



Illinois Education Research Council

Examining Teacher Quality and College Readiness in Illinois

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What the research tells us about teacher quality and student outcomes

- Selectivity of teacher's baccalaureate college
 - *proxy for teacher's academic performance*
- Years of teaching experience
- Teacher test scores
 - *particularly for at-risk students*
- Advanced subject-specific degrees
 - *evidence limited to high school math and science*
- Subject-specific teacher certification
 - *evidence strongest for high school math*



Getting the Data

- *State Teacher Service Records and Teacher Certification Information System – 140,000 teachers in public schools in 2002-2003*
- *ACT Inc.*
- *Barron's Guide, for college competitiveness*
- *Common Core of Data (NCES)*
- *Illinois School Report Cards*



Creating the Teacher Quality Index (TQI)

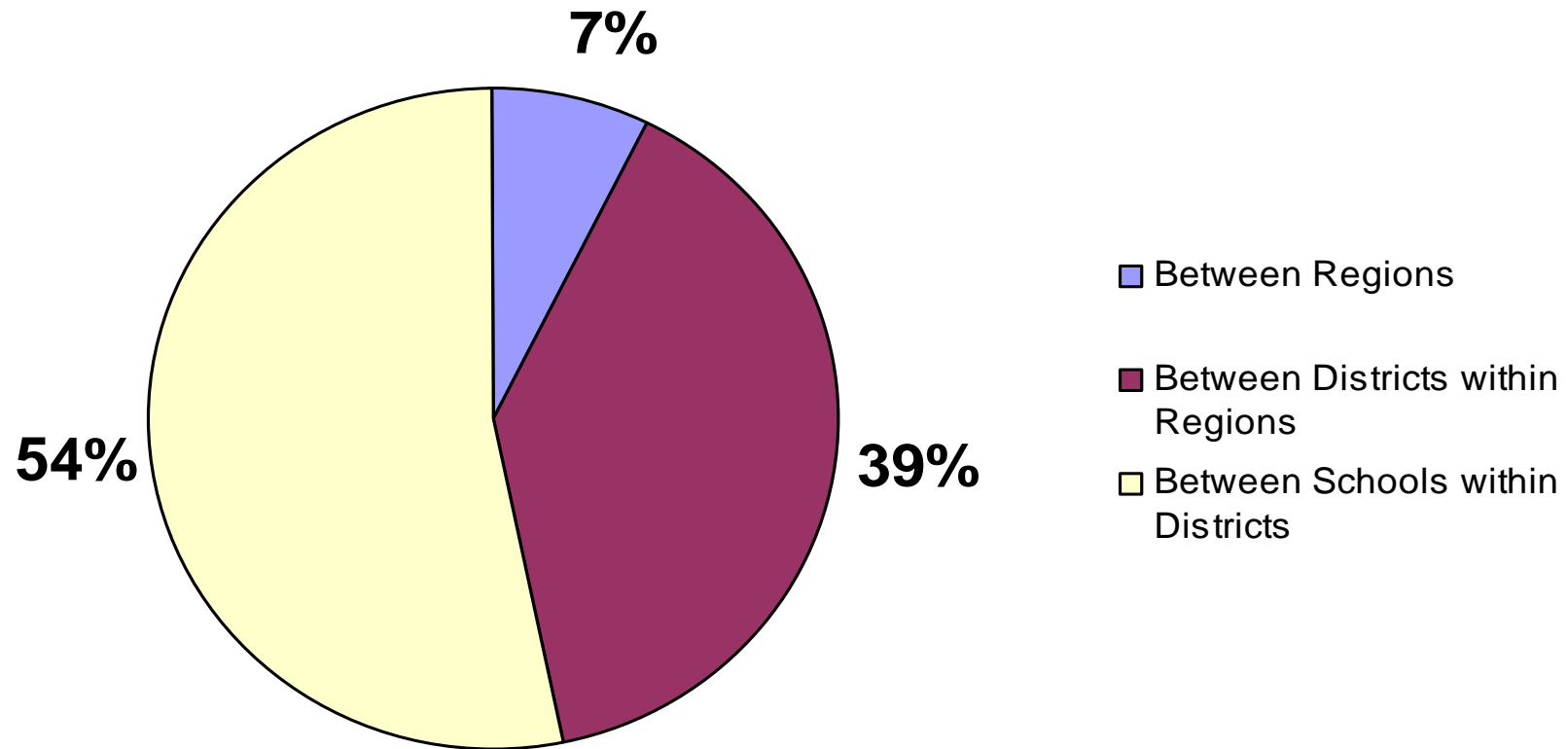
Note that weights are generated by Principal Components Analysis

<u>School Level Teacher Characteristics</u>	<u>Weight</u>
Teachers' Average ACT Composite Scores	0.861
Teachers' Average ACT English Scores	0.859
% of Teachers Failing Basic Skills Test on First Attempt	-0.691
% of Teachers with Emergency/Provisional Certification	-0.577
Teachers' Average College Competitiveness Ranking	0.520
% of Teachers with 3 or Fewer Years' Experience	-0.044





