

# **“The Student Has Become the Teacher”**

## **How Stages in the Pipeline from High School to K-12 Teaching Affect the Composition of New Teachers**

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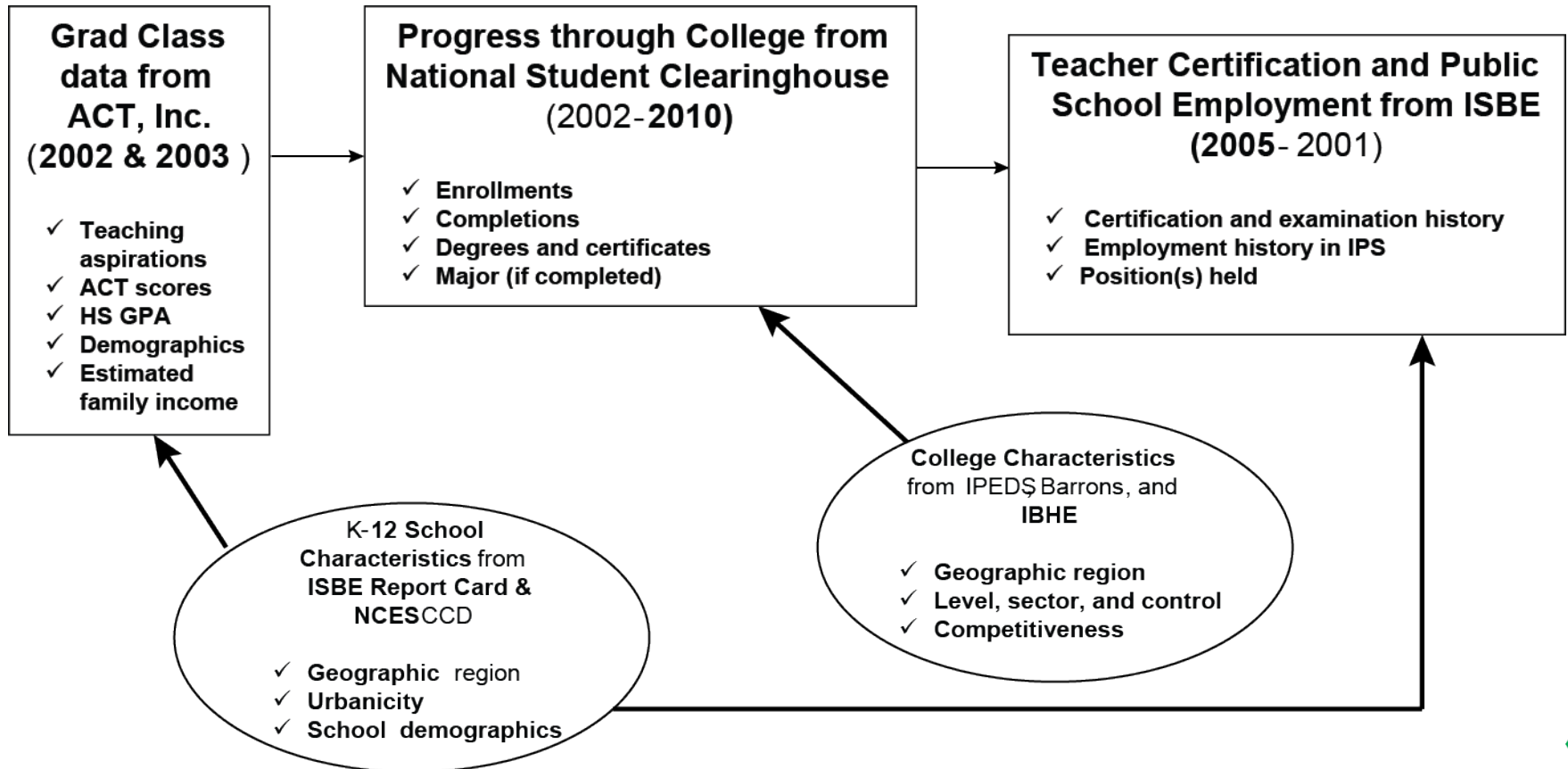
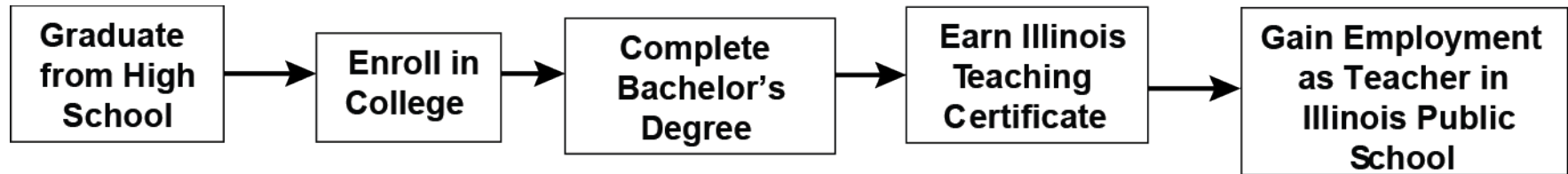
# Motivation

- Studies show that both academically skilled teachers and racial/ethnic minority teachers have positive impacts on students (see, e.g., Rice, 2003; Villegas & Irvine, 2010)
- Efforts to improve teachers' academic skills can have a negative impact on teacher diversity (Lewis et al., 2010).
  - In a previous study of new teacher cohorts in Illinois (DeAngelis & Presley, 2007), we found an overall increase in academic skills, but an overall decline in racial/ethnic diversity, particularly in Chicago

