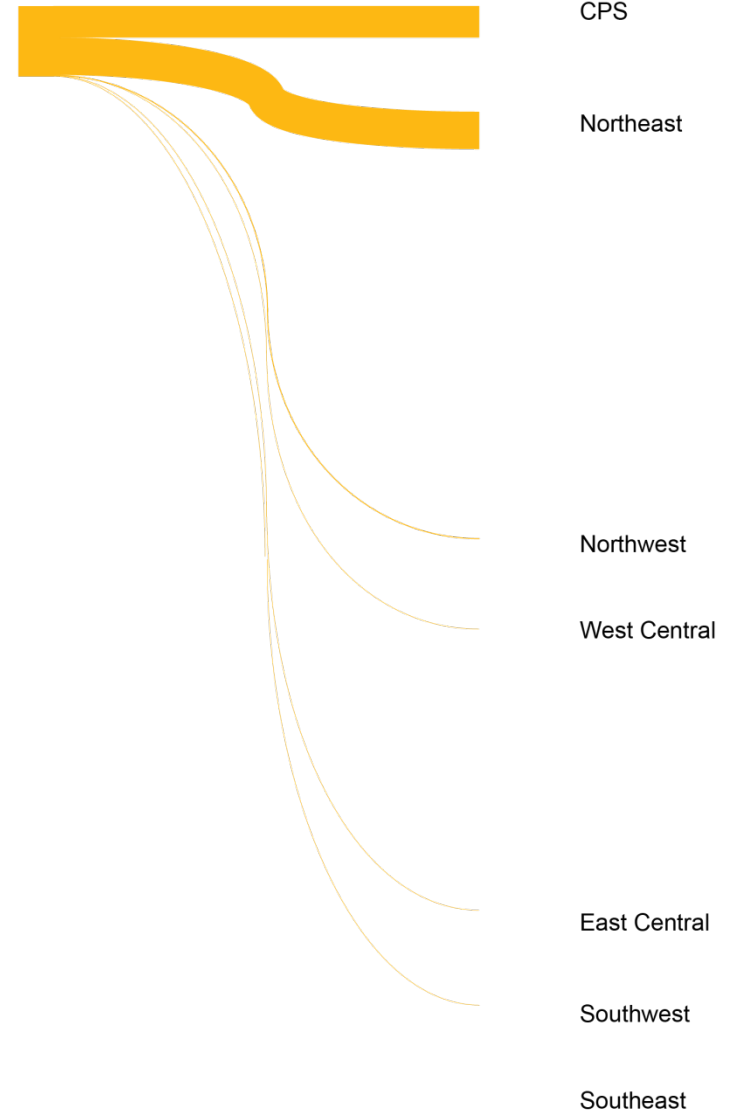
- New CPS teachers were generally trained at colleges located in Chicago.
- If not, they were trained at colleges in the East Central Region or out-of-state.



