



The Distribution and Impact of Teacher Quality in Illinois

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Measurable Teacher Quality Attributes Linked to Student Achievement

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





Teacher Quality Index (TQI)

School Level Teacher Characteristics

Weight

| | |
|---|--------|
| Teachers' Average ACT Composite Scores | 0.861 |
| Teachers' Average ACT English Scores | 0.859 |
| % of Teachers who Failed 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 less than 4 Years of Experience | -0.044 |

- *The TQI was standardized to have a statewide mean of 0.0 and a standard deviation of 1.0*





Average School-Level Teacher Attributes by Approximate TQI Score

| TQI Component | TQI \cong -2.0 | TQI \cong 0.0 | TQI \cong 2.0 |
|---|------------------------------------|-----------------------------------|-----------------------------------|
| Teachers' Average ACT Composite Score | 18.1 | 20.8 | 24.8 |
| Teachers' Average ACT English Score | 18.4 | 21.4 | 25.3 |
| % of Teachers who failed Basic Skills test on first attempt | 14% | 2% | 0% |
| % of Teachers with Emergency/ Provisional Certification | 8% | 1% | 0% |
| Teachers' Average College Competitiveness Ranking | 2.8 | 3.0 | 3.7 |
| % of Teachers with < 4 Years of Experience | 17% | 18% | 15% |