# Purpose

- To examine how stages in the pipeline from high school through college to initial certification and employment affect the characteristics of those who enter the profession, with a focus on:
  - racial/ethnic diversity
  - academic skills
- To inform the design of policies and/or practices to improve the supply of academically skilled, racially/ethnically diverse individuals into teaching

# Stages in the Pipeline



# Research Questions Addressed in this Presentation

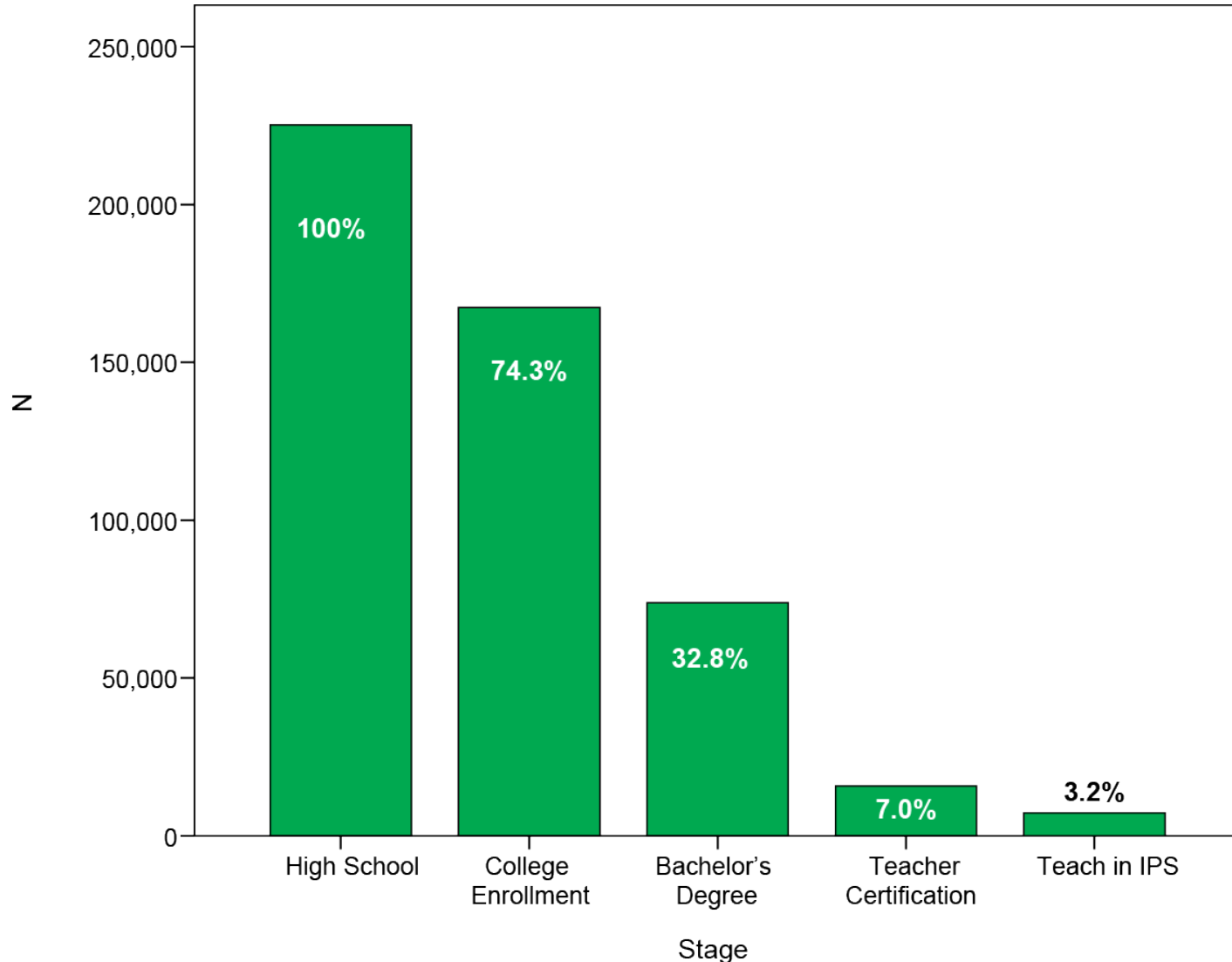
- In high school, who aspires to become a teacher and how are their racial/ethnic and academic characteristics different from those who do not aspire to teach?
- As students advance through the pipeline from high school through college and teacher certification into teaching, how do their academic and racial/ethnic compositions change at each step?
  - To what extent does each step in the pipeline impact Illinois' ability to attract an academically skilled, diverse teaching force?
- What proportion of high school students eventually becomes teachers and how are their racial/ethnic and academic characteristics different from those who do not become teachers?

# Methods

1. We use simple descriptive and inferential statistics to examine and compare the characteristics of aspirants and non-aspirants at each stage of the pipeline.
2. We use logistic regression to examine the unique roles of race/ethnicity and academic preparation, as well as their interaction, at each stage.
3. We build on other research (incl. Vegas et al., 2001) by:
  - using more recent (post-NCLB) data;
  - examining additional stages in the pipeline, including high school aspirations, type of college attended, and attainment of teacher certification; and
  - considering differences in the pipeline by geographic region and locale type.