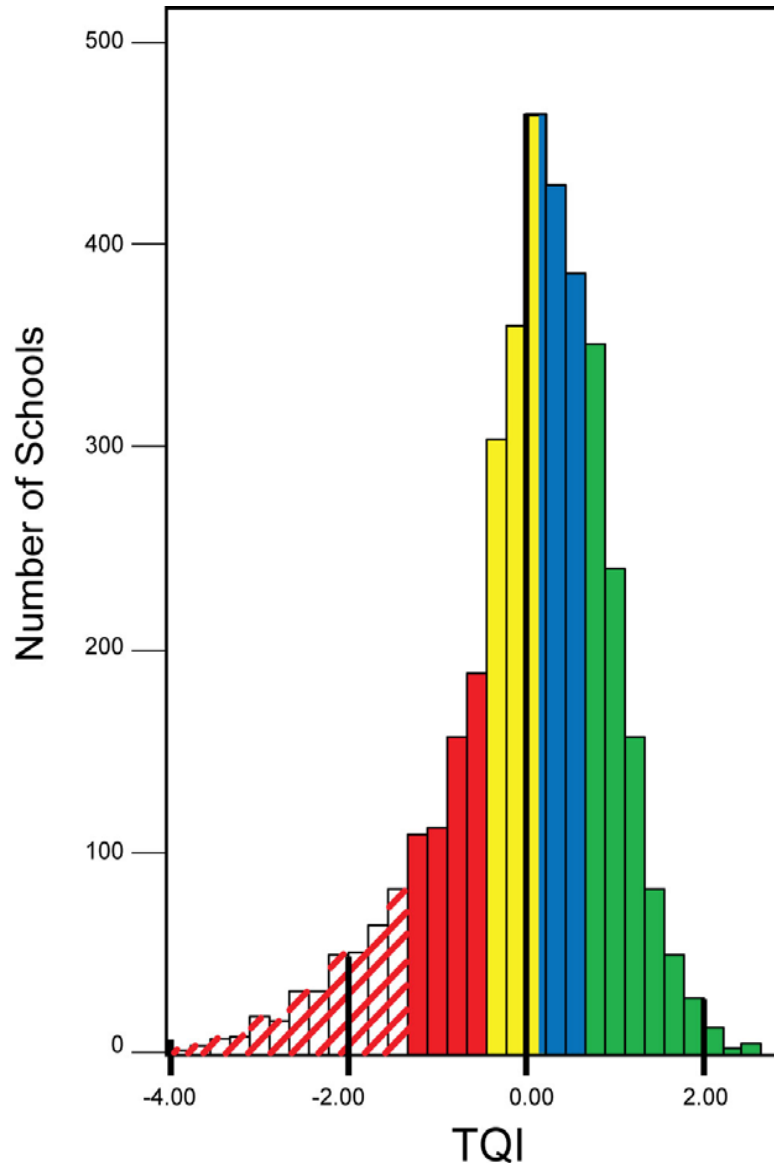
Sources of Variance in School TQI



- *Differences between schools within the same district are the biggest contributor to variation in TQI scores*



Distribution of School TQI

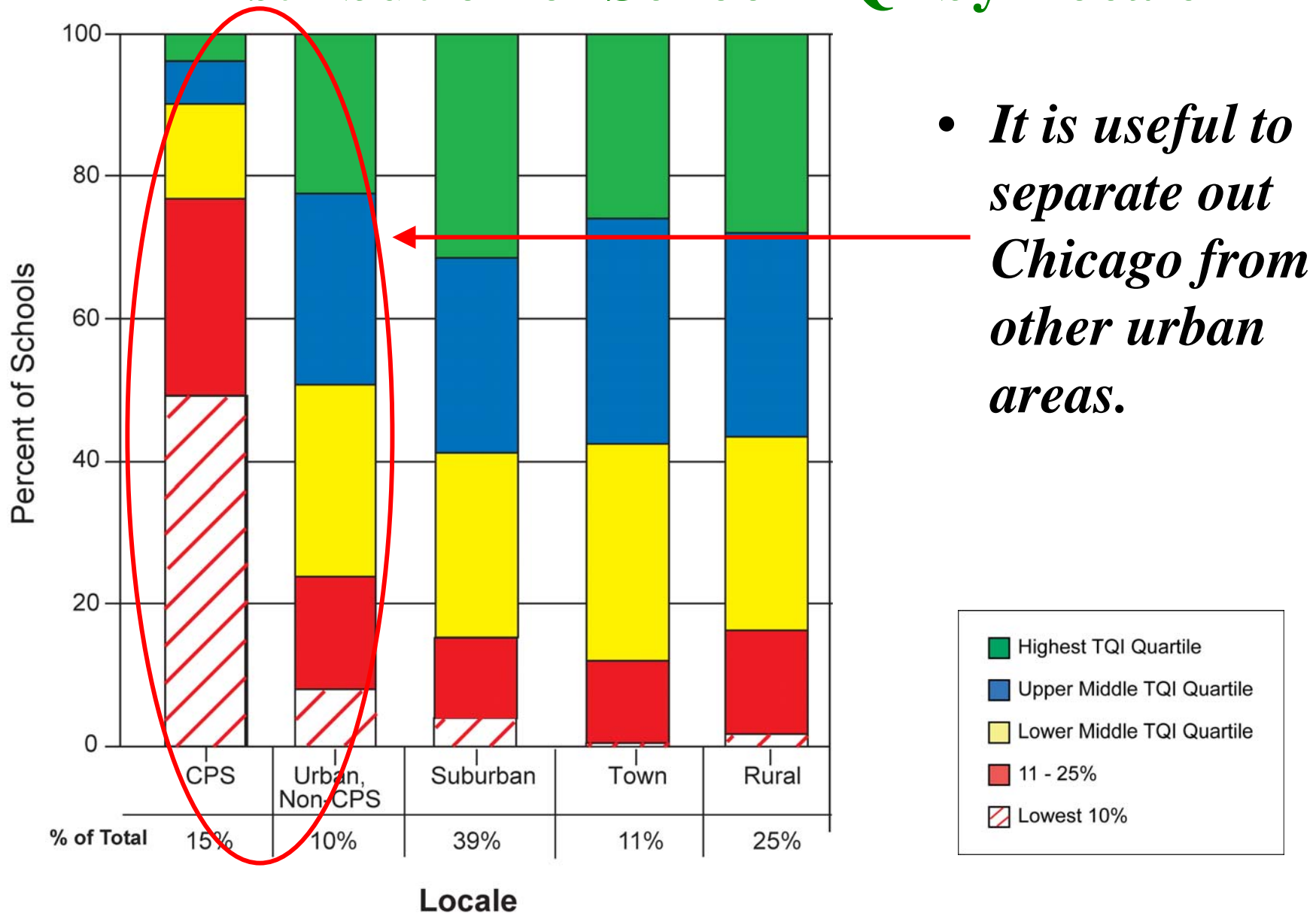


- TQI was standardized with a statewide mean of 0.0 and a s.d. of 1.0.
- We divided all schools in the state into four statewide quartiles, based on their TQI. The quartiles (and lowest 10%) are shown in the four colors in the graph.
- For some analyses, we divided just CPS schools into four equal quartiles based on their TQI to allow for deeper examination.
- Finally, for the high school analysis, we divided just high schools into four equal quartiles.

Average TQI by Quartile					
	Lowest Quartile		Lower Middle	Upper Middle	Highest
	0-10%	11-25%			
Statewide Quartiles	-2.1	-0.8	-0.1	0.4	1.1
CPS Quartiles	-3.1	-2.3	-1.6	-1.0	0.1
All High Schools Quartiles	-1.3	-0.2	0.3	0.8	1.4



Distribution of School TQI by Locale





What the average CPS school looks like, by CPS-Specific TQI quartile

TQI Component	Lowest Quartile		Lower Middle Quartile	Upper Middle Quartile	Highest Quartile
	0-10%	11-25%			
Teachers' average ACT composite score	17.3	18.1	18.6	19.8	21.6
Teachers' average ACT English score	17.5	18.3	19.1	20.2	22.2
% of teachers who failed the Basic Skills Test on first attempt	23.2%	16.9%	12.2%	8.9%	5.4%
% of teachers with emergency or provisional credentials	18.0%	11.6%	8.2%	6.3%	4.4%
Teachers' average undergraduate college competitiveness ranking	2.8	2.8	2.9	3.0	3.2
% of teachers with 3 or fewer years of teaching experience	16.6%	17.7%	17.0%	17.6%	18.4%
<i>Number of schools</i>	55	83	139	139	139
<i>Average TQI</i>	-3.1	-2.3	-1.6	-1.0	0.1
<i>Average % of students meeting/exceeding ISAT standards</i>	29.6%	30.3%	37.1%	41.6%	57.0%
<i>Average % of students meeting/exceeding PSAT standards</i>	**	**	10.7%	12.0%	31.7%