Flow from Colleges in Chicago to First Teaching Assignment

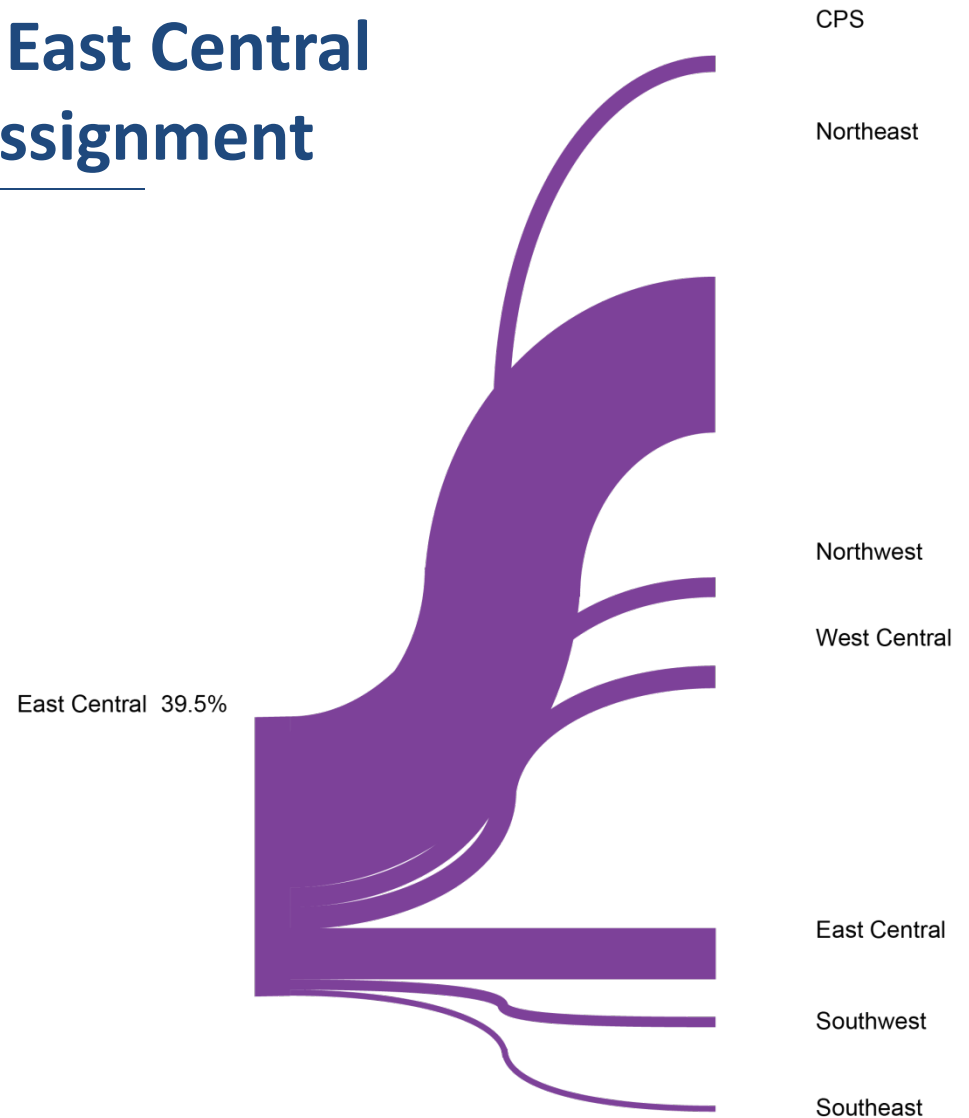
Chicago 9.9%

- New teachers trained at colleges within the city of Chicago either started their careers at schools in the Chicago suburbs or CPS.



Flow from Colleges in the East Central Region to First Teaching Assignment

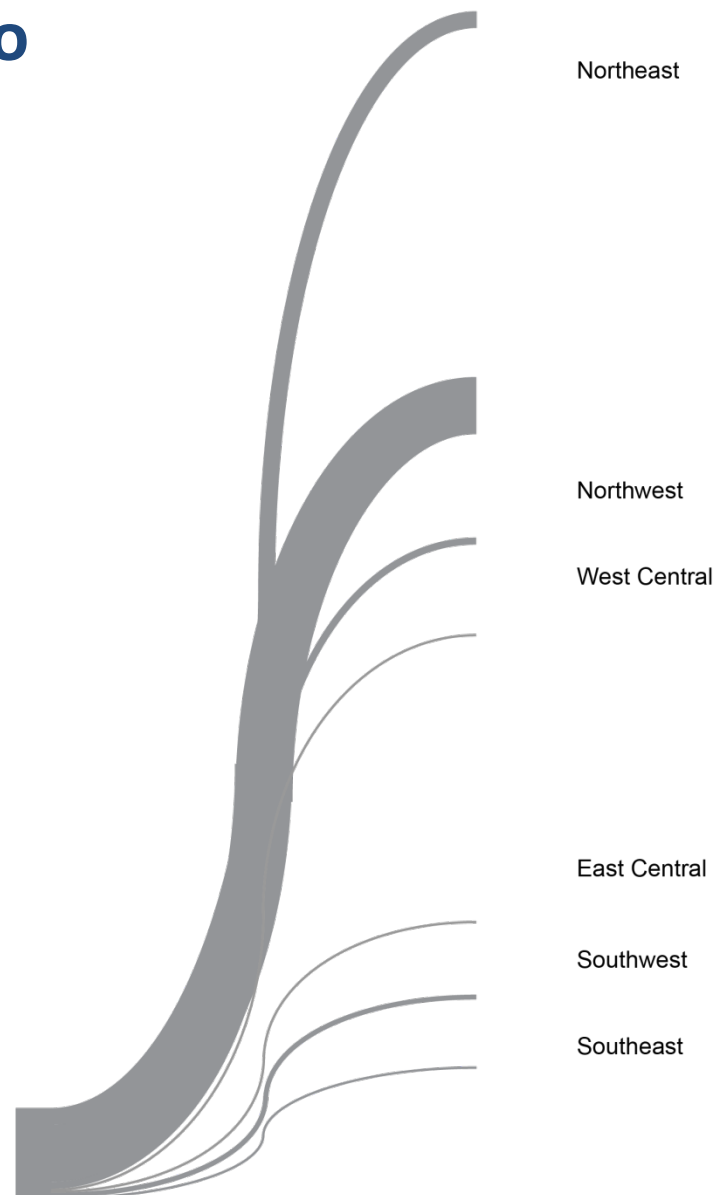
- There was substantial movement from colleges in the East Central to teaching in schools outside of this region