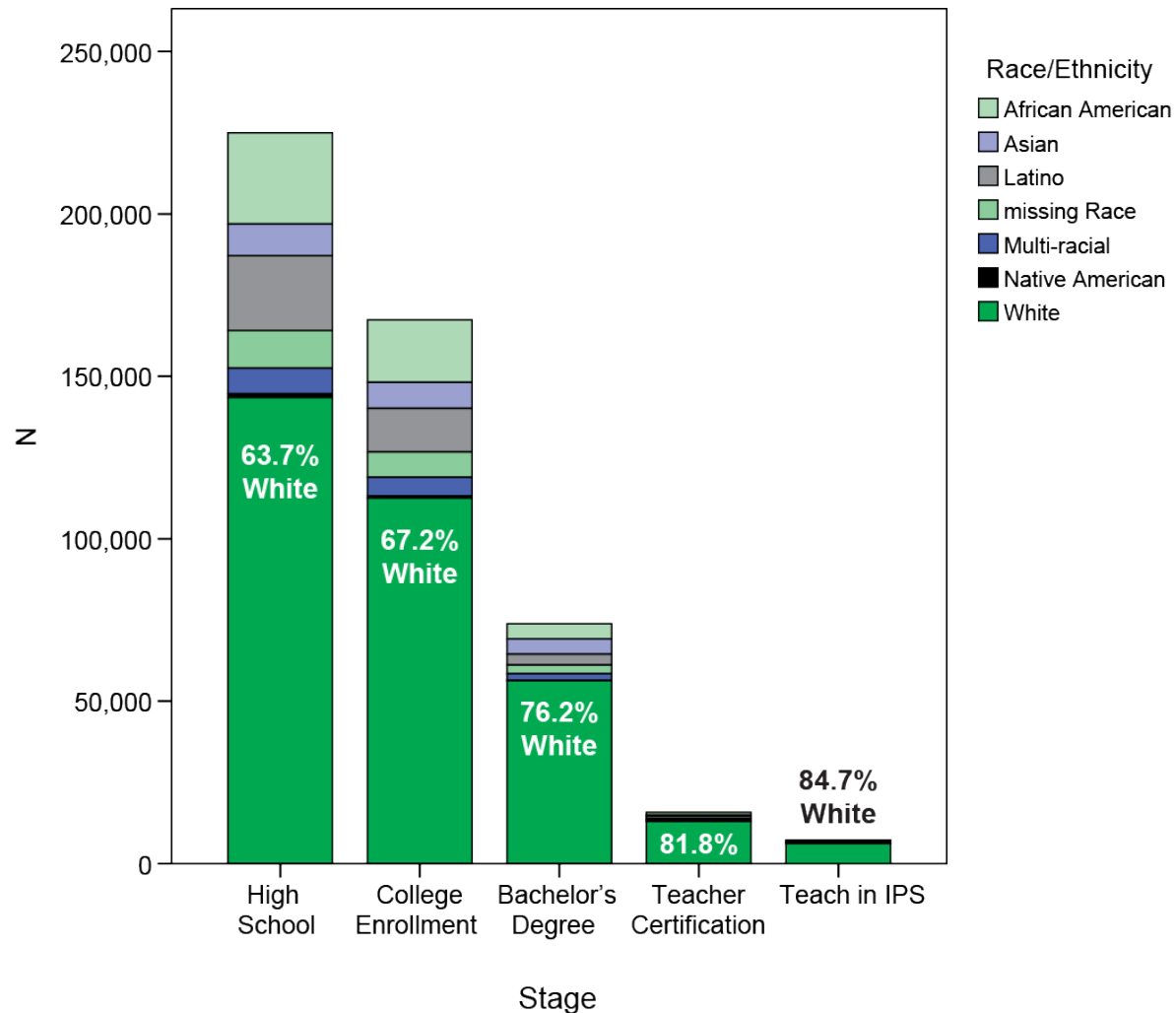
Results so far...