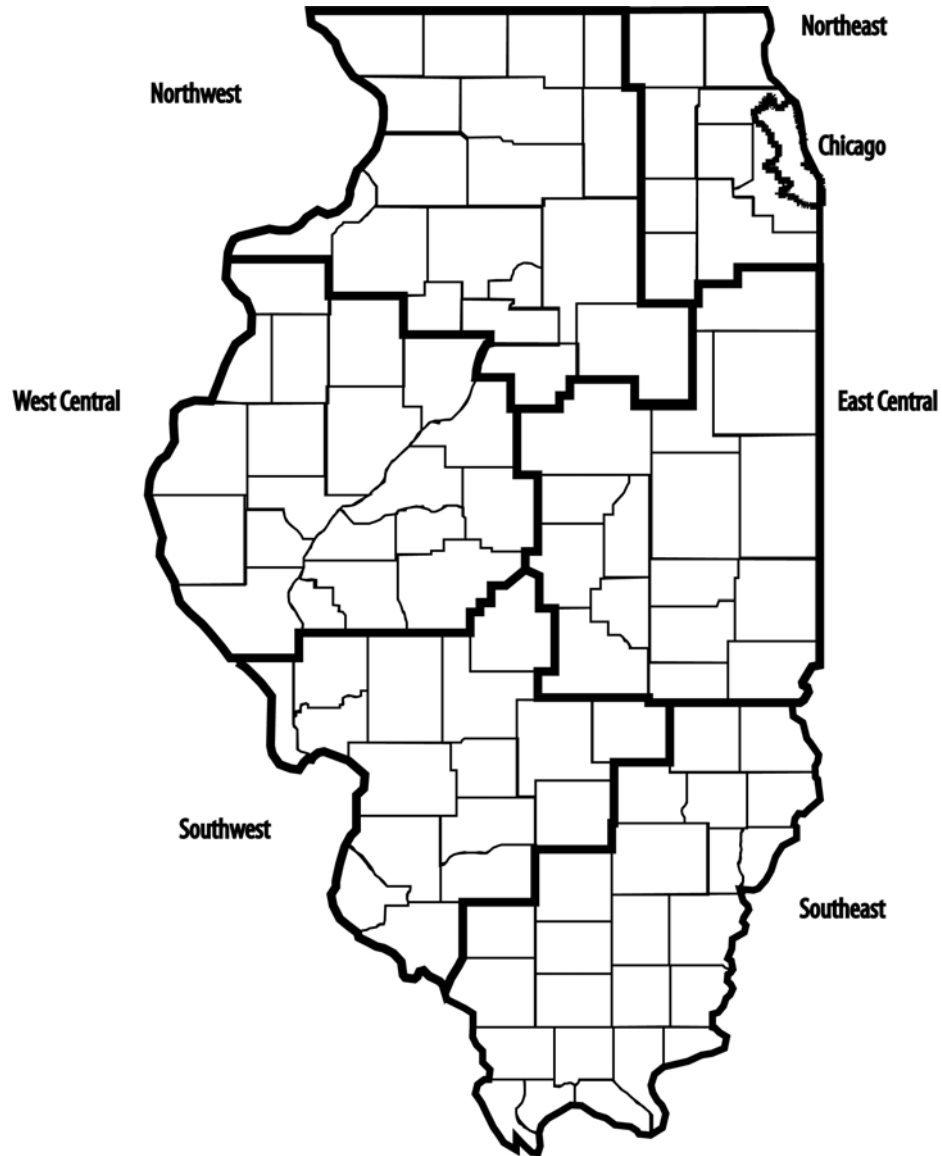


Data and Methods

- ***2002-2003 Data for ~140,000 Illinois Teachers***
 - Illinois Teacher Service Records
 - Illinois Teacher Certification Information System
 - ACT, Inc.
 - Barron's Guide
 - Common Core of Data (NCES)
 - Illinois School Report Cards
- ***Distribution of School-level TQI by:***
 - seven geographic regions in Illinois
 - school type
 - *locale (urban, suburban, town, rural)*
 - *% low-income students*
 - *% minority (non-white) students*