Flow from Out-of-State Colleges to First Teaching Assignment

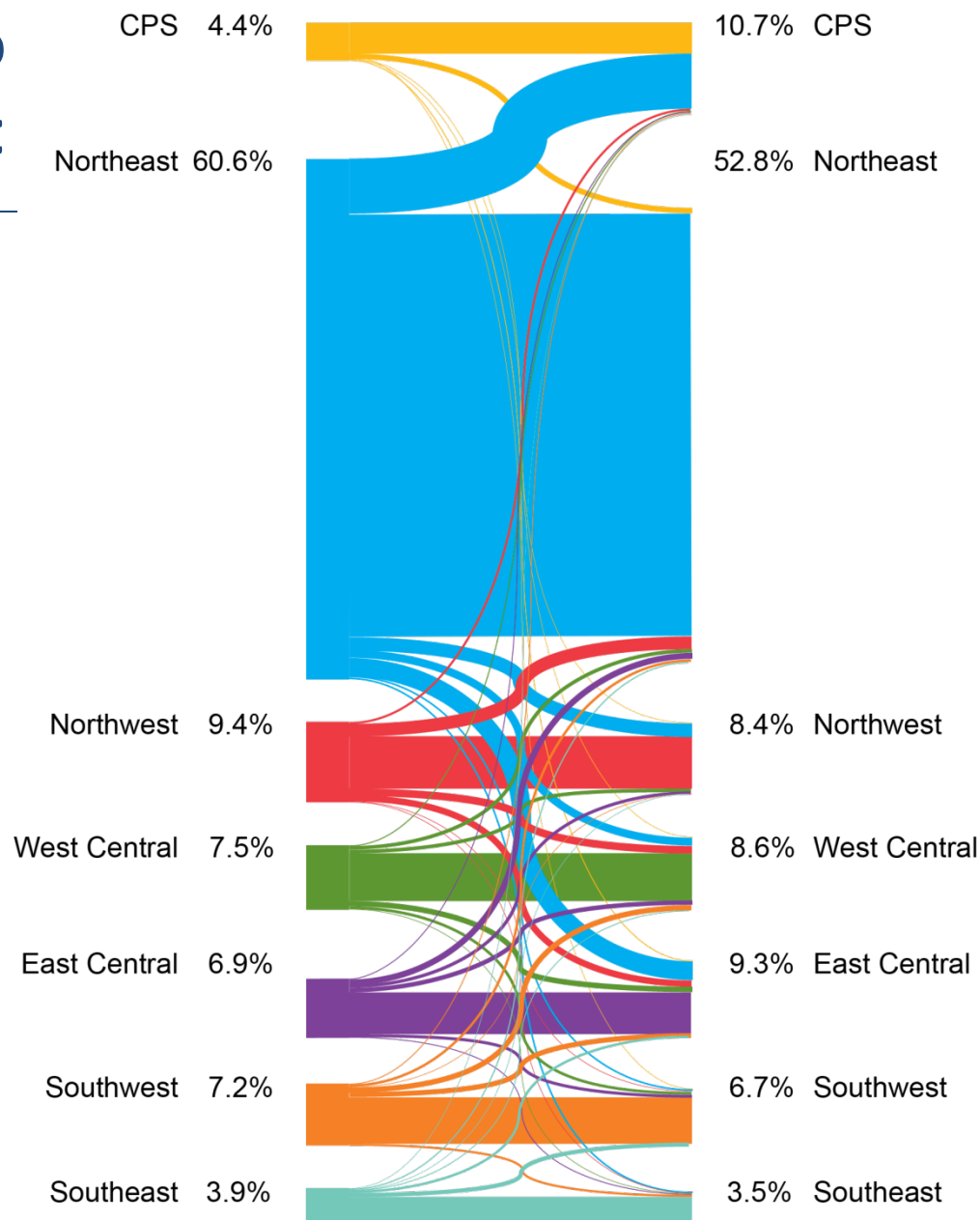
- Most out-migrant teachers begin their careers in the schools in the Northeast region or CPS.