# What proportion of students progress through each stage of the pipeline?

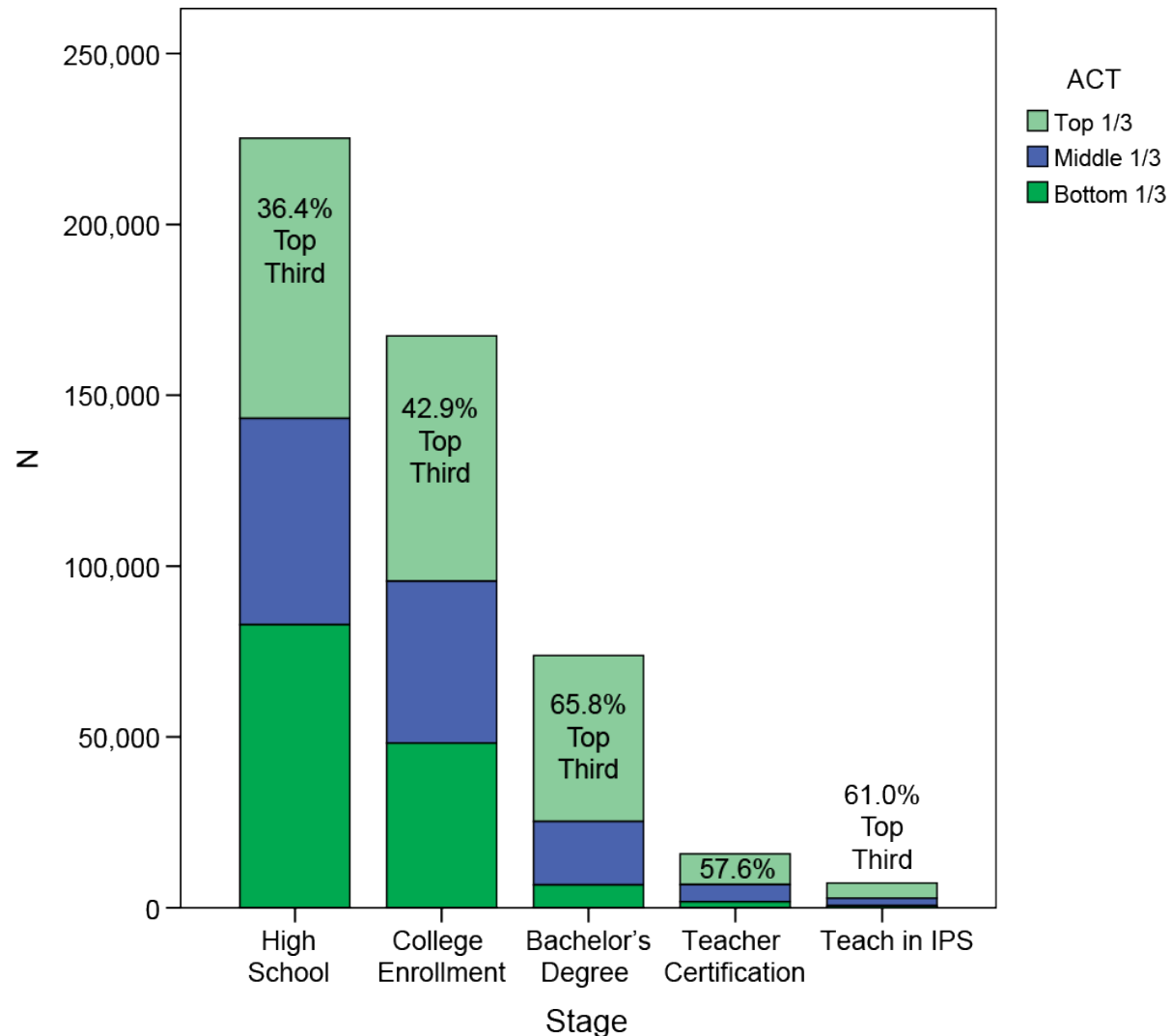




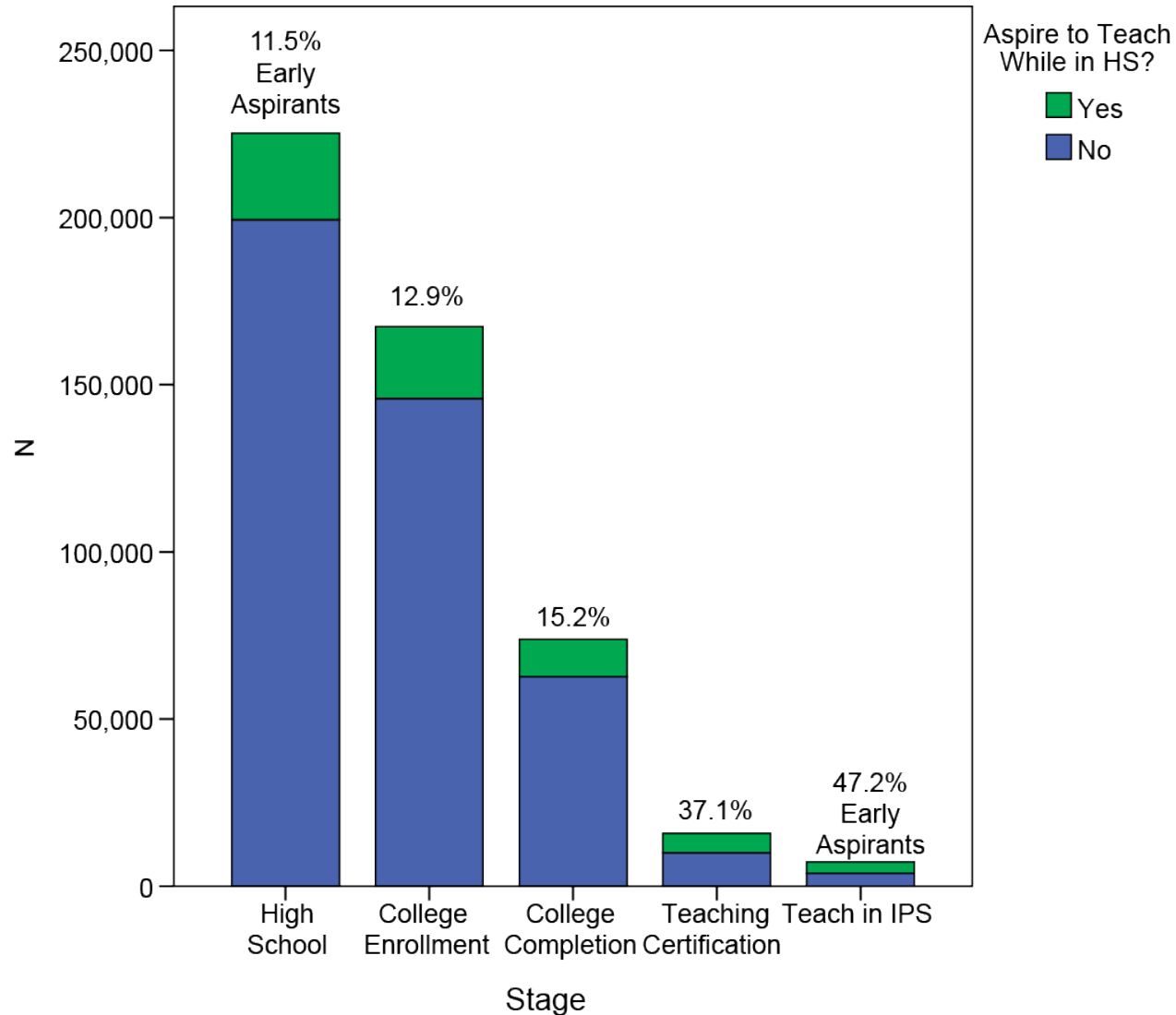
# How does the composition of the pipeline change at each stage? (by race/ethnicity)



