



# *Illinois Education Research Council*

## **Examining the Distribution and Impact of Teacher Quality in Illinois**

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**The Education Trust 2005 National Conference**

**Washington, DC      November 4, 2005**



# Introducing the Project

- How we got started
- Getting the data
  - *State Teacher Service Records and Teacher Certification Information System – 140,000 teachers/year*
  - *ACT Inc.*
  - *Barron's Guide*
  - *Common Core of Data (NCES)*
  - *Illinois School Report Cards*
- Disseminating results
  - *Collaborating on the Education Trust/Joyce Foundation Teacher Quality Project*
  - *Writing and distributing research reports*
  - *Making PowerPoint presentations to stakeholders*



# What the research tells us about teacher quality

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



# 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

- *The TQI is designed to have a statewide mean of 0.0 and a standard deviation of 1.0.*
- *We divided the approximately 3800 Illinois public schools into four quartiles based on their TQI score and use these quartiles throughout the rest of our analysis.*



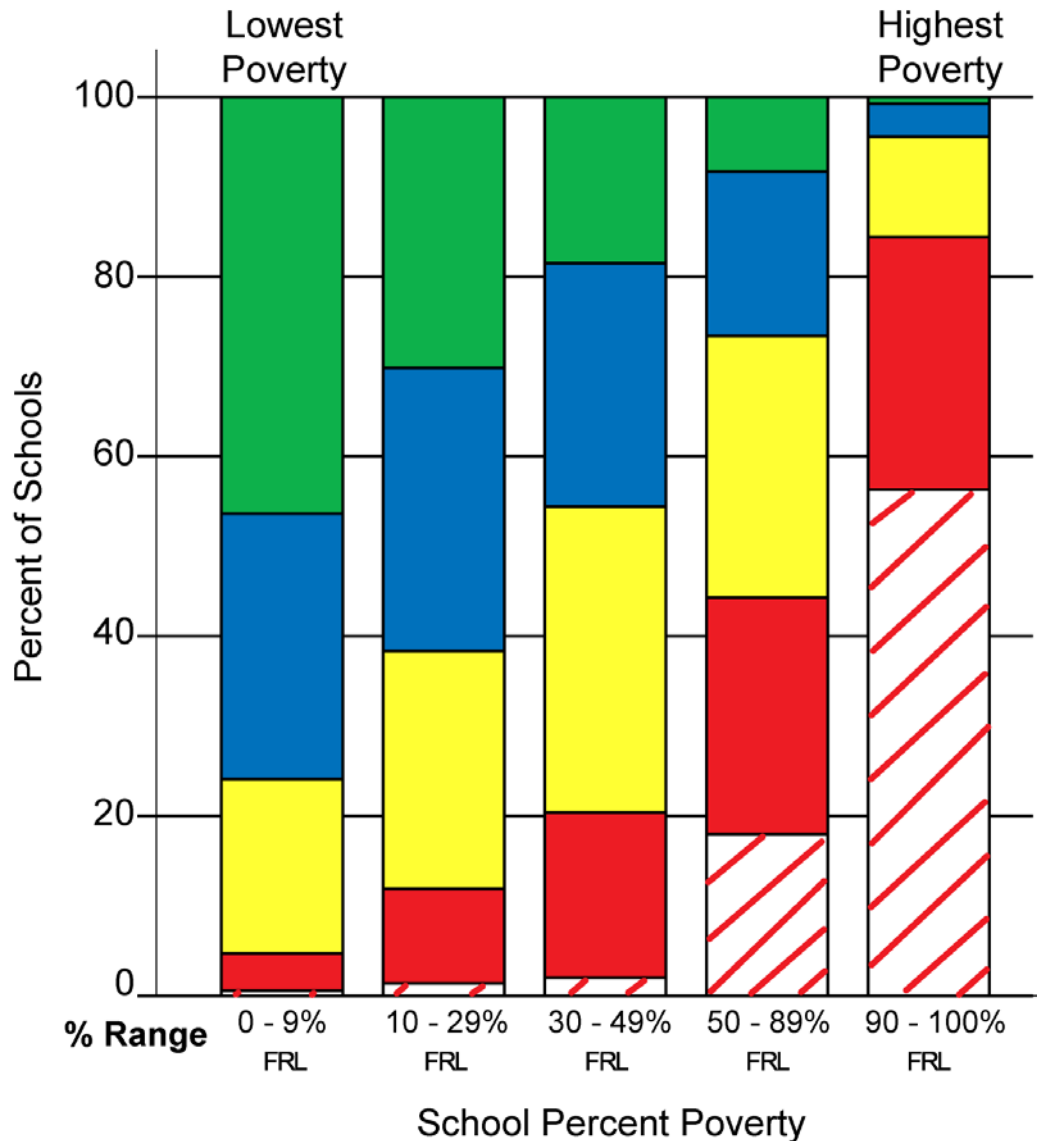
# What the average school looks like, by school TQI quartile

TQI Component	Lowest Quartile		Middle-Low Quartile	Middle-High Quartile	Highest Quartile
	0-10%	11-25%			
Teachers' average ACT composite score	18.2	19.6	20.6	21.6	23.1
Teachers' average ACT English score	18.4	19.9	21.2	22.3	23.7
% of teachers who failed the Basic Skills Test on first attempt	16%	6%	2.5%	1%	0.6%
% of teachers with emergency or provisional credentials	10%	3%	1%	0.7%	0.4%
Teachers' average undergraduate college competitiveness ranking	2.8	2.9	3.0	3.1	3.3
% of teachers with 3 or fewer years of teaching experience	18%	19%	18%	17%	16.5%

- Top-quartile TQI schools have teachers with ACT scores of about 23-24, on the average, compared to 18 in the lowest 10% of TQI schools. Other components follow this pattern.*