** Insufficient number of CPS high schools in these TQI quartiles to compute



What the average non-CPS school looks like, by statewide TQI quartile

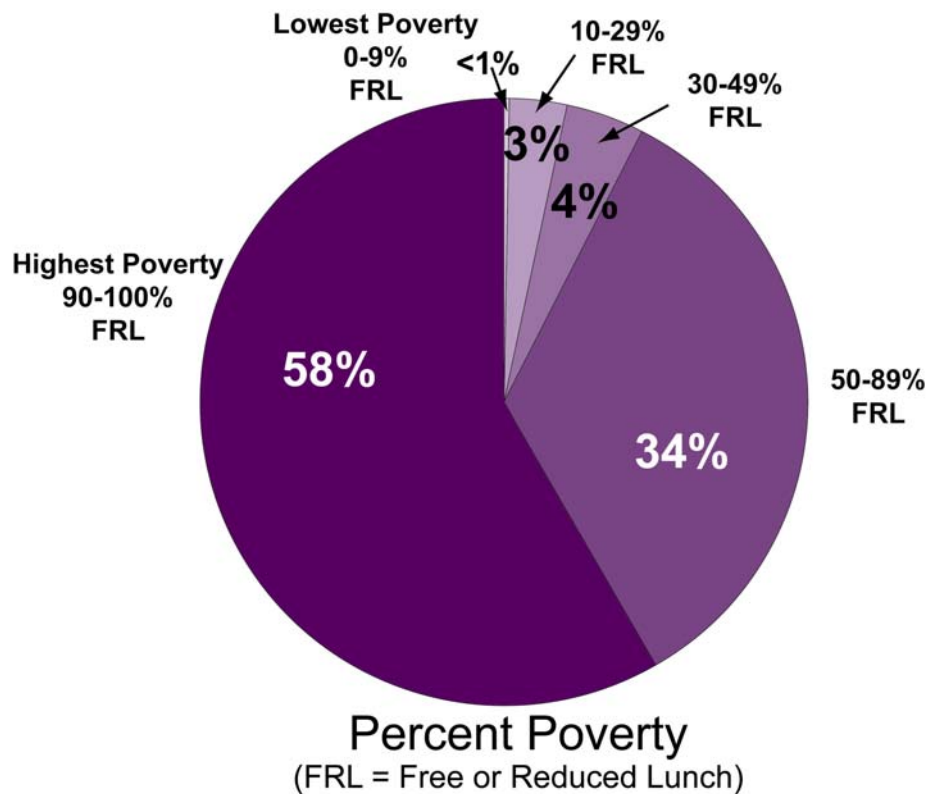
TQI Component	Lowest Quartile		Lower Middle Quartile	Upper Middle Quartile	Highest Quartile
	0-10%	11-25%			
Teachers' average ACT composite score	18.2	19.5	20.6	21.6	23.1
Teachers' average ACT English score	18.2	19.8	21.2	22.2	23.7
% of teachers who failed the Basic Skills Test on first attempt	16.5%	5.5%	2.3%	1.1%	0.6%
% of teachers with emergency or provisional credentials	6.9%	2.0%	0.9%	0.6%	0.3%
Teachers' average undergraduate college competitiveness ranking	2.7	2.9	3.0	3.1	3.3
% of teachers with 3 or fewer years of teaching experience	19.7%	18.5%	17.8%	17.2%	16.4%
<i>Number of schools</i>	<i>107</i>	<i>420</i>	<i>880</i>	<i>921</i>	<i>933</i>
<i>Average TQI</i>	<i>-2.1</i>	<i>-0.8</i>	<i>-0.1</i>	<i>0.4</i>	<i>1.1</i>
<i>Average % of students meeting/exceeding ISAT standards</i>	<i>49.7%</i>	<i>60.7%</i>	<i>66.6%</i>	<i>70.6%</i>	<i>75.5%</i>
<i>Average % of students meeting/exceeding PSAE standards</i>	<i>**</i>	<i>43.5%</i>	<i>49.3%</i>	<i>54.1%</i>	<i>60.7%</i>