# How does the composition of the pipeline change at each stage? (by ACT)



# How does the composition of the pipeline change at each stage? (by aspirant status)



# Who aspires to teach while in HS?

<b>All Students</b>		<b>11.5%</b>
Gender	Male	6.5%
	Female	16.3%
Race/ Ethnicity	African American	6.6%
	Asian	6.4%
	Latino	8.3%
	Multi-racial	9.7%
	Native American	10.6%
	White	13.9%
	Missing	5.8%
ACT	Bottom 1/3 ( $\leq 17$ )	8.7%
	Middle 1/3	13.4%
	Top 1/3 ( $\geq 22$ )	12.9%
Geographic Region	Chicago	6.2%
	Northeast (non-Chicago)	12.8%
	Northwest	11.7%
	East Central	11.7%
	West Central	11.6%
	Southeast	12.1%
	Southwest	12.1%

# How did different groups progress through the pipeline?

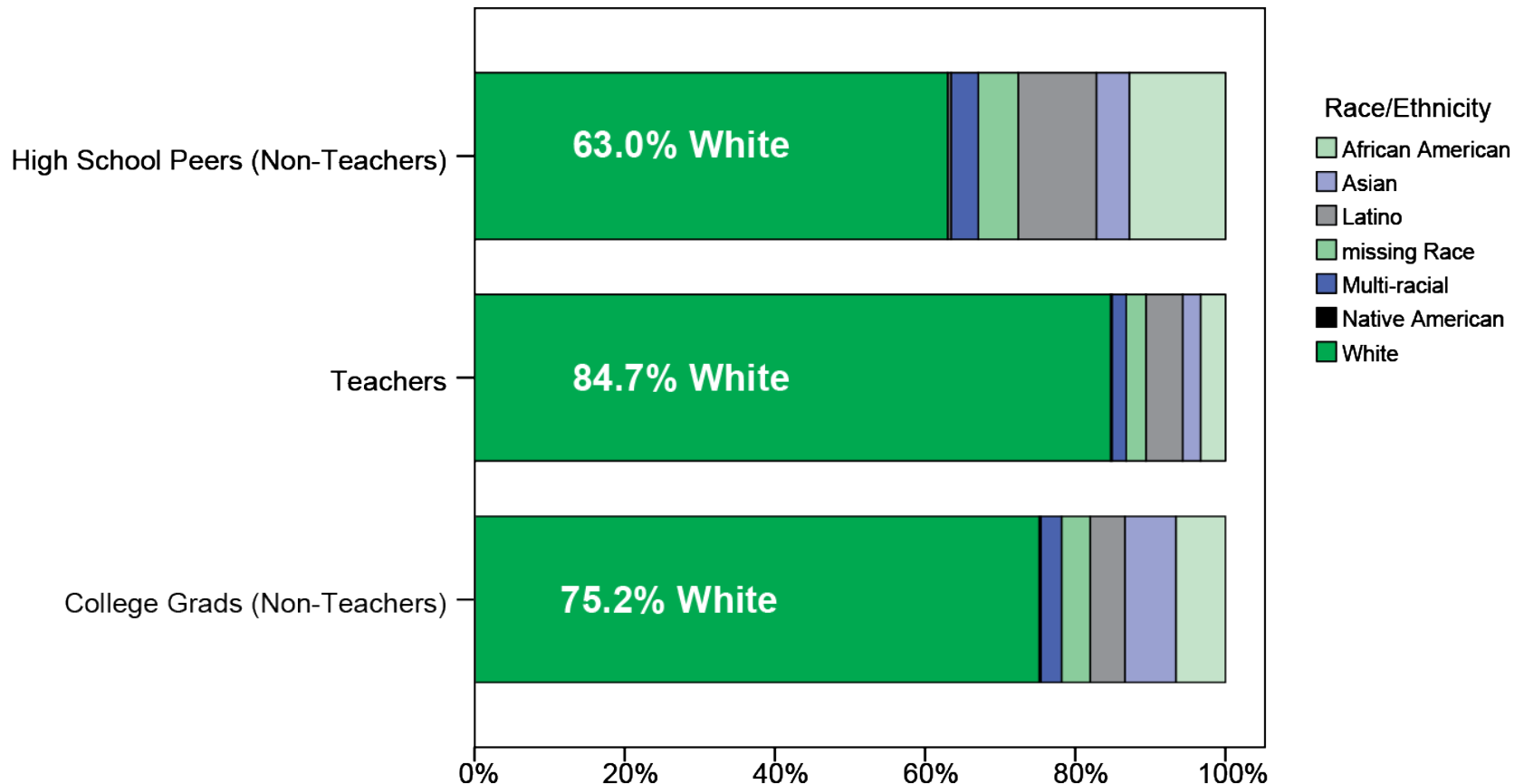
		% of High Schoolers Enrolling in College	% of College-Goers Completing a Bachelor's	% of BA Recipients Certified to Teach in IPS	% of Certificants Becoming a Teacher in IPS
<b>All Students</b>		74.3	44.1	21.4	45.5
<b>Gender</b>	Male	70.8	40.2	14.3	37.1
	Female	77.7	47.4	26.7	48.7
<b>Race/ Ethnicity</b>	African American	68.2	24.2	18.9	27.0
	Asian	83.0	58.2	8.9	41.1
	Latino	58.4	25.4	20.5	50.2
	Multi-racial	70.9	35.4	17.5	38.4
	Native American	56.1	20.8	25.6	33.3
	White	78.4	50.0	23.0	47.1
	Missing	66.8	34.3	18.5	38.2
<b>ACT</b>	Bottom 1/3 (<= 17)	58.0	13.8	26.3	31.4
	Middle 1/3	78.7	39.3	26.7	45.4
	Top 1/3 (>= 22)	87.6	67.6	18.8	48.2
<b>Geographic Region</b>	Chicago	61.3	26.5	16.1	38.4
	Northeast (non-Chicago)	78.2	51.5	20.6	47.8
	Northwest	71.5	40.0	24.1	46.6
	East Central	75.0	41.0	22.6	41.9
	West Central	73.0	42.6	23.2	43.4
	Southeast	78.5	32.6	29.9	40.1
	Southwest	75.2	37.4	24.3	40.2
<b>Aspirant in HS</b>	Yes	83.3	52.0	52.3	58.0
	No	73.2	42.9	15.9	38.2