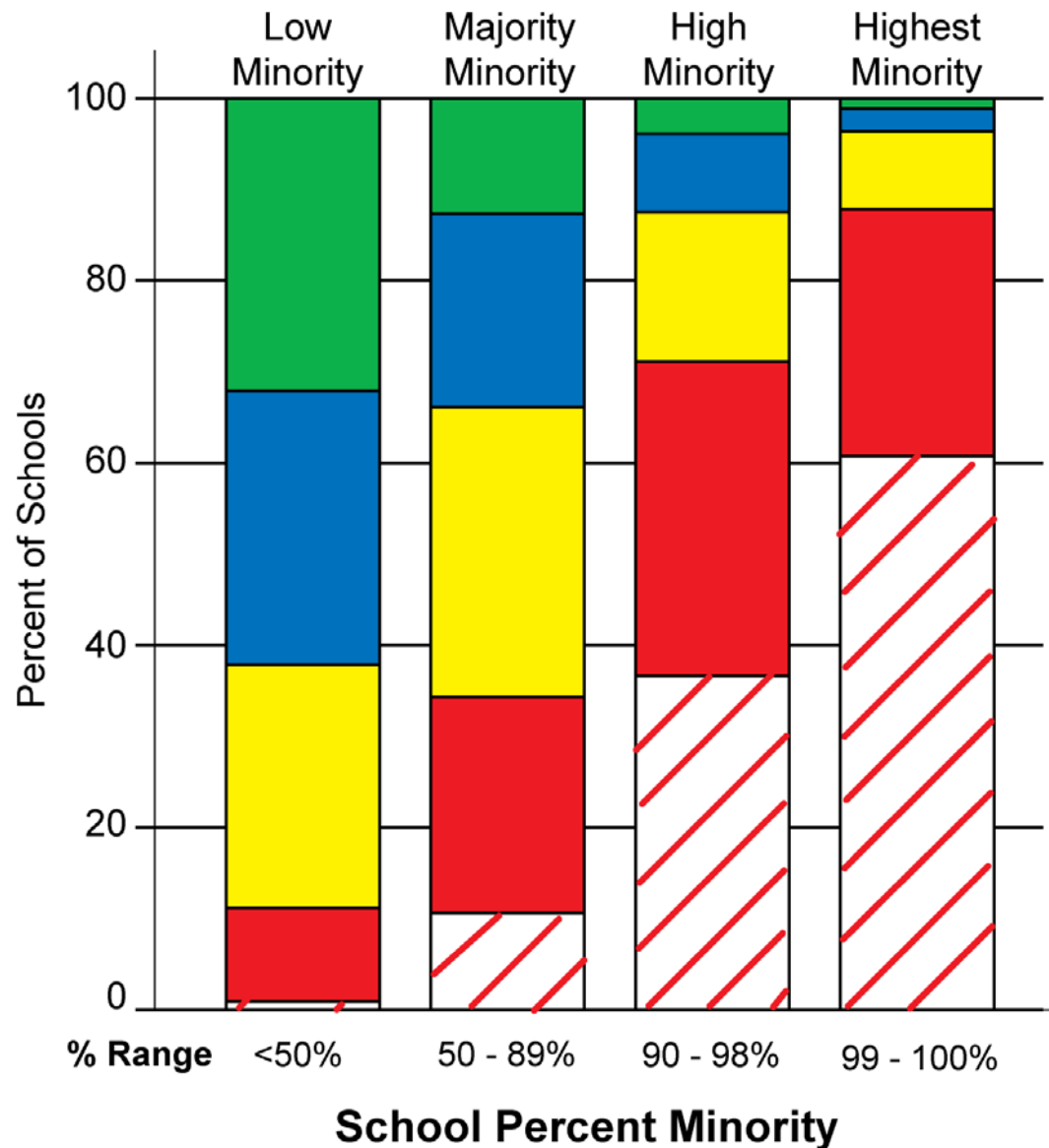
# Distribution of School TQI by School Percent Poverty



- *TQI distribution is strongly related to school poverty levels ( $r=-.63$ ).*
- *The differences continue across all poverty groupings.*