*** Insufficient number of non-CPS high schools in this TQI quartile to compute*

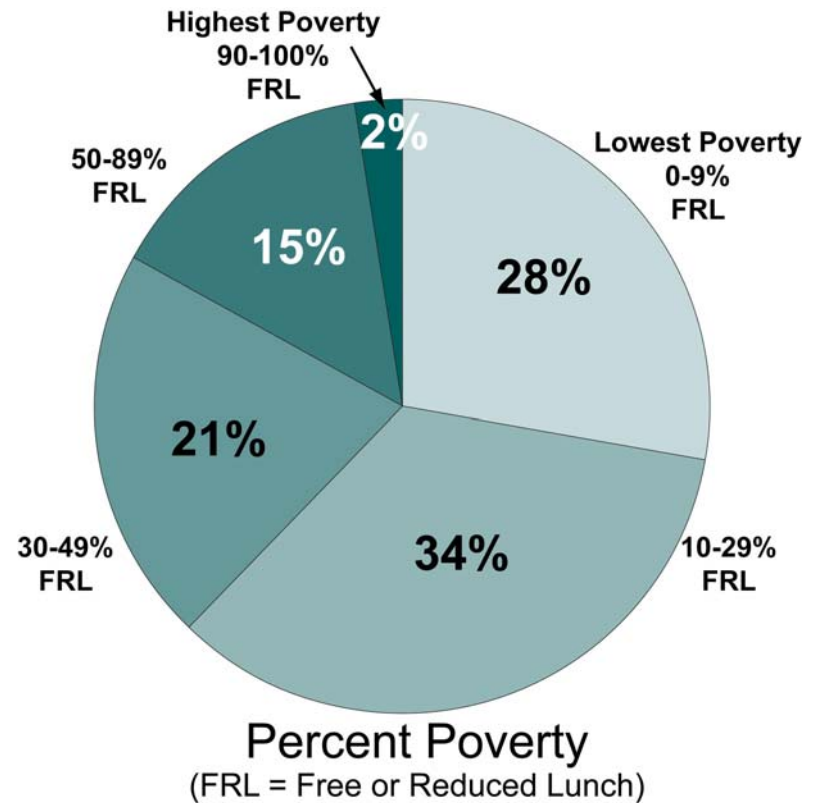


How Chicago (CPS) and non-Chicago schools are distributed by percent poverty

Chicago



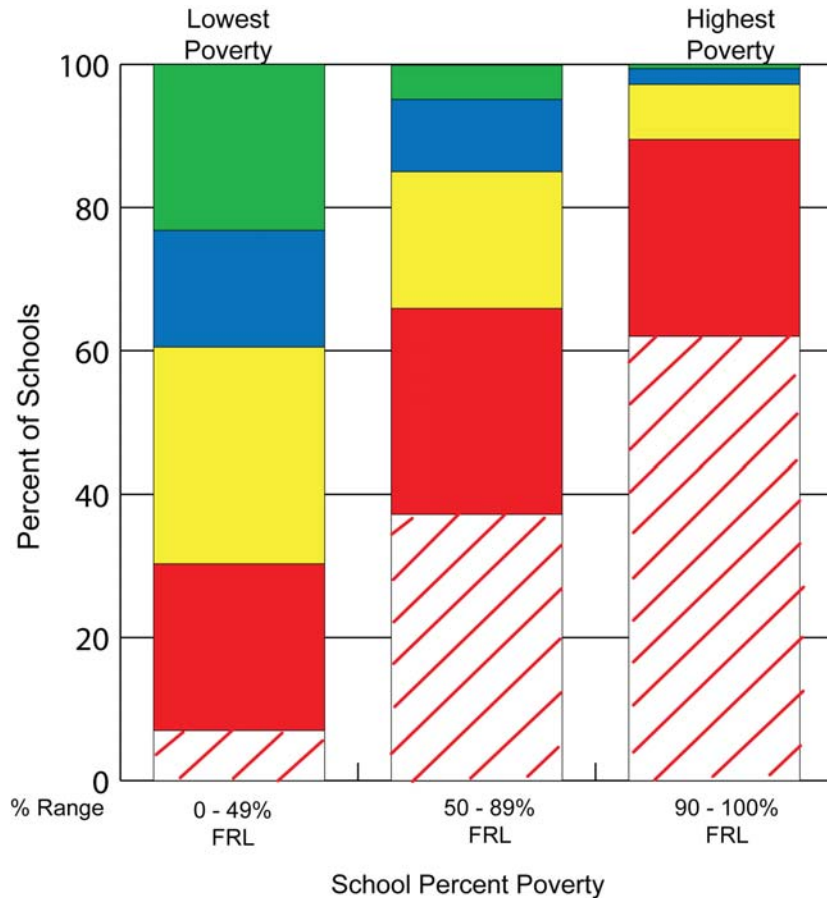
Non-Chicago



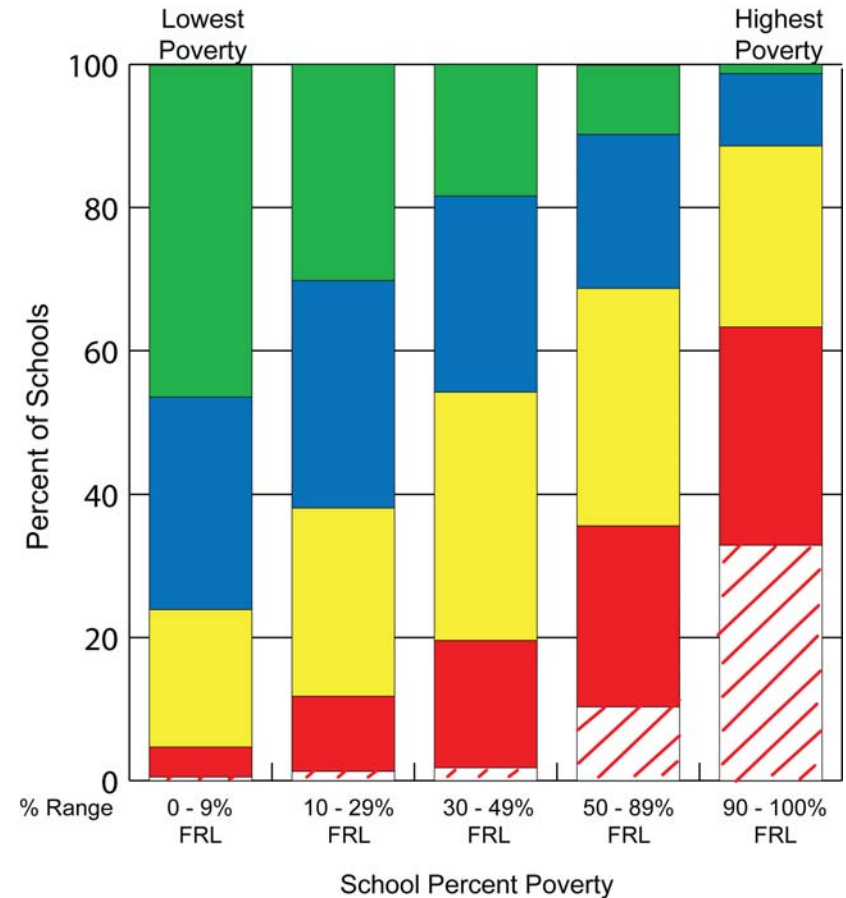


TQI by School Percent Poverty

Chicago



Non-Chicago



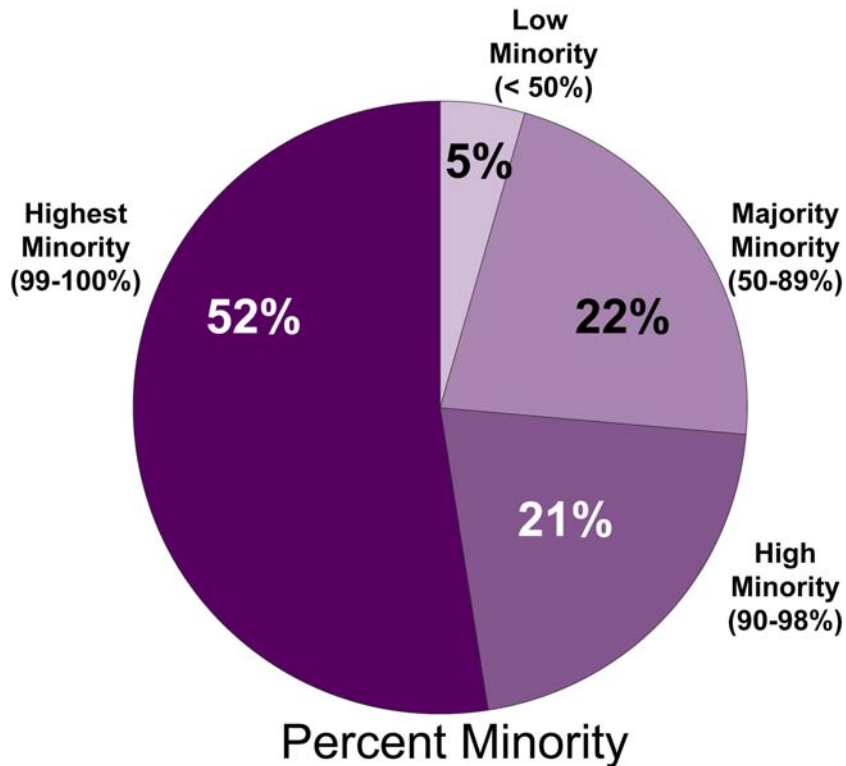
- Within CPS, the trend is the same, but with lower TQIs overall.*