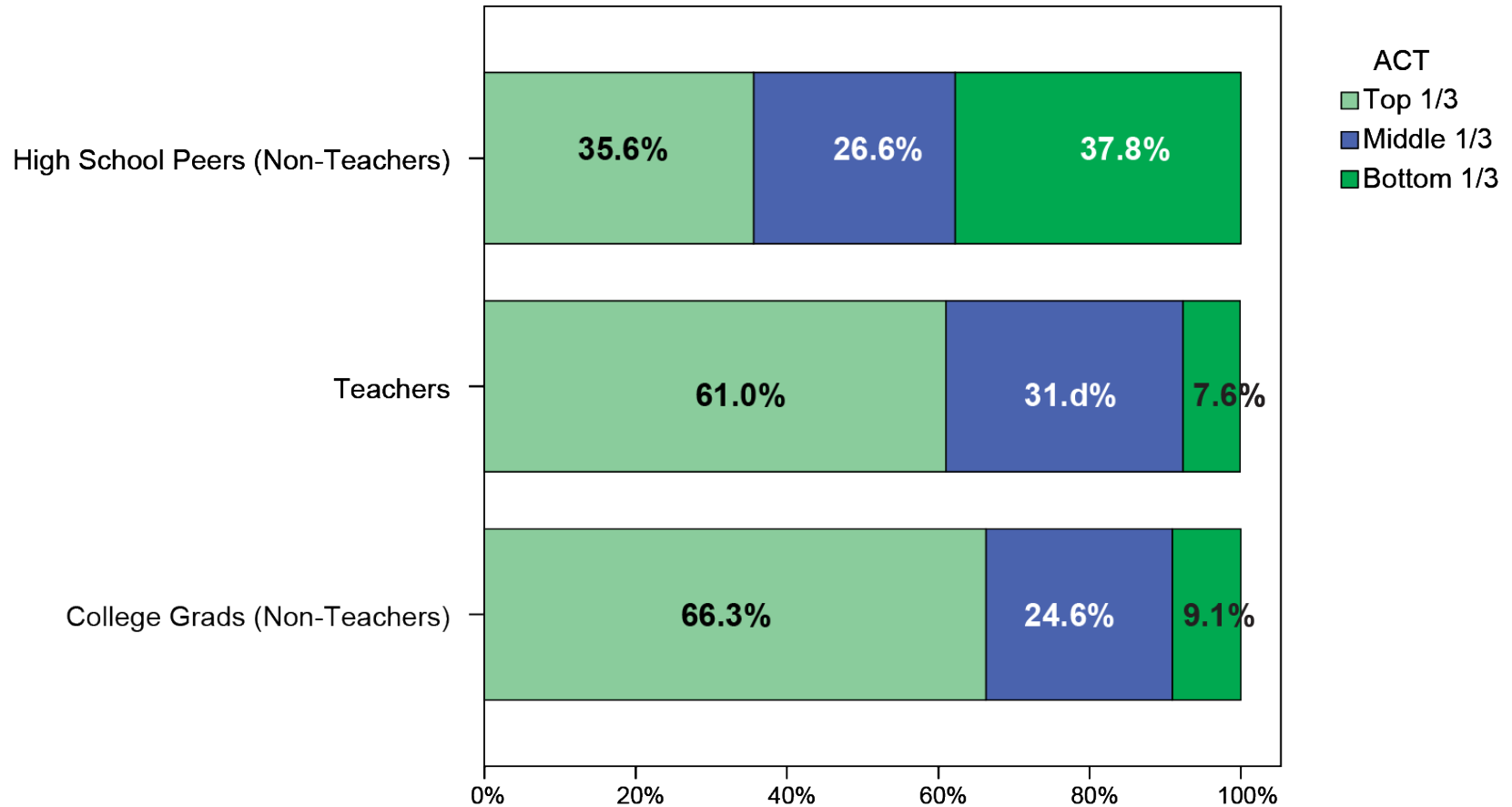
# Who eventually teaches in IPS?