# Distribution of School TQI by School Percent Minority



- The higher the school percent minority the lower the school TQI ( $r=-.58$ ).*



# 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.*



# Summary of Findings So Far

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

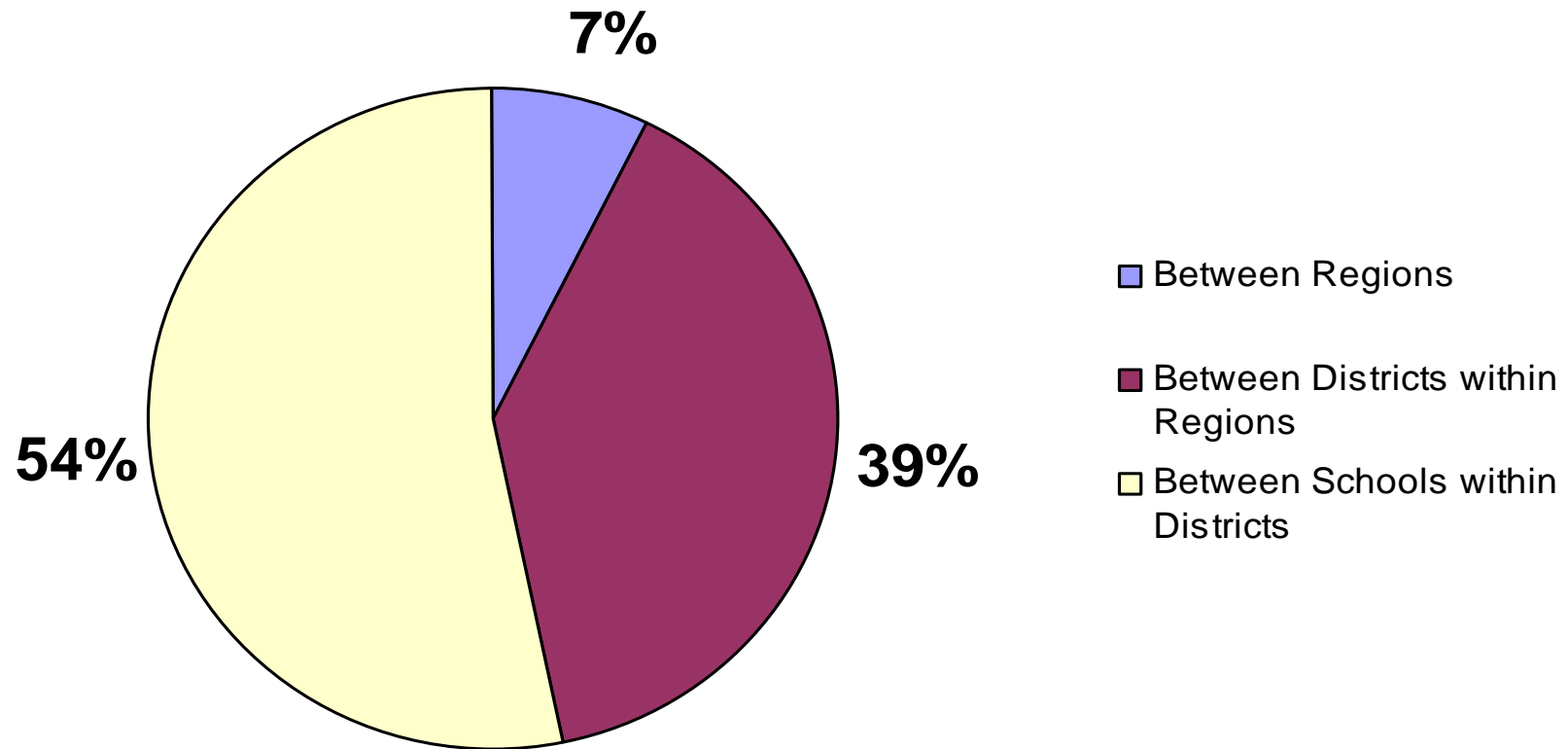


# **What is the Role of Districts in the Distribution of School TQIs?**





# Sources of Variance in School TQI

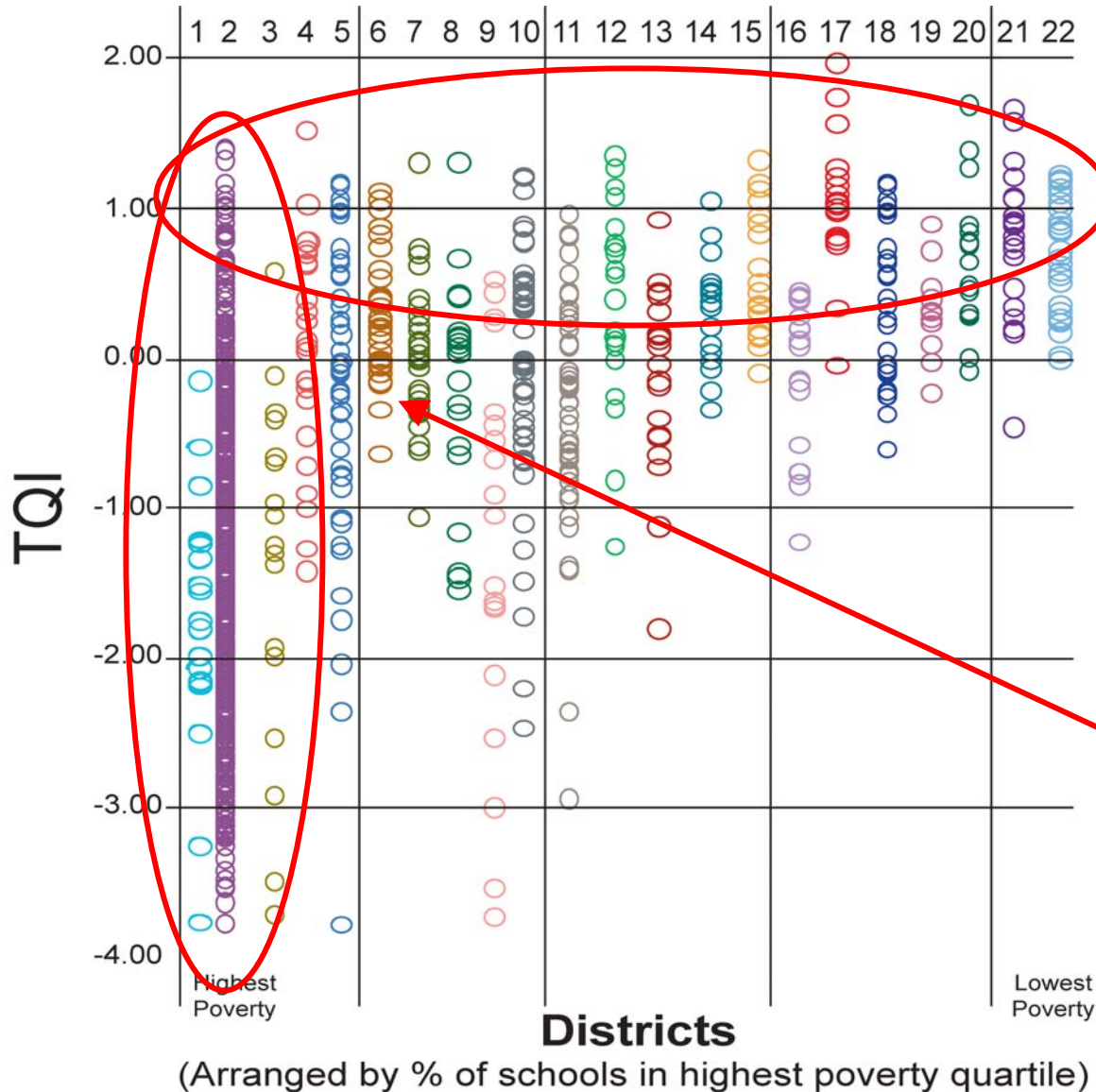


- *Differences between schools within the same district are the biggest contributor to variation in TQI scores*



# Within-District School TQI Distribution

(districts with 10,000+ students, elementary and middle schools only)



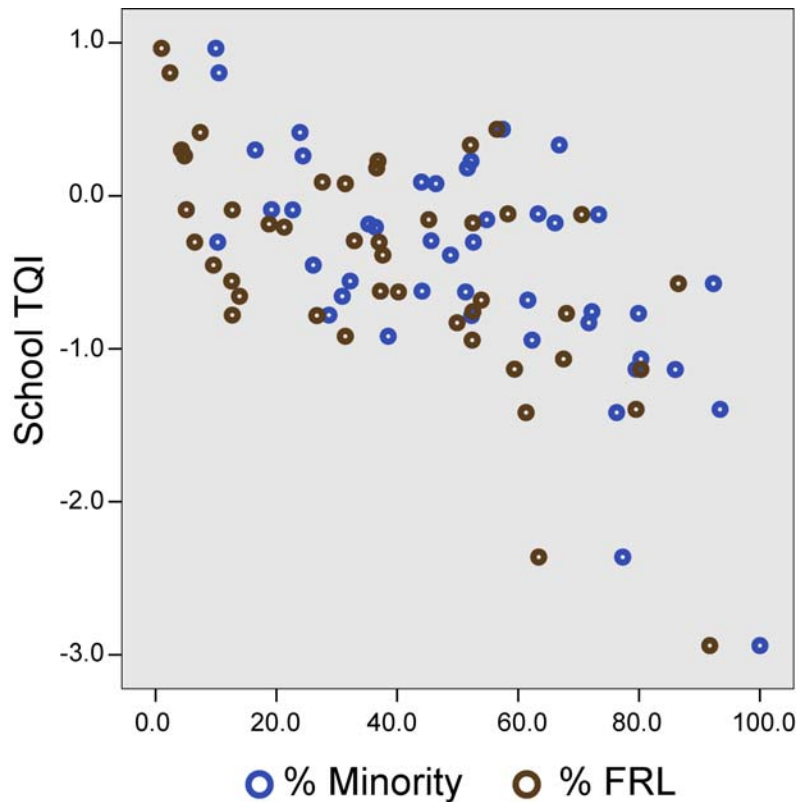
- *TQI varies widely within some districts and there are some above-average TQI schools in almost all districts.*
- *The “TQI gap” is generally larger in districts with higher concentrations of high-poverty schools – but some districts buck this trend.*

Four outlier schools in districts 1 and 2 with TQIs lower than -4.00 are not shown on the chart.