- TQI is related to school poverty.*

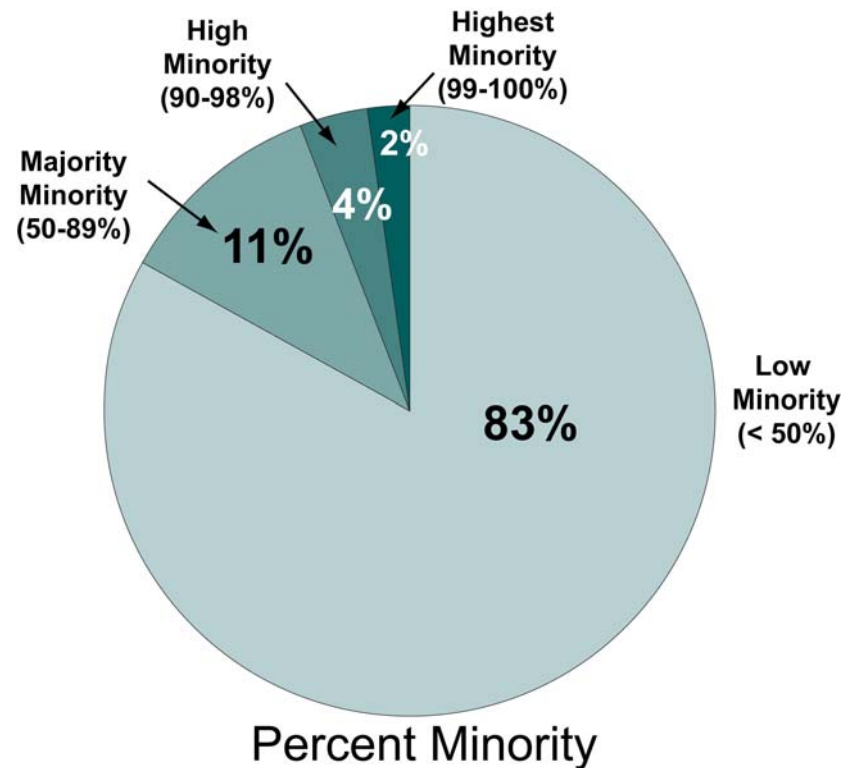


How Chicago (CPS) and non-Chicago schools are distributed by percent minority

Chicago



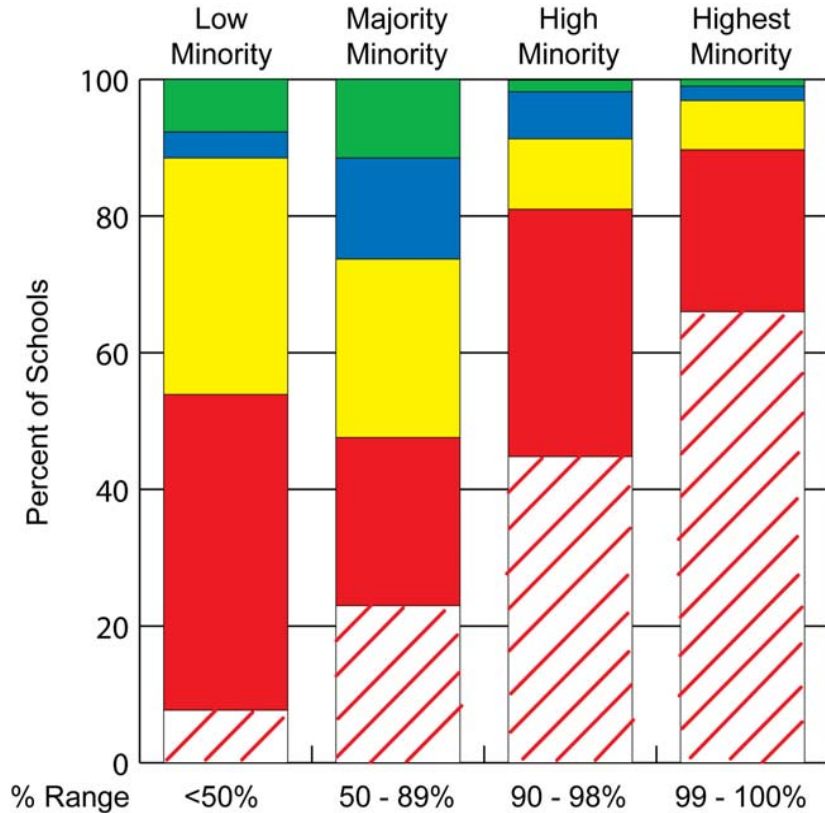
Non-Chicago





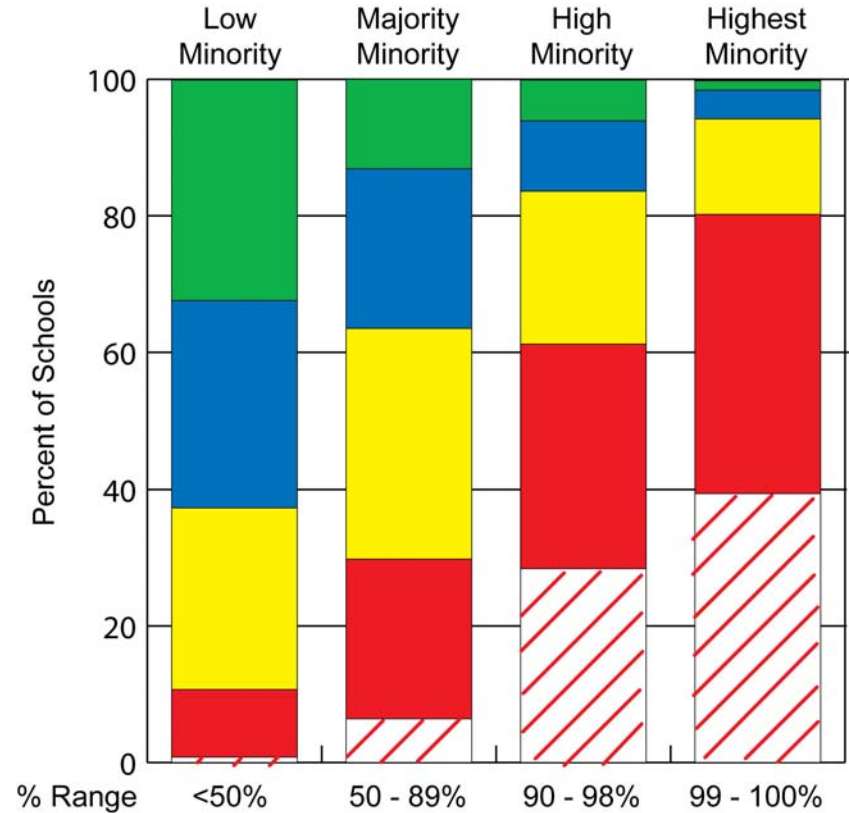
TQI by School Percent Minority

Chicago



- Within CPS, the trend is the same, but with lower TQIs overall.*

Non-Chicago



- TQI is related to school percent minority.*



Average School TQI by School Percent Minority Plus Percent Poverty

Minority Category	Poverty Category					
	Lowest Poverty 0 - 9% FRL	10 - 29% FRL	30 - 49% FRL	50 - 89% FRL	Highest Poverty 90 - 100% FRL	Total
Low minority	0.58	0.34	0.13	-0.04	—	0.35
Majority minority	-0.03	0.13	-0.09	-0.34	-0.65	-0.23
High minority	—	—	-0.93	-0.88	-1.37	-1.08
Highest minority		—	—	-1.40	-1.69	-1.60
Total	0.57	0.32	0.08	-0.48	-1.51	0.00