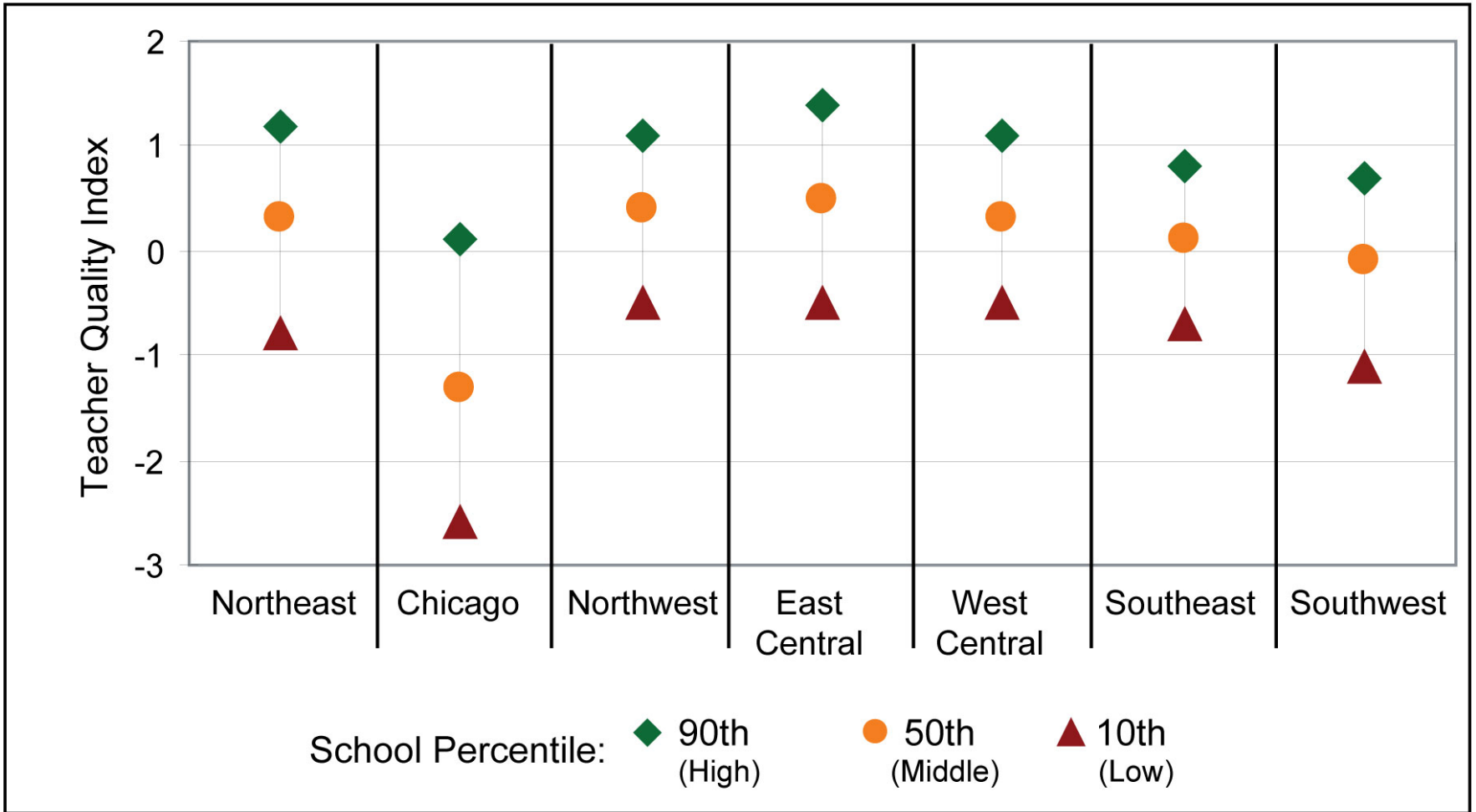


Geographic Regions in Illinois