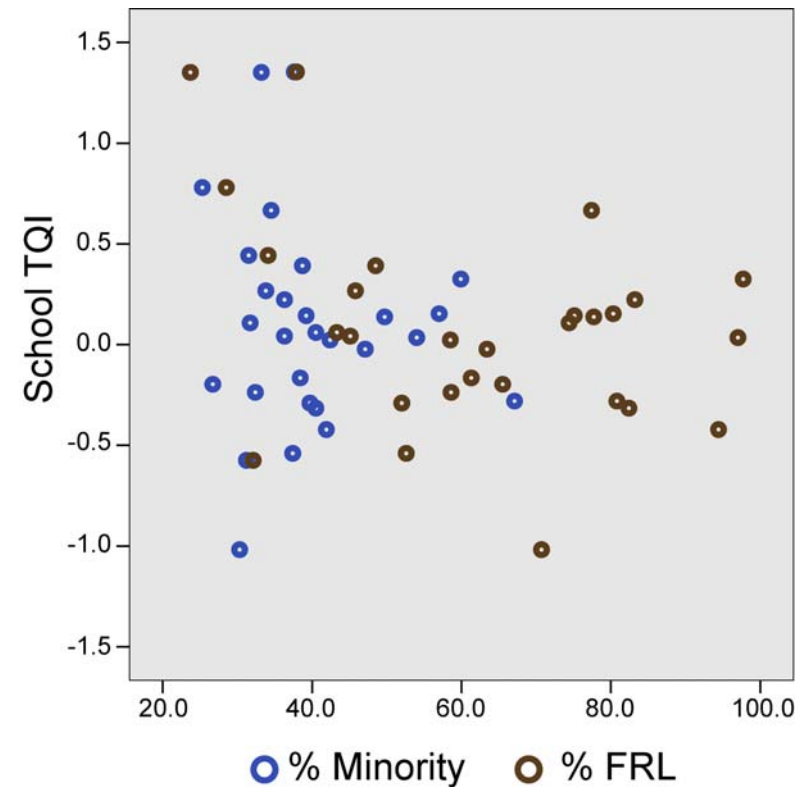


# Examples of District Correlations between TQI & Percent Minority and TQI & Percent Poverty

**District 11: Strong Negative Correlation**



**District 7: No Correlation**



- Correlations differ widely between districts.*



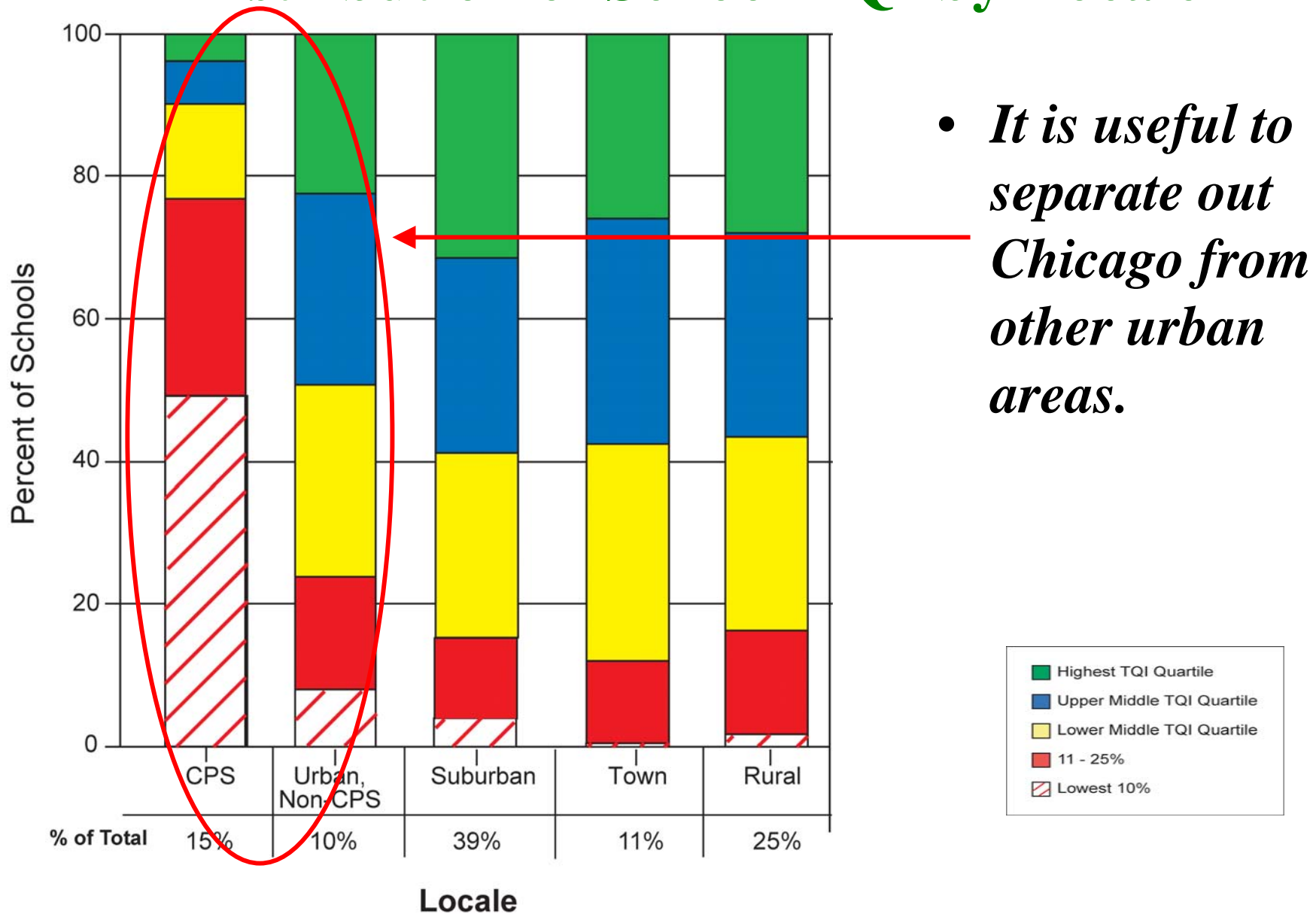
# The TQI and the Chicago Public Schools