Out of State 13.0%



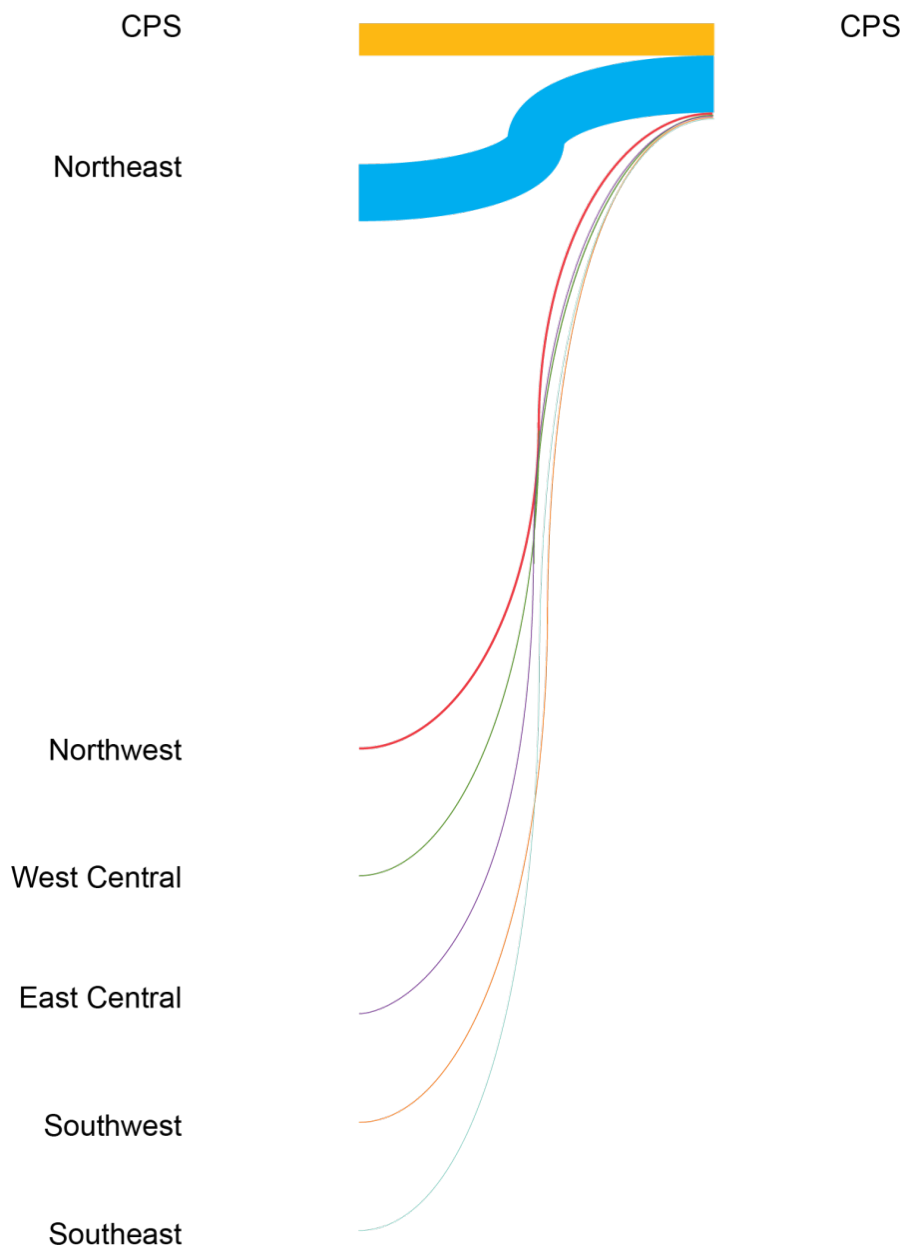
Flow from 'Home Area' to First Teaching Assignment