—= fewer than 10 schools

- *Low-minority/low-poverty schools have the highest TQIs.*
- *Highest-minority/highest-poverty schools have the lowest TQIs.*



School Performance by TQI

Elementary Schools

High Schools

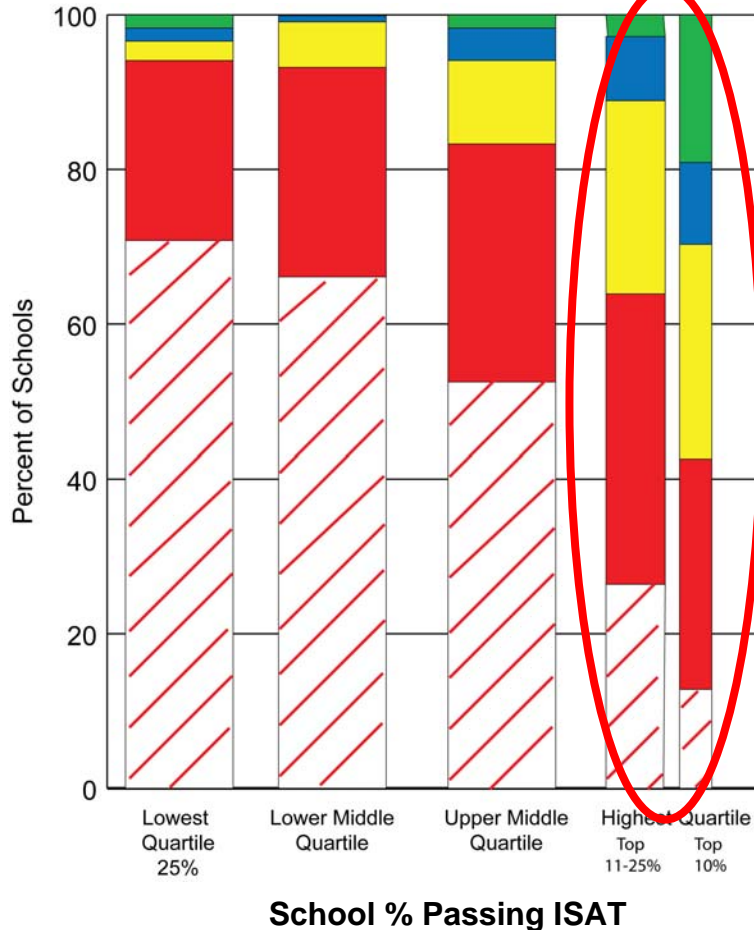
TQI Quartile	Percent Meeting/Exceeding ISAT Standard		Percent Meeting/Exceeding PSAE Standard	
	Lowest Poverty (<10%) Low Minority (<50%) LL	Highest Poverty (≥ 90%) Highest Minority (≥ 99%) HH	Lowest Poverty (<10%) Low Minority (<50%) LL	Highest Poverty (≥ 50%) Highest Minority (≥ 90%) HH
Highest	84%	– (N=2)	66%	– (N=1)
Middle High	80%	– (N=2)	60%	25%
Middle Low	79%	37%	58%	18%
Lowest 11-25%	78%	30%	– (N=1)	10%
Lowest 10%	– (N=4)	30%	– (N=0)	11%
Point change	6	7	8	14
Percent change	8%	23%	14%	127%

- TQI matters most for high-poverty/high-minority high schools.*



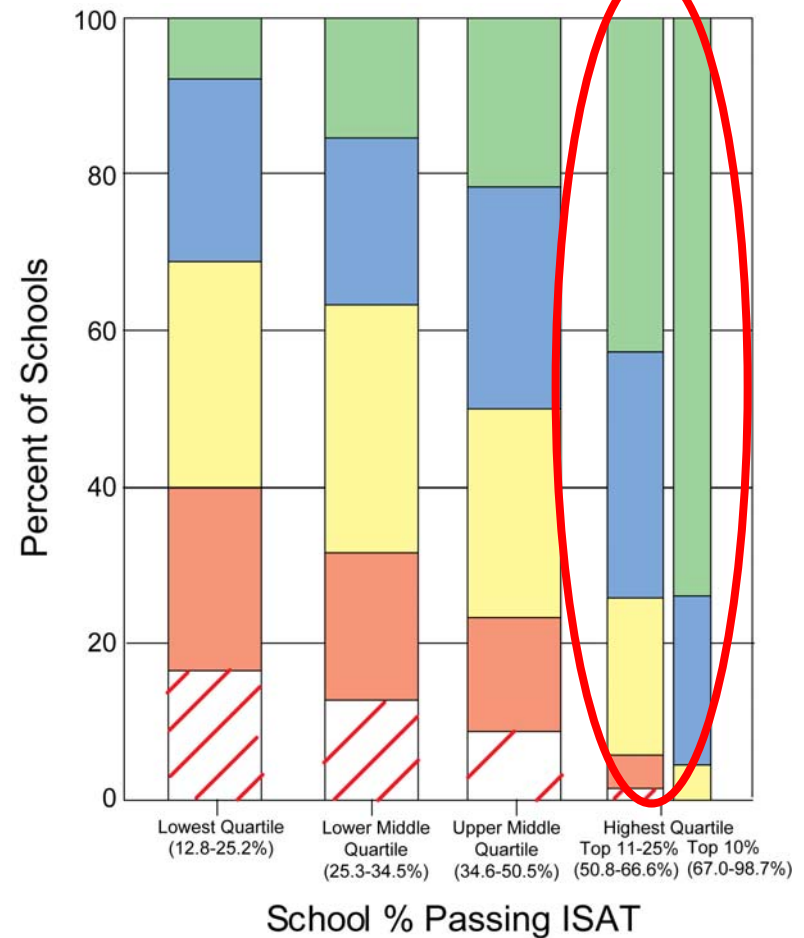
Distribution of TQI among CPS Elementary Schools by CPS School Achievement Quartile