# Distribution of School TQI by Locale

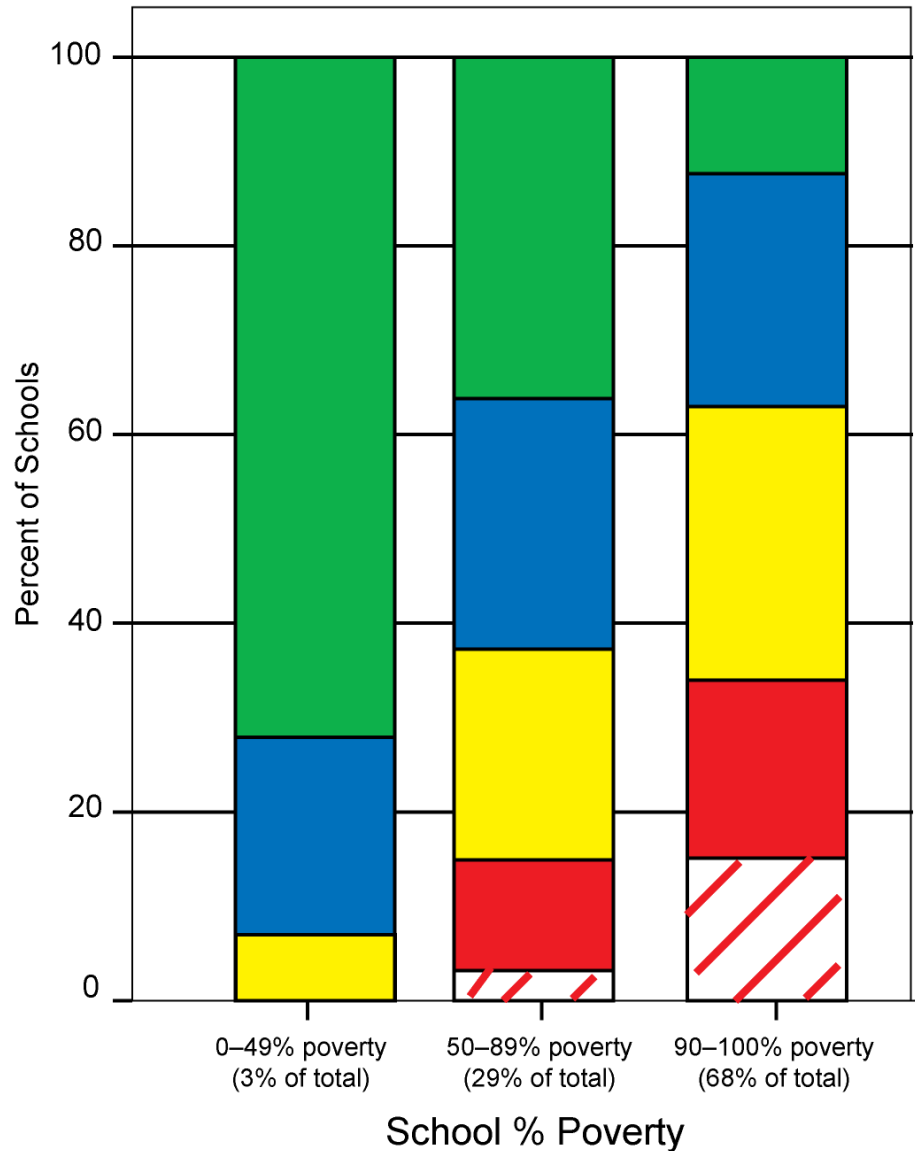






# Distribution of CPS TQI Among CPS Elementary/Middle Schools by Percent Poverty

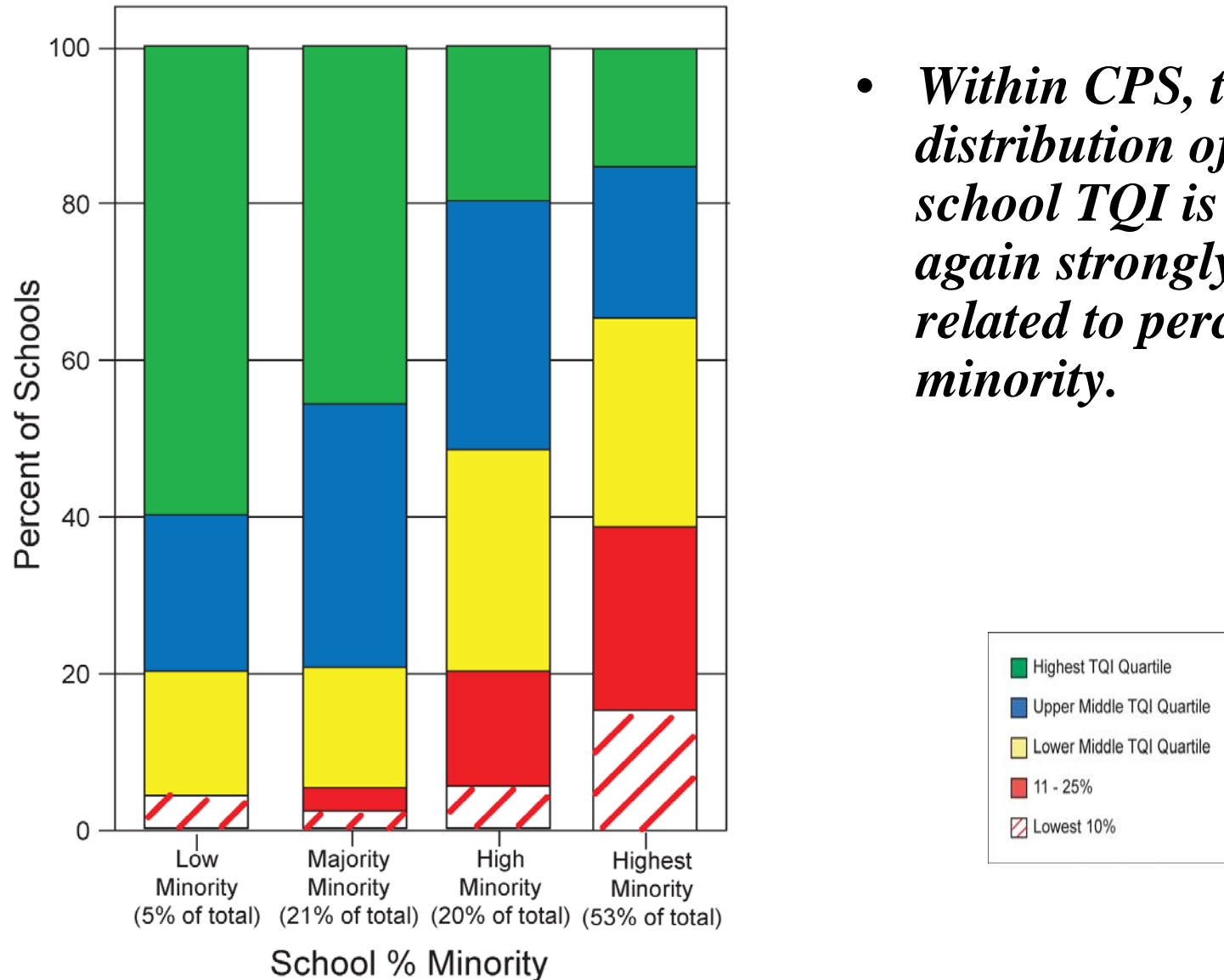
--Note that TQI quartiles in the following charts are based on within-CPS distributions.