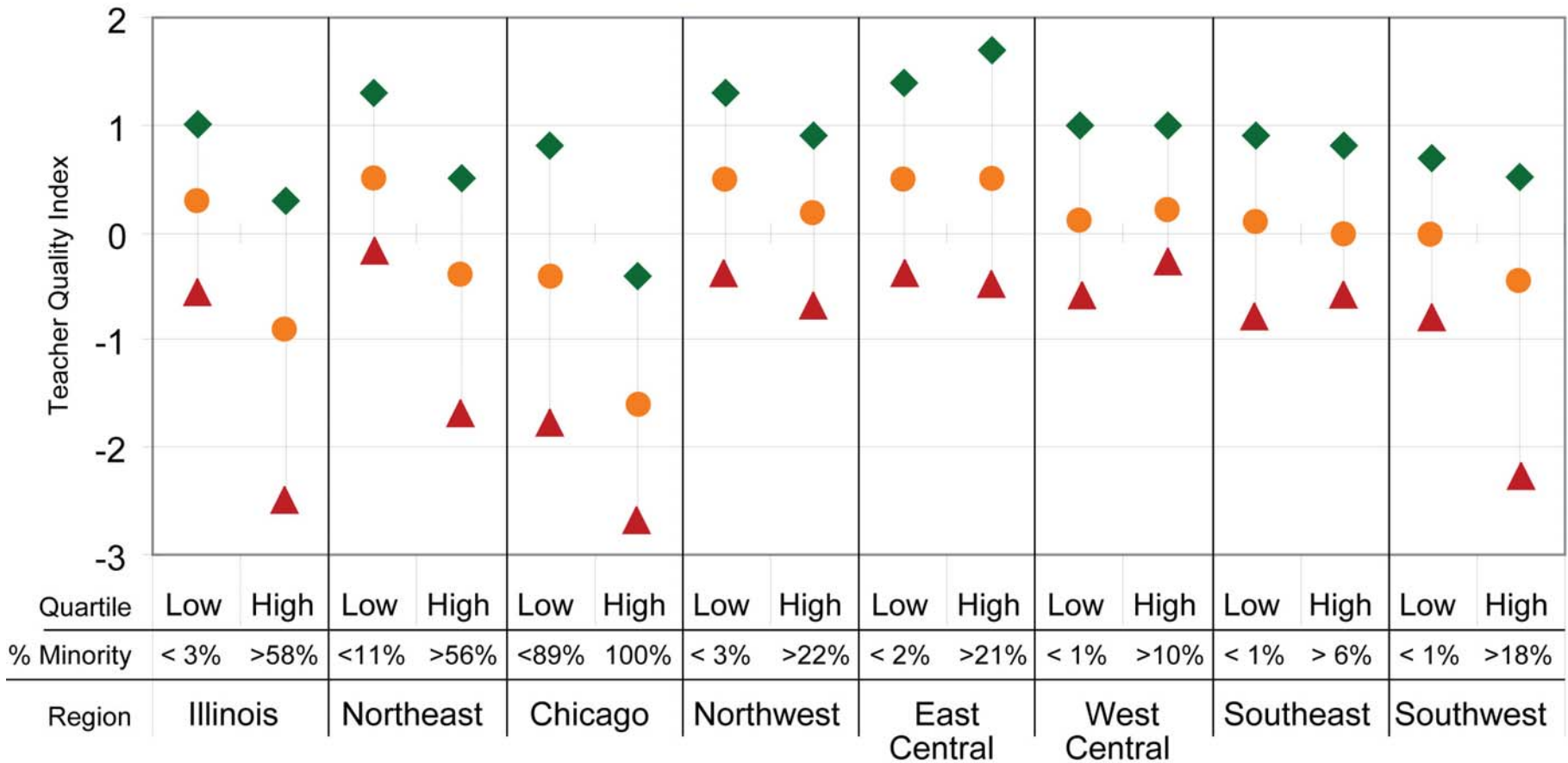


Distribution of TQI by Region