Statewide TQI Quartiles



- School performance in CPS is strongly related to school TQI.*

CPS-specific TQI Quartiles



- There is further differentiation within the lowest statewide quartile TQI when using CPS-specific quartiles.*



Summary of Findings So Far

- **TQI is distributed unequally by school percent poverty and percent minority.**
- **Chicago schools have even weaker TQIs.**
- **TQI matters.**
 - **It matters more for high-poverty/high minority schools,**
 - **And especially for high schools.**



TQI and the Illinois High School Class of 2002



Access to High School TQI by Student Race/Ethnicity

CPS High School Students	Lowest TQI Quartile		Lower Middle TQI Quartile	Upper Middle TQI Quartile	Highest TQI Quartile	N
	Lowest 10%	11-25%				
Black	46%	23%	23%	6%	3%	4,895
Latino	29%	26%	23%	20%	2%	2,937
Asian	6%	21%	33%	33%	6%	844
Native American	49%	22%	24%	5%	0%	86
White	14%	25%	20%	32%	9%	1,093
Total	38%	25%	21%	14%	3%	14,830

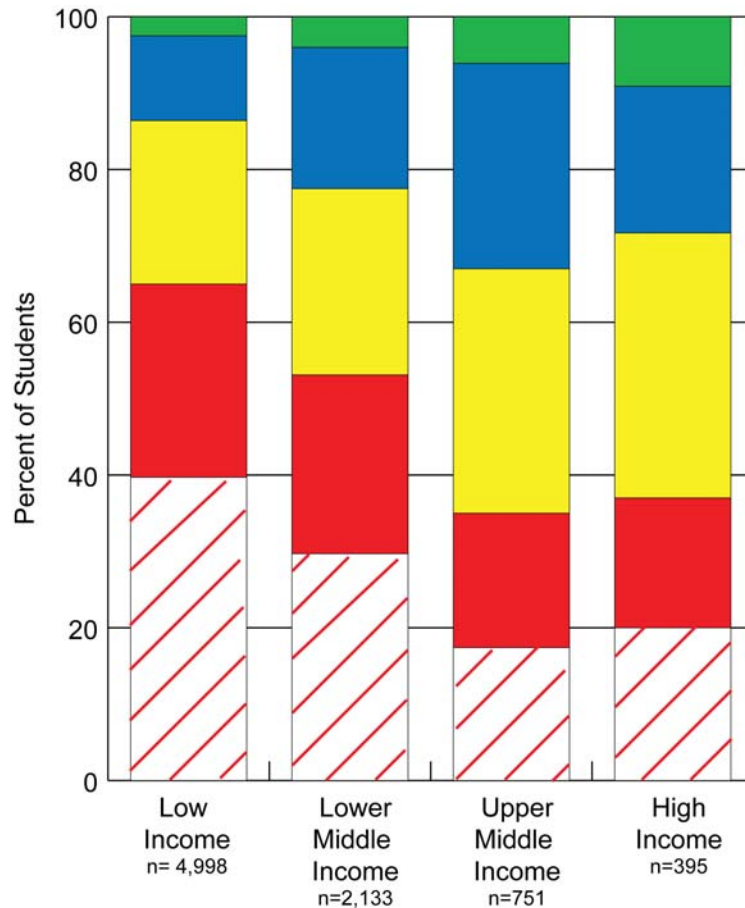
Non-CPS High School Students	Lowest TQI Quartile		Lower Middle TQI Quartile	Upper Middle TQI Quartile	Highest TQI Quartile	N
	Lowest 10%	11-25%				
Black	6%	20%	30%	24%	20%	6,175
Latino	1%	6%	30%	31%	33%	5,486
Asian	< 1%	2%	9%	19%	71%	3,705
Native American	3%	10%	27%	30%	30%	474
White	1%	7%	20%	30%	41%	63,662
Total	1%	7%	21%	29%	41%	94,474



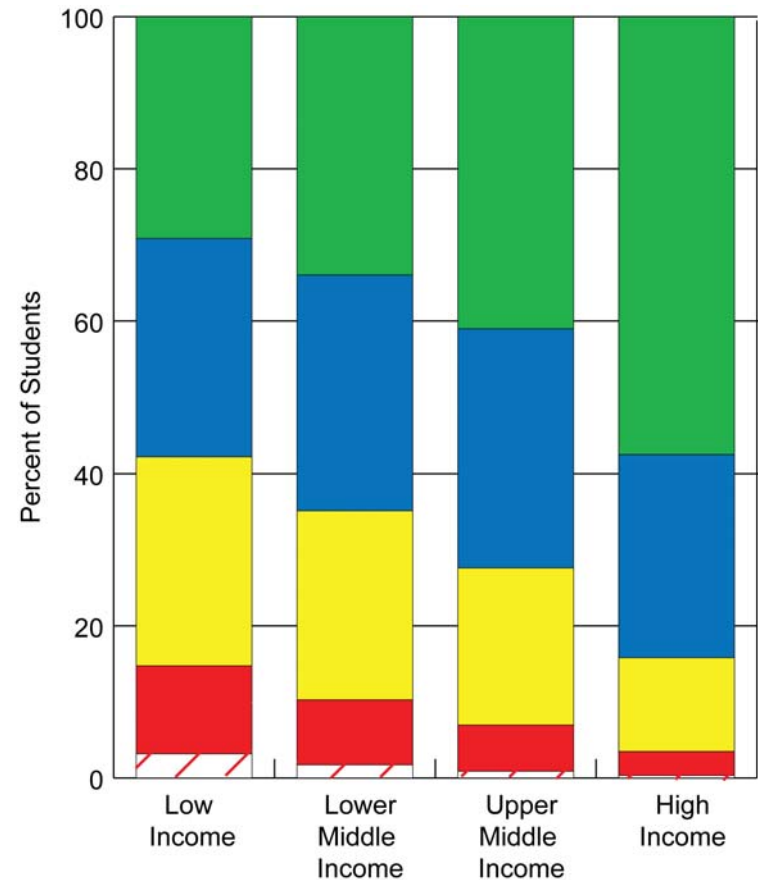
Access to High School TQI by Student Family Income

Chicago

Non-Chicago



- Even high income students in CPS have less access to high-TQI high schools than low-income students statewide.*