- Within CPS, the distribution of school TQI is again strongly related to school poverty.*



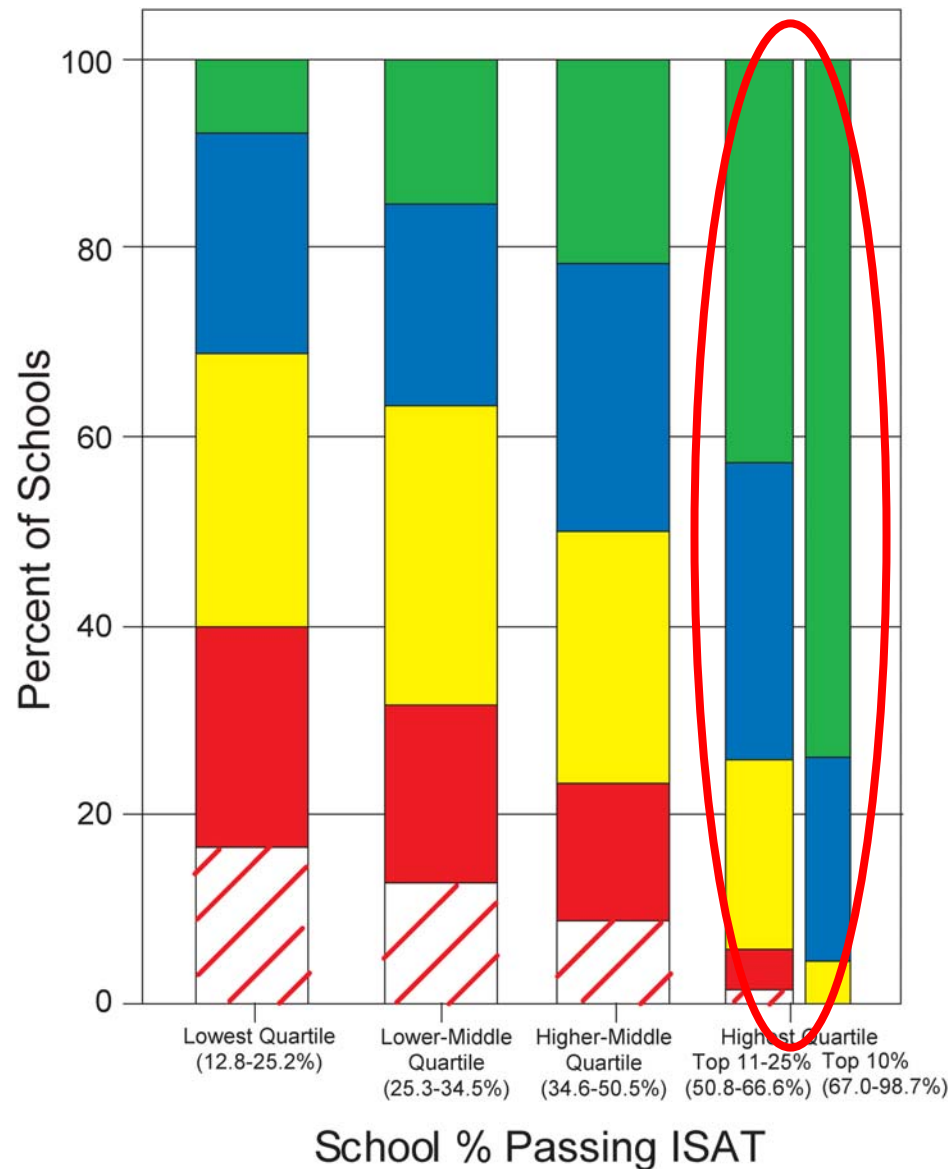
## Distribution of CPS TQI Among CPS Elementary/Middle Schools by Percent Minority



- Within CPS, the distribution of school TQI is again strongly related to percent minority.*



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



- TQI is related to student achievement in CPS.*
- High achieving CPS schools have TQIs that are very different from the rest of the district.*



# TQI and the Illinois High School Class of 2002

- **We are tracking all 113,600 students of the Class of 2002 from Illinois public high schools through college.**

*Sources of Data: ACT Inc, Barron's Guide, Common Core of Data (NCES), National Student Clearinghouse.*



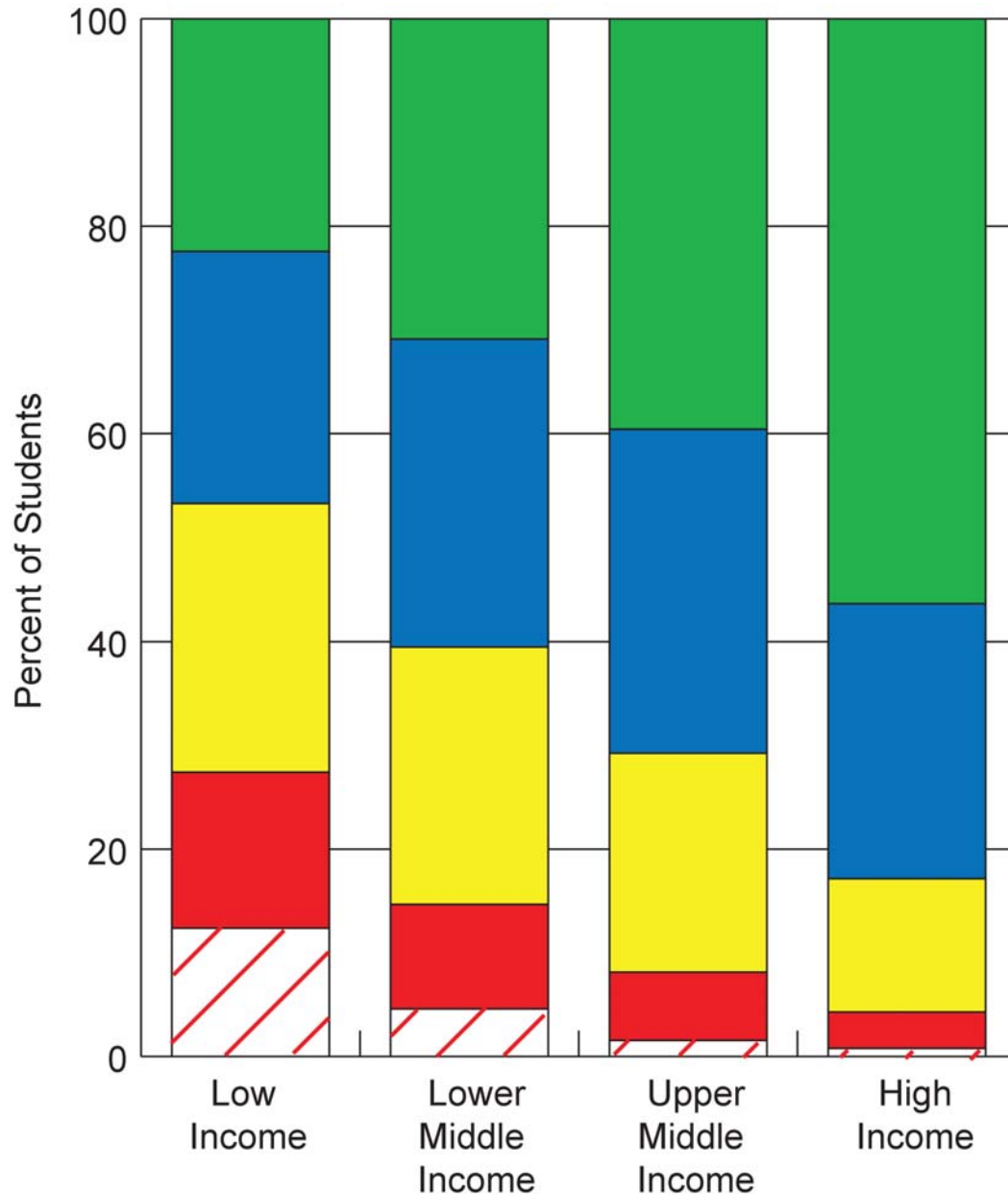
# Access to High School TQI by Student Race/Ethnicity