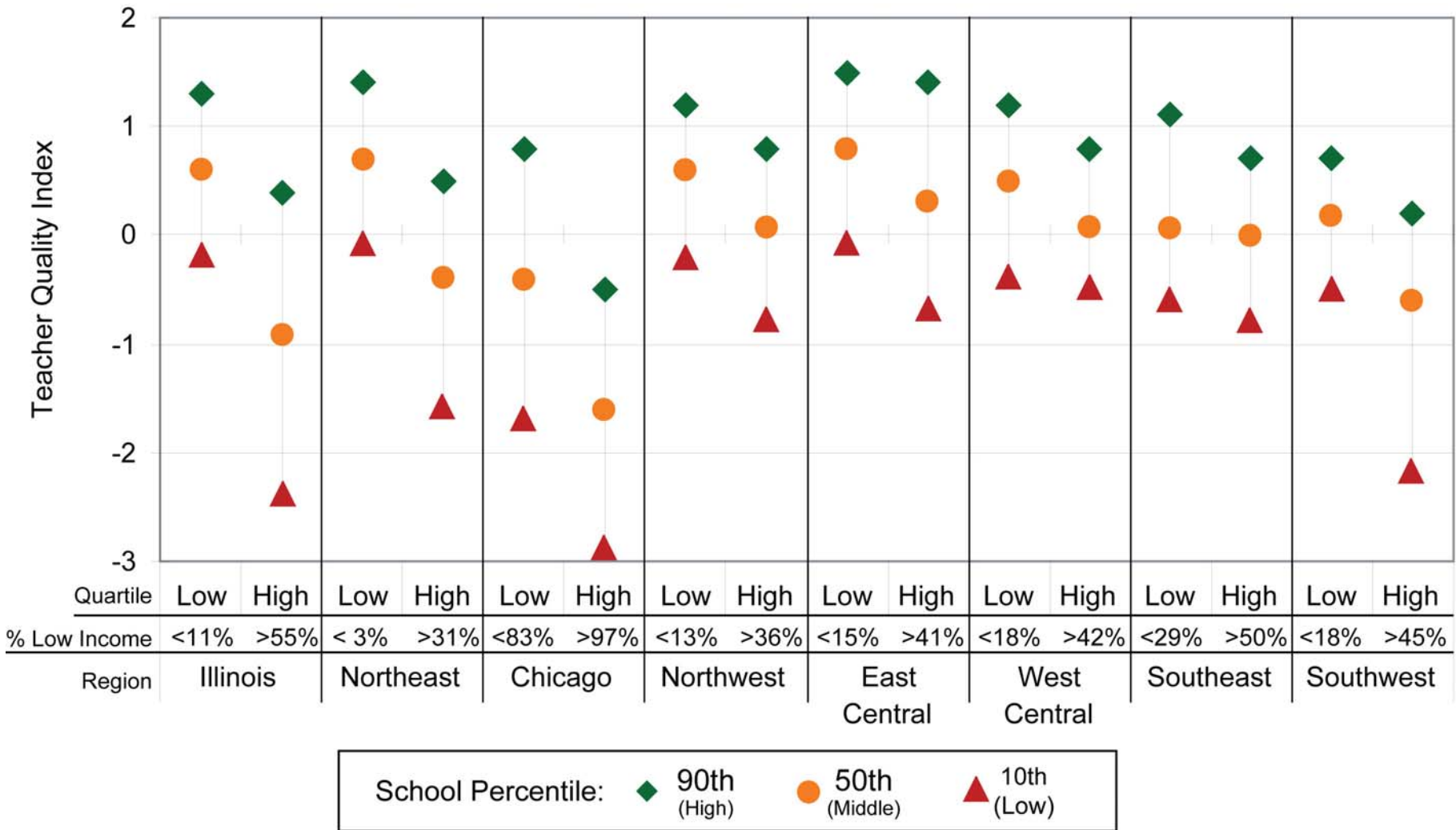
Distribution of TQI by Region and Percent Minority Students