- The vast majority of the new teachers in each region graduated from high schools in that region...
- ...except for Chicago. Only a **third** of new CPS teachers graduated from CPS high schools
- Very limited movement into or out of the Southeast and Southwest regions



Flow from 'Home Area' into Chicago Public Schools

- Only **a third** of new CPS teachers graduated from CPS high schools
- The majority of new CPS teachers are originally from the Northeast region (suburban Chicago).



Flow from Northeast to First Teaching Assignment

- The vast majority of new teachers emanating from the Northeast region end up teaching in the Northeast region.
- However, many also begin their careers at CPS.

Northeast 60.6%



CPS

Northeast

Northwest

West Central

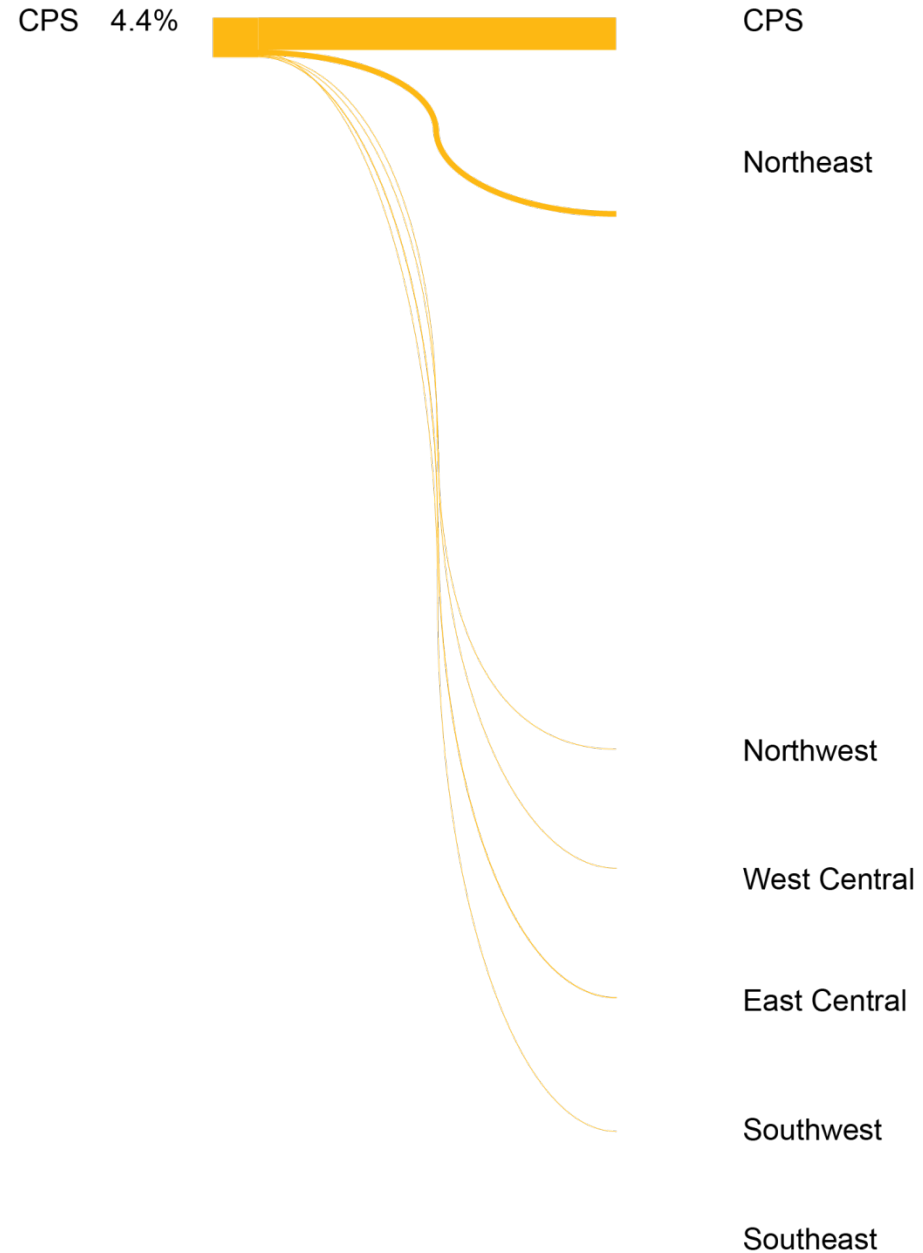
East Central

Southwest

Southeast

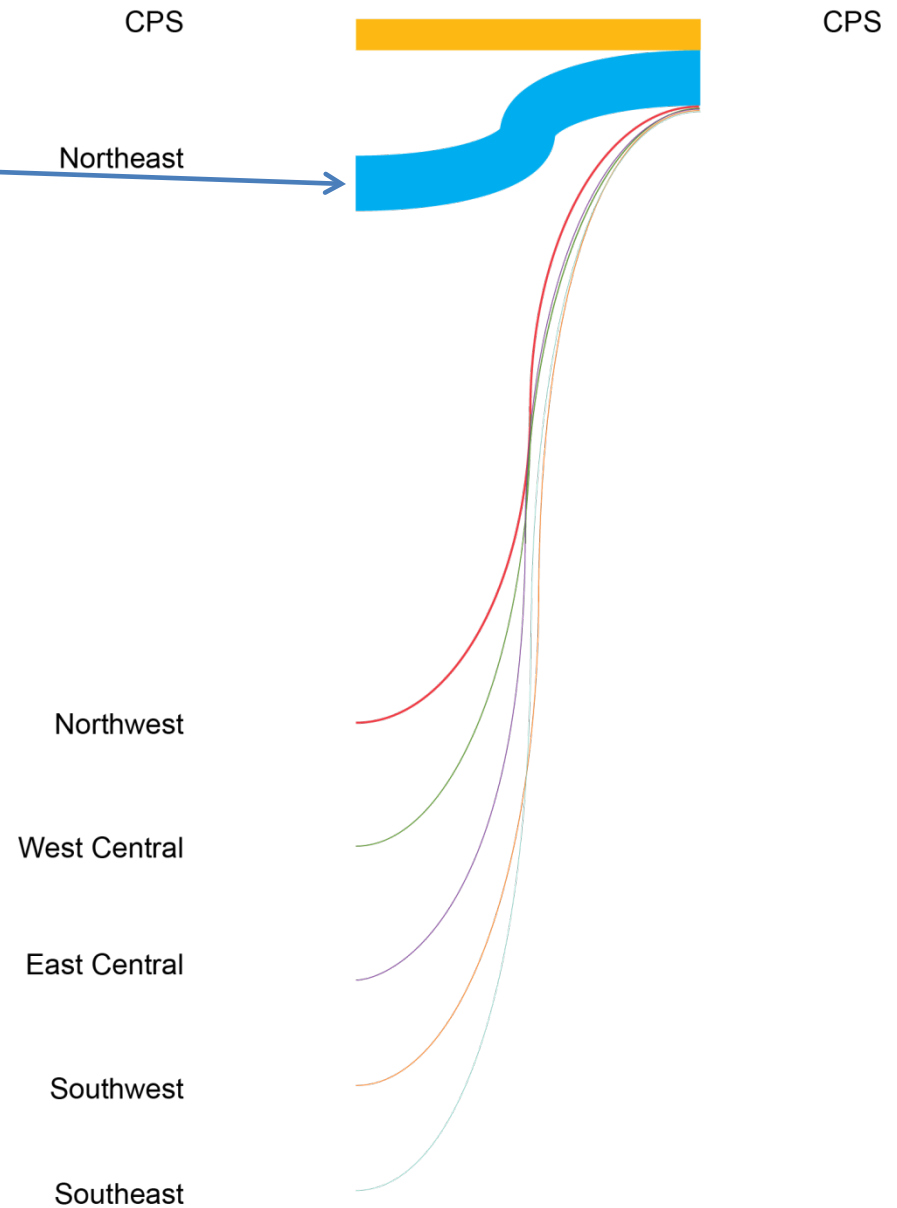
Flow from CPS to First Teaching Assignment