	Lowest TQI Quartile		Lower Middle TQI Quartile	Upper Middle TQI Quartile	Highest TQI Quartile
	Lowest 10%	11-25%			
Black	24%	21%	27%	16%	12%
Latino	10%	13%	28%	27%	22%
Asian	1%	5%	13%	21%	59%
Native American	10%	12%	26%	26%	26%
White	1%	7%	20%	30%	41%
Total	6%	10%	21%	27%	36%

- Students from different racial/ethnic backgrounds do not have equal access to high schools with high TQIs.*



## Access to High School TQI by Student Family Income

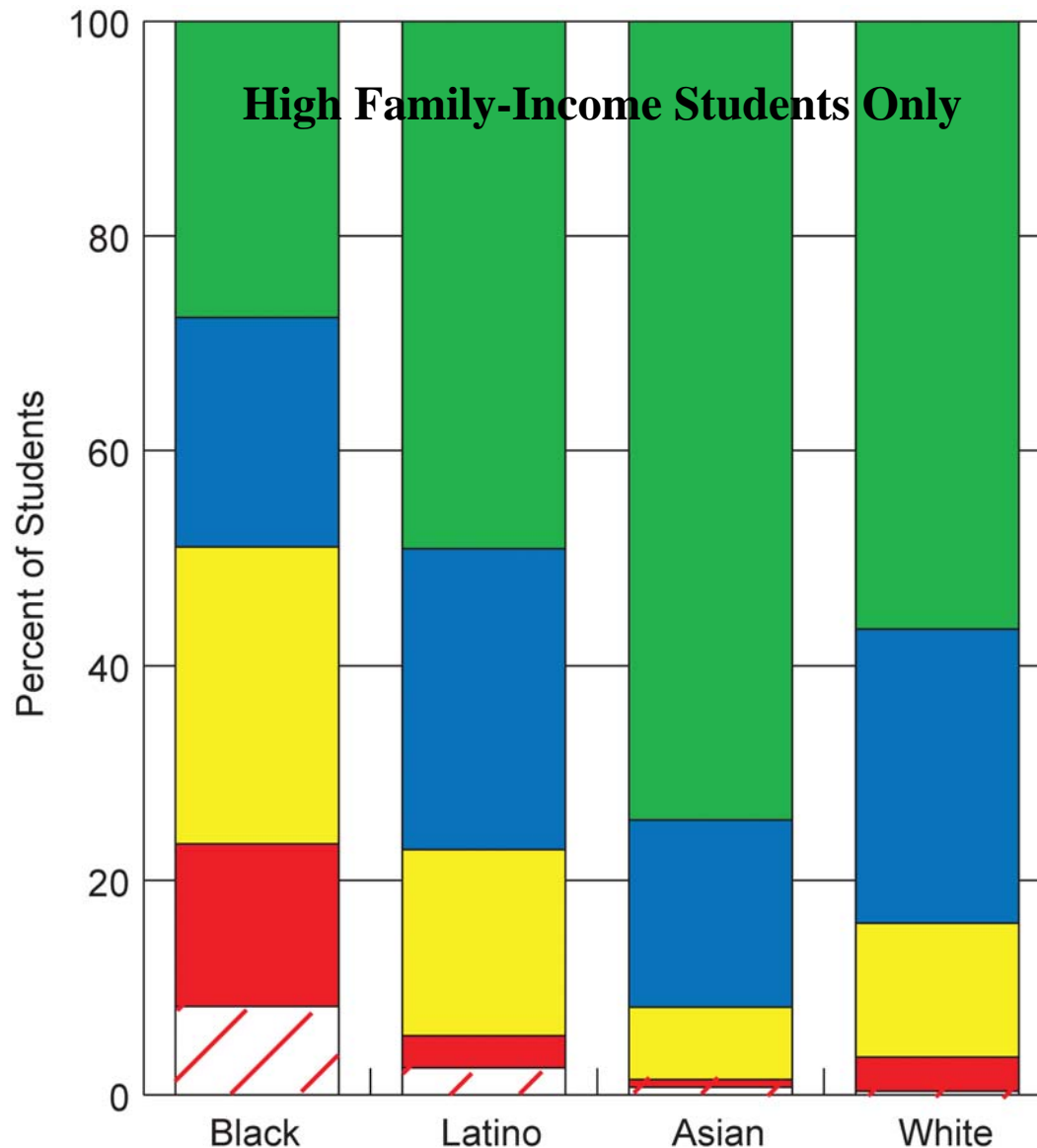


- Students from different family income levels do not have equal access to high-TQI high schools.*