<b>All Students</b>		<b>3.2%</b>
Gender	Male	1.5%
	Female	4.8%
Race/ Ethnicity	African American	0.9%
	Asian	1.8%
	Latino	1.5%
	Multi-racial	1.7%
	Native American	1.0%
	White	4.3%
	Missing	1.6%
ACT	Bottom 1/3 ( $\leq 17$ )	0.7%
	Middle 1/3	3.7%
	Top 1/3 ( $\geq 22$ )	5.4%
Geographic Region	Chicago	1.0%
	Northeast (non-Chicago)	4.0%
	Northwest	3.2%
	East Central	2.9%
	West Central	3.1%
	Southeast	3.1%
	Southwest	2.7%

# How did those who became teachers differ from those who did not? (by race/ethnicity)

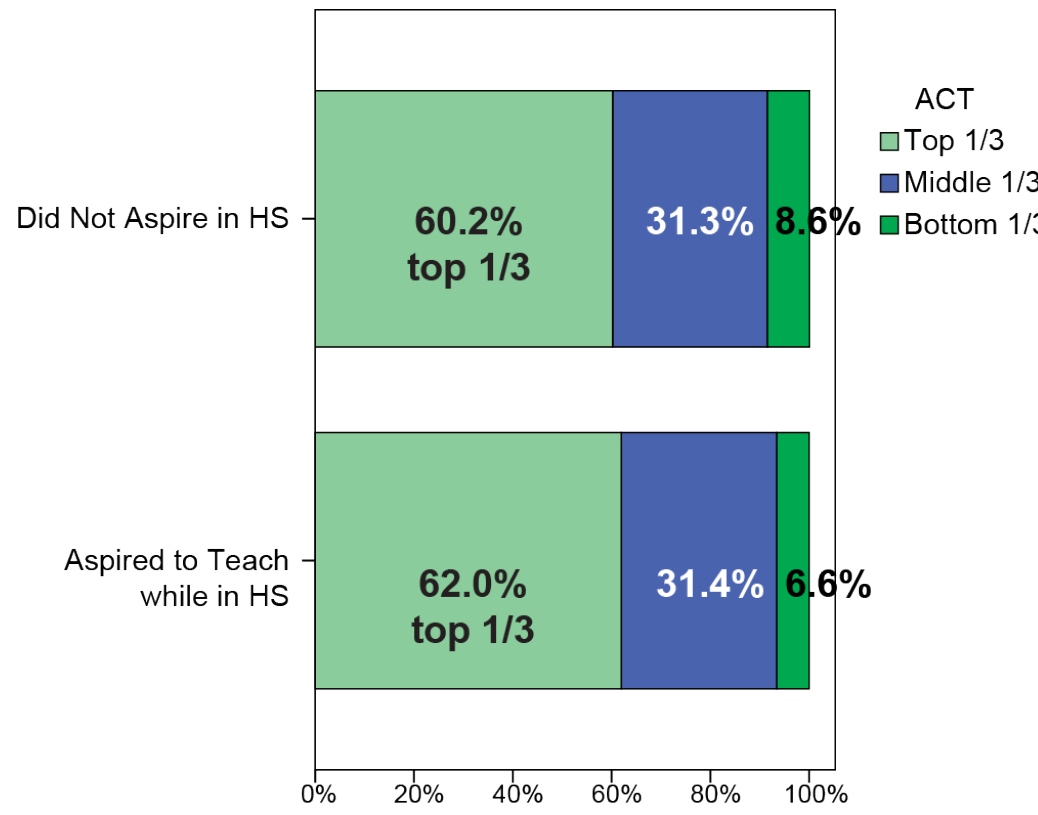
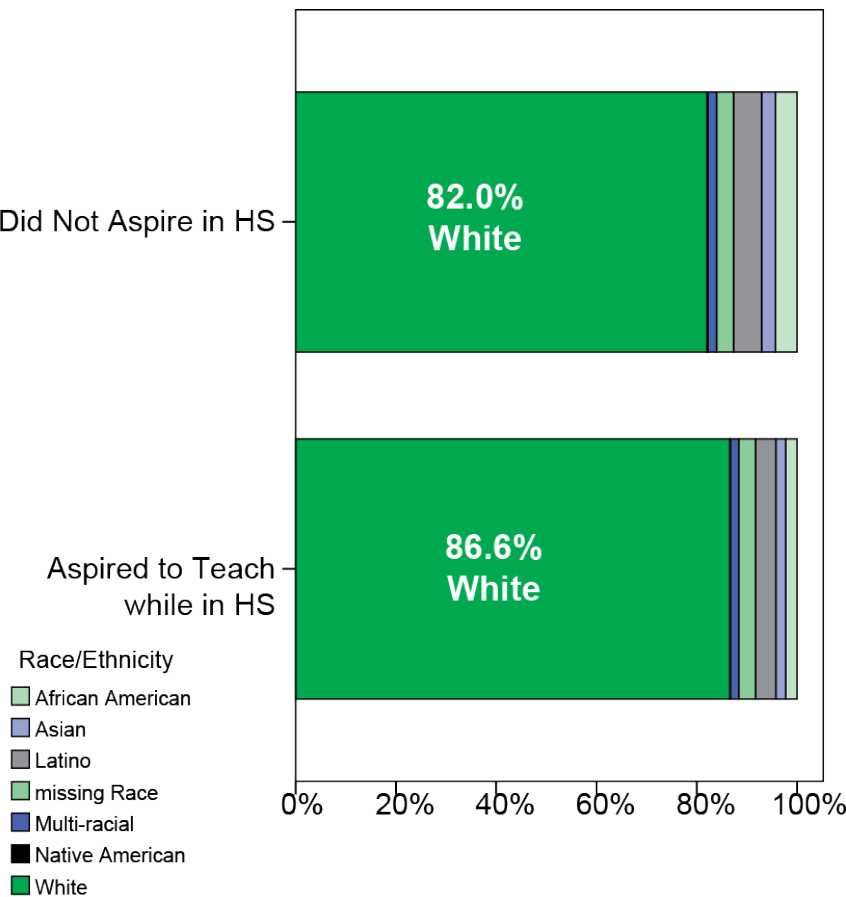