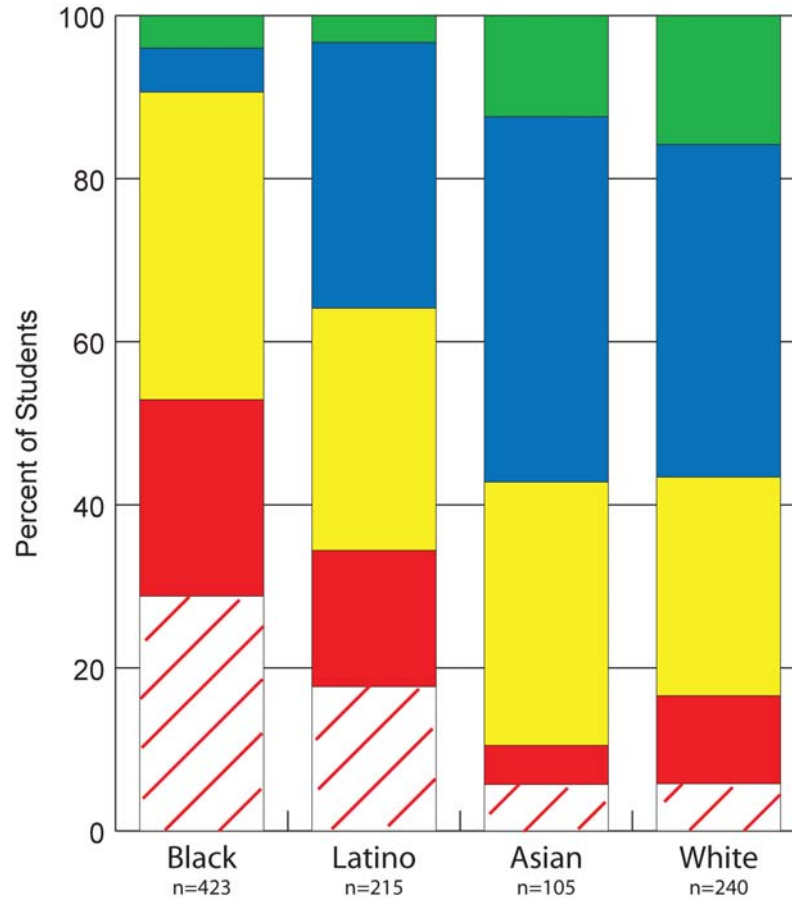


- Students from different family income levels do not have equal access to high-TQI high schools.*

Note that 6553 students in Chicago did not provide family income information. The TQI profile for this group is very similar to that for the low-income group, suggesting that most are probably also in that category.



And when we break down the top two income quartiles by race/ethnicity for CPS students:



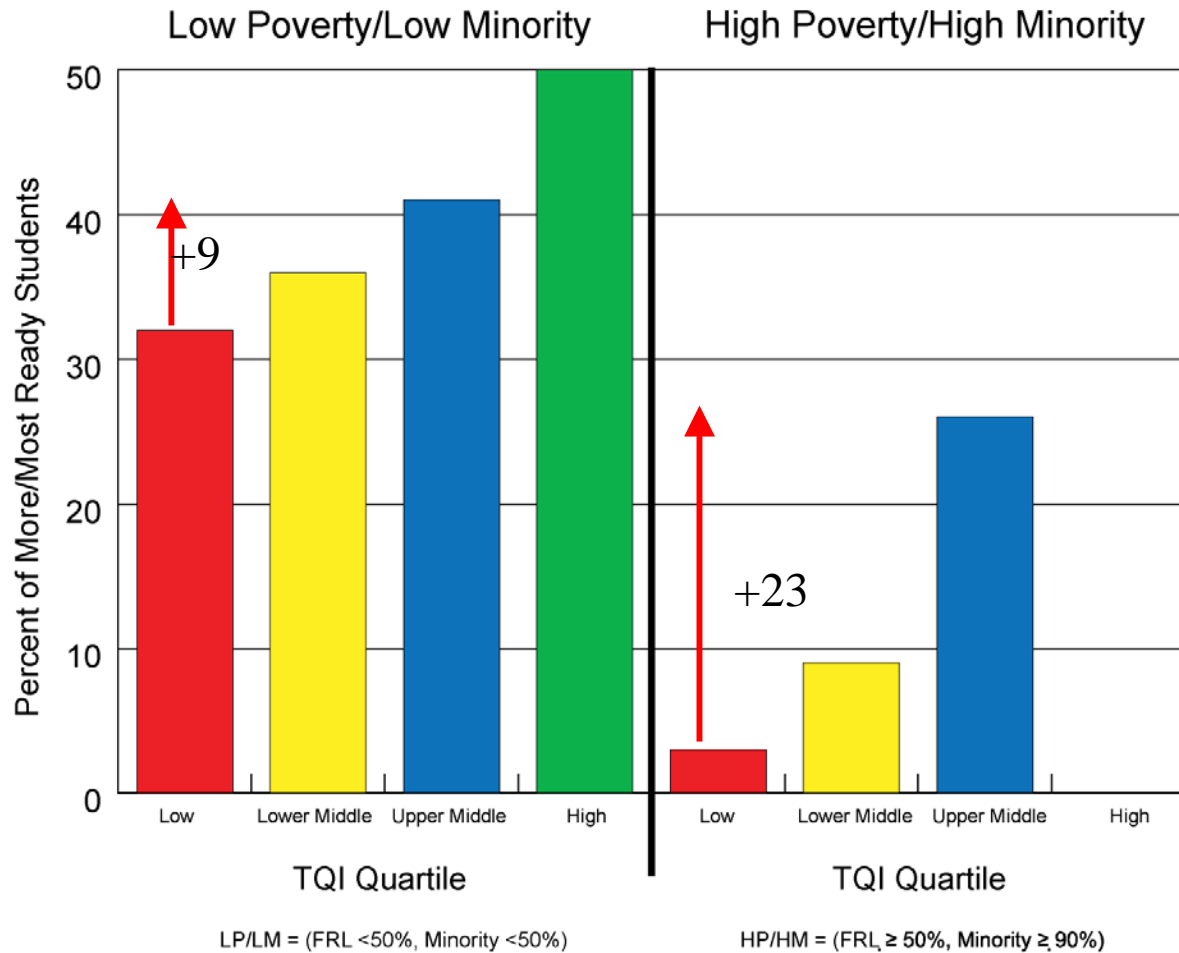
- Black and Latino middle/high income students in CPS have less access than similar Asian and white students in CPS to higher TQI high schools.*

Upper-Middle income = \$50,000–\$80,000

High income = \$80,000 and above.



Percent of students who are ready for college, by TQI quartile and school characteristics



- *TQI is closely related to students' college readiness, regardless of school poverty and minority characteristics.*
- *TQI matters more for schools serving mostly disadvantaged students.*



Review of Findings

- **Students in high-poverty and high-minority schools typically face teachers with lower average quality attributes. Many of these schools are located in Chicago, and those schools have systematically lower TQIs as well.**
- **TQI has an independent effect on student achievement, and this effect is largest in high-poverty, high-minority high schools.**

School average teacher academic attributes play an important role in student performance.



Priorities for Change

- **Human resources policies should place a priority on getting and keeping high quality teachers in the most needy schools.**
 - *In hiring and retention*
 - *In placement and transfer practices*
- **Every teacher should be a person that schools want to hire and retain, and parents want in their children's classrooms.**
 - *Rigorous training*
 - *In-service content and pedagogical support*
- **Every school should be a place where high quality teachers want to teach.**
 - *Community and state support*
 - *District and school leadership*



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