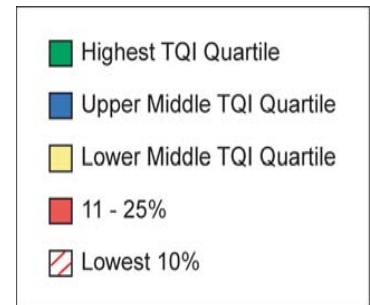




# Access to High School TQI for High Family-Income Students

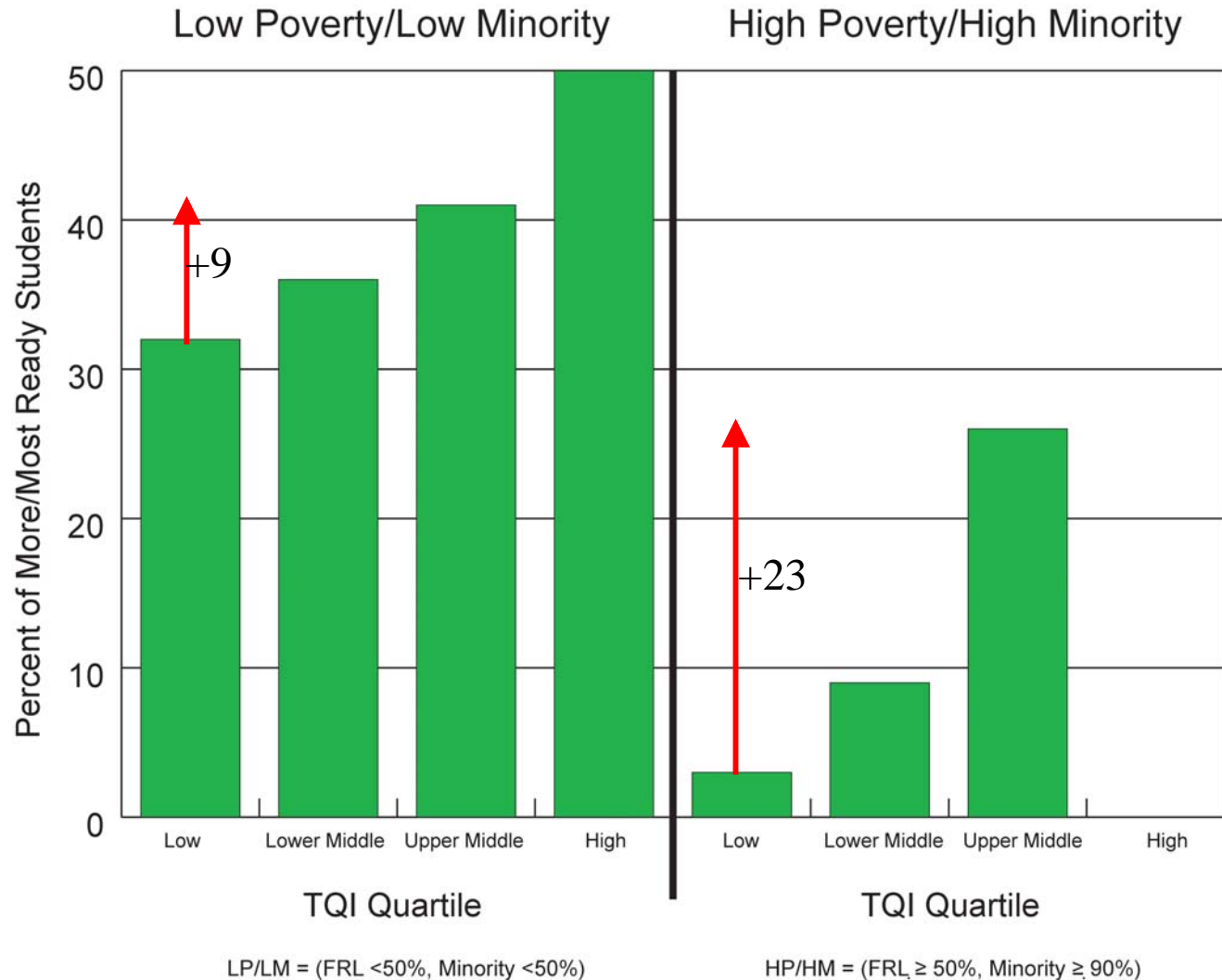


- The benefit of high family income in accessing high-TQI schools is not even across race/ethnicities.*





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

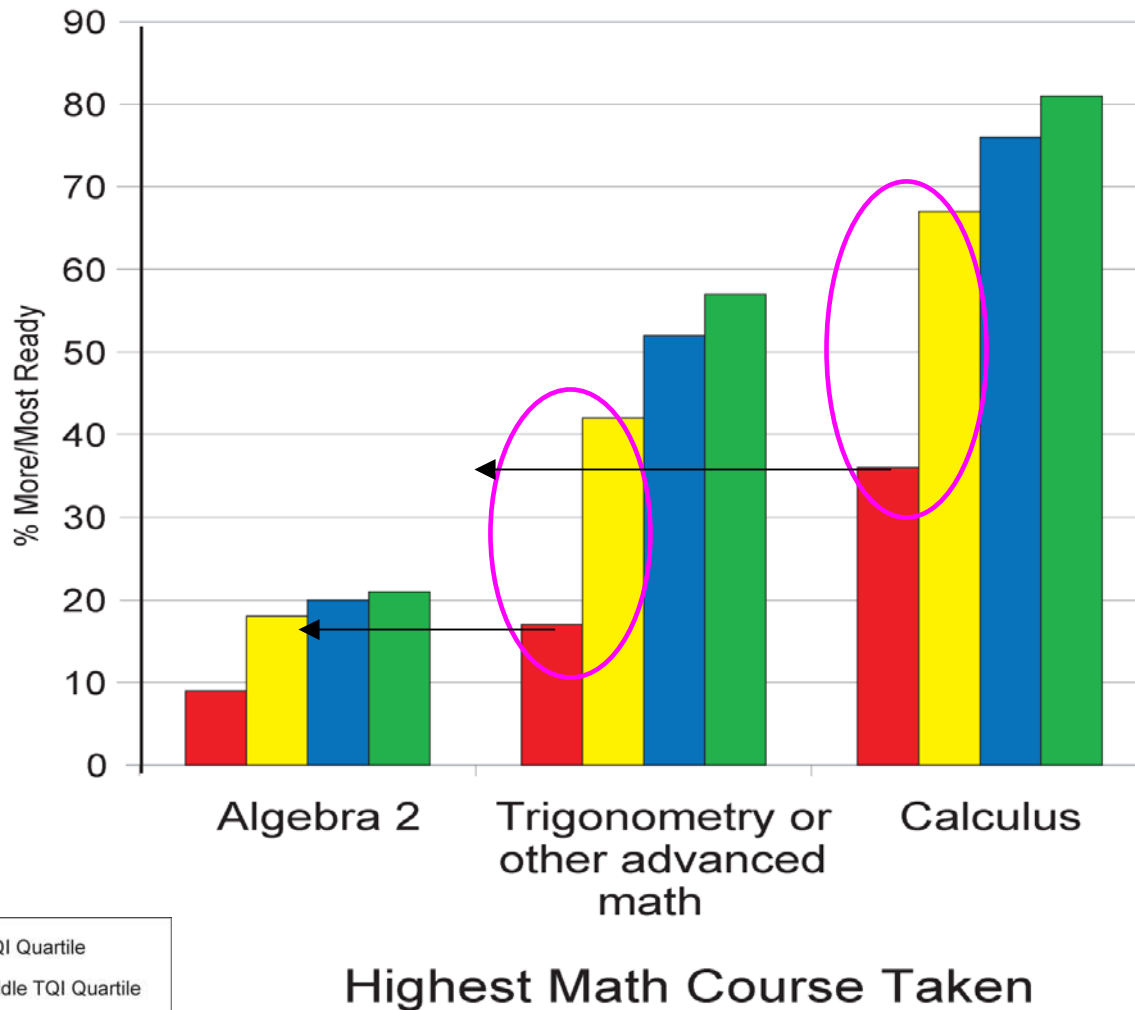


- *TQI is closely related to students' college readiness, regardless of school poverty and minority characteristics.*
- *TQI matters more for schools serving mostly disadvantaged students.*





# TQI, Highest Math Course, and College Readiness



- *College readiness is strongly related to math-taking AND to the school TQI in which the courses are taken.*
- *Taking higher-level math courses in TQI schools beyond the lowest quartile provides a greater readiness boost.*



# Summary of Findings

- **Students in high-poverty and high-minority schools typically face teachers with lower average quality attributes.**
- **Districts play an important role in the distribution of teacher quality.**
- **TQI has an independent effect on school achievement, and this effect is largest in high-poverty, high-minority schools.**
- **Gains in college-readiness from math-course taking are related to school TQI.**

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



# Priorities for Change

- **Every school should be a place where high quality teachers want to teach.**
  - *Community and state support*
  - *District and school leadership*
- **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*
- **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*



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