- The overwhelming majority of new teachers emanating from CPS, end up teaching in their home district.



Focus on: Flow from the Northeast region to CPS

- The majority of new CPS teachers graduated from high schools in the Northeast
- How do they compare with native Chicago teachers?
- Were they more or less academically qualified than their peers from the Northeast who stayed in the Northeast to teach?



Flow from the Northeast to CPS

	Northeast to Northeast	Northeast to CPS	CPS to CPS
N	3,547	463	261
ACT			
Top 1/3	64.4	72.6	34.5
Middle 1/3	28.6	21.8	47.1
Bottom 1/3	7.0	5.6	18.4
Mean	23.2	24.0	20.9
Barron's Selectivity			
Highly/Most Competitive	14.4	20.1	15.7
Very Competitive	12.4	36.5	30.7
Competitive	66.9	33.9	26.1
Non-Competitive	4.8	7.6	26.1
Other	1.4	1.9	1.5
Race/Ethnicity			
Asian American	2.0	9.1	8.4
Black	1.9	6.9	30.7
Hispanic	4.5	5.6	37.5
Missing	3.4	3.7	3.8
Multi-Racial	2.0	4.1	3.8
Native American	—	—	—
White	86.1	70.6	15.7
Non-Traditional Certification	9.5	22.7	17.2

Shifting demographics over time

	Overall	Teaching in Same School	Teaching in Same District or Feeder	Teaching in Same Region						
				CPS	Northeast	Northwest	West Central	East Central	Southwest	Southeast
N	7,003	286	1,609	260	3,473	414	388	330	365	190
% White	-72.5	-28.0	-36.3	-104.7	-91.5	-62.2	-54.5	-69.9	-70.0	-40.1
% African American	41.6	10.6	15.1	30.8	38.6	18.1	31.0	49.0	53.5	15.7
% Latino	49.4	18.4	24.3	18.3	69.3	48.3	39.0	46.2	28.7	34.3
% Asian	-11.5	5.8	-6.0	-61.5	-6.2	11.7	14.8	27.5	0.0	0.0
% ELL	60.2	26.1	60.1	82.9	71.3	22.9	55.9	62.5	53.7	61.1
% Low Income	110.5	74.4	79.1	125.1	105.5	105.1	135.9	131.3	134.2	149.0

Cells are shaded according to their differences from zero. Proportional Decrease



Proportional Increase



- Across all Illinois regions, teachers tend to begin their careers at schools that are more disadvantaged (especially with regard to English proficiency and poverty) than the schools from which they graduated ...
- ...and this holds true even for teachers returning to the same school from which they graduated

Summary

- Similar to existing studies, we find that new teacher labor markets are quite small geographically, even smaller for non-White teachers, and that new Illinois teachers generally begin teaching in schools that are both geographically and demographically familiar
- Despite the fact that there is substantial mobility between home & college and between college & initial teaching placement, the vast majority of the new teachers in each region were originally from that region
- Some regions (such as the Northeast and Chicago) are more open to inter-regional movement, whereas others (the Southern regions) tend to operate more as closed systems, with limited movement in or out.
- Chicago tends to under-produce new teachers and the Northeast region tends to over-produce new teachers (relative to the size of their student population).

Implications

Methodological

- Based on our findings, we question the practice of using college location as a proxy for one's home area.

Policy

- Teacher preparation programs need to continue to prepare their candidates for teaching in racially and economically diverse settings.
- Getting talented and diverse teachers into the classroom is only the first step. There needs to be concerted efforts to retain such individuals.



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