# How did those who became teachers differ from those who did not? (by ACT)





# Of those who became teachers, how did those who aspired to teach while in HS differ from those who did not?



# Combining Race/Ethnicity and ACT: Predicted Probabilities by Stage for Overall Sample

	ACT Composite Score				
	13	16	19	24	27
<i>Aspired to Teach While in High School</i>					
African American	6.3	6.6	6.9	7.3	7.6
Asian	6.1	6.2	6.3	6.4	6.5
Latino	7.0	7.9	8.9	11.0	12.4
Native American	8.0	9.7	11.7	15.7	18.6
White	13.2	13.5	13.7	14.1	14.4
<i>Enrolled in College (2-year or 4-year)</i>					
African American	56.4	69.4	80.0	91.1	94.7
Asian	68.8	75.0	80.3	87.2	90.3
Latino	42.1	56.4	69.7	85.7	91.4
Native American	43.1	54.3	65.1	79.8	86.1
White	55.7	66.3	75.4	86.5	90.9
<i>Earned BA Degree (conditional on having enrolled in college)</i>					
African American	8.8	17.4	31.3	62.4	78.3
Asian	17.4	28.7	43.5	69.4	81.2
Latino	7.8	15.0	26.7	55.1	71.8
Native American	4.5	9.3	18.4	45.5	64.6
White	12.5	21.7	34.9	61.7	75.7
<i>Earned Teaching Certification (conditional on having earned a BA degree)</i>					
African American	25.1	22.0	19.1	15.0	13.0
Asian	14.9	13.0	11.3	8.9	7.7
Latino	25.2	23.3	21.5	18.8	17.3
Native American	-	-	25.5	25.6	-
White	40.3	34.9	29.9	22.6	18.8
<i>Became IPS Teacher (conditional on having earned teaching certification)</i>					
African American	14.4	19.9	26.9	41.3	51.0
Asian	-	35.8	37.9	41.6	43.9
Latino	48.1	49.0	50.0	51.6	52.5
Native American	-	-	-	-	-
White	41.7	43.4	45.0	47.7	49.4

Note: - indicates cells with a sample size of less than 10.



# Conclusions #1

- Only a very small percentage of high school students become public school teachers and those that do differ somewhat in terms of their demographic and academic background characteristics.
  - Across two high school cohorts in Illinois, just 3.2% of the students went on to become teachers in the state within roughly 10 years of graduating high school
  - The students who became teachers were less racially/ethnically diverse but tended to have higher ACT scores compared to the high school cohorts from which they came
  - They also were less racially/ethnically diverse but tended to have similar ACT scores compared to their peers who completed bachelor's degrees

# Conclusions #2

- The compositional changes by race/ethnicity and academic qualifications occur to a greater or lesser extent at each stage of the pipeline.
  - Beginning at least in high school, smaller proportions of non-white students and students from the top 1/3 of the ACT distribution indicated an aspiration to pursue education as a college major or potential career choice
  - College enrollment and Bachelor's degree completion continued to have a negative impact on racial/ethnic minority representation, in part due to the stronger academic preparation required at those stages

# Conclusions #3

- However, differences in academic preparation across racial/ethnic groups explain only part of the declining representation of minority individuals along the pipeline.
  - Controlling for academic preparation, we found that minority students, particularly from some ethnic groups and from the lower range of the ACT distribution (where the majority of such students were found) were less likely to aspire to teach and to earn teaching certification compared to white students with similar ACT scores
  - This suggests that other factors besides academic preparation have an impact on the relatively low minority representation of new public school teachers in Illinois.

# Next Steps

- Traditional vs. alternative certification
- In-state vs. out-of-state college
- College pathways (2-year vs. 4-year) and transfers
- Geographic region of the state
- Future studies:
  - Adding employment outside of IPS
  - Focus on specific (high-need) content areas and schools?

# Contact Info

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