School Percentile: ◆ 90th (High) ● 50th (Middle) ▲ 10th (Low)

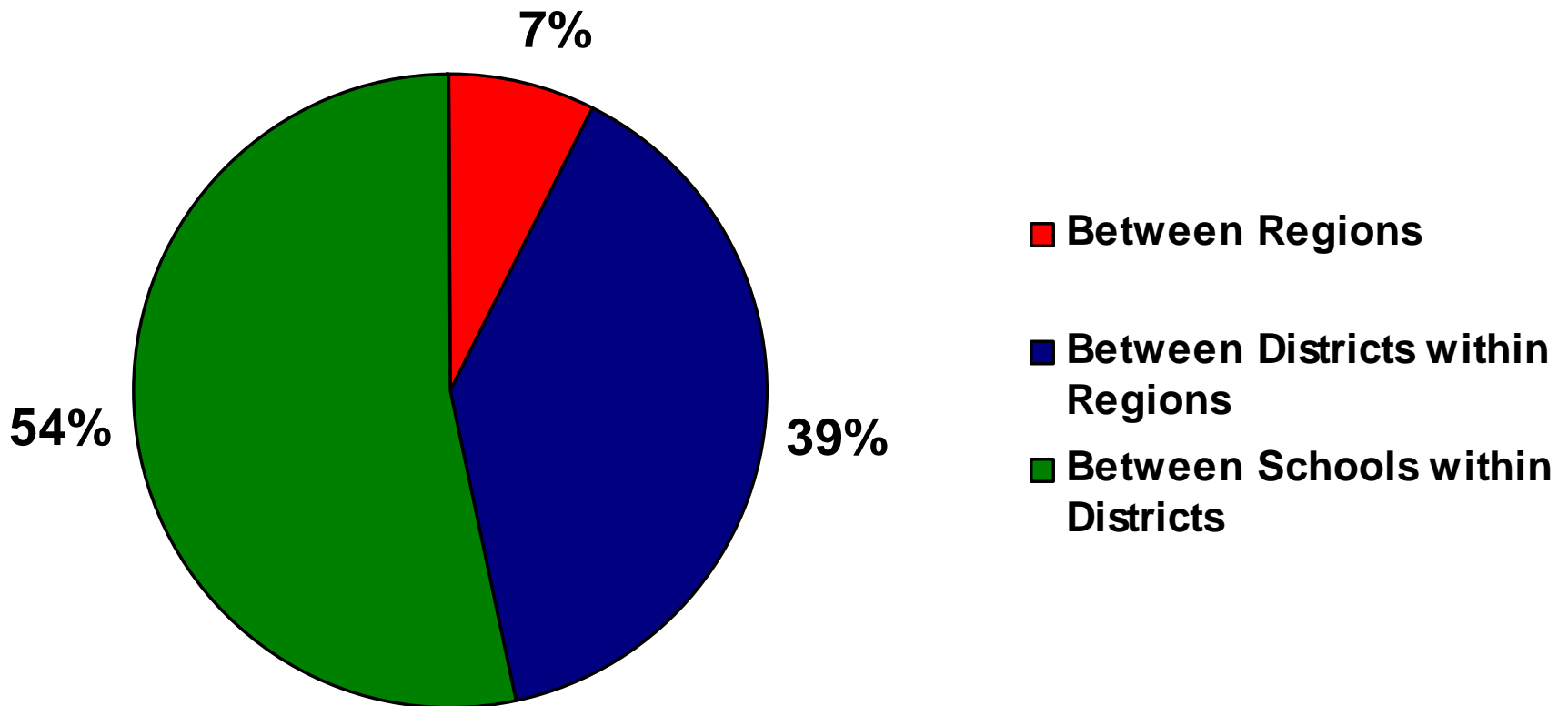


Distribution of TQI by Region and Percent Low-Income Students





School TQI Variance Decomposition





Summary So Far

- **Teacher Quality is distributed unequally across and within regions in Illinois.**
- **Even within school type, there is variation in teacher quality attributes across schools.**
- **Low-income schools and high-minority schools tend to be more disadvantaged in terms of average teacher quality than high-income and low-minority schools.**
- **Districts play an important role in the distribution of teacher quality.**



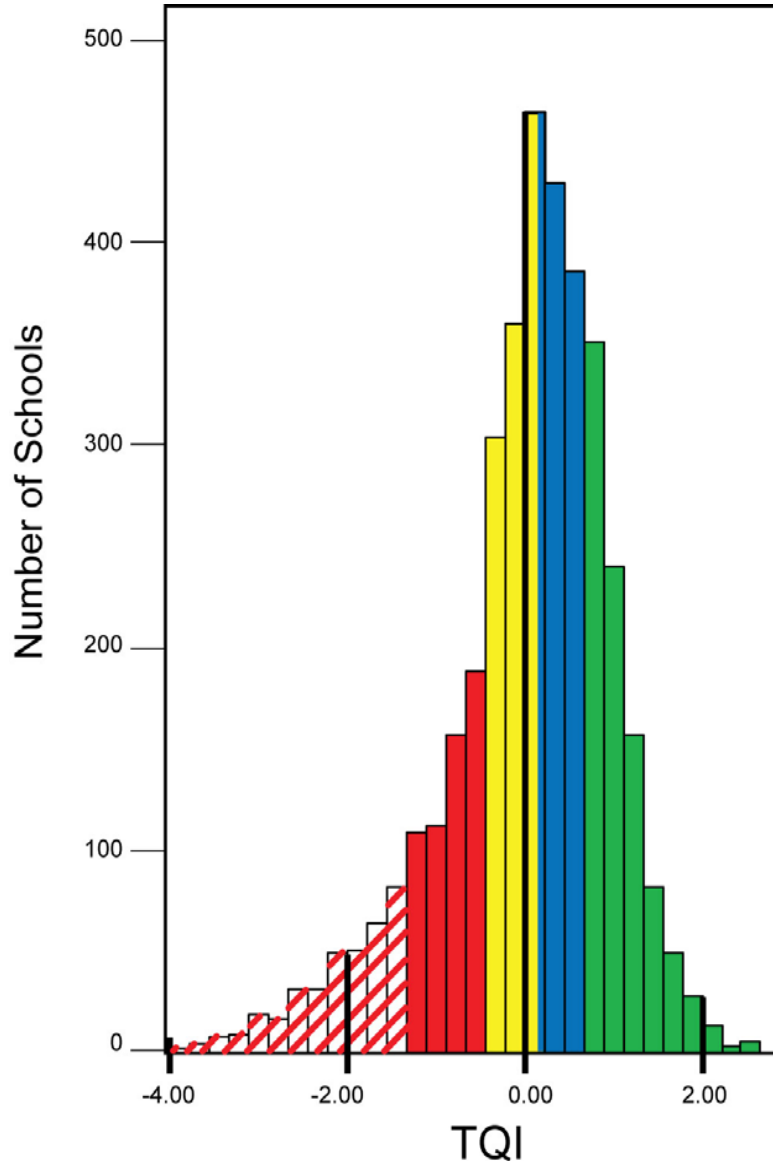


Using the TQI

- **Working with the Education Trust , the Joyce Foundation, and others on a 3-state project**
 - **Focus on policy perspective and equity & access issues**
- **Communicating results to a lay audience**
 - **Dividing TQI into quartiles (+ bottom 10%)**
 - **Using constant poverty and minority categories**



Distribution of School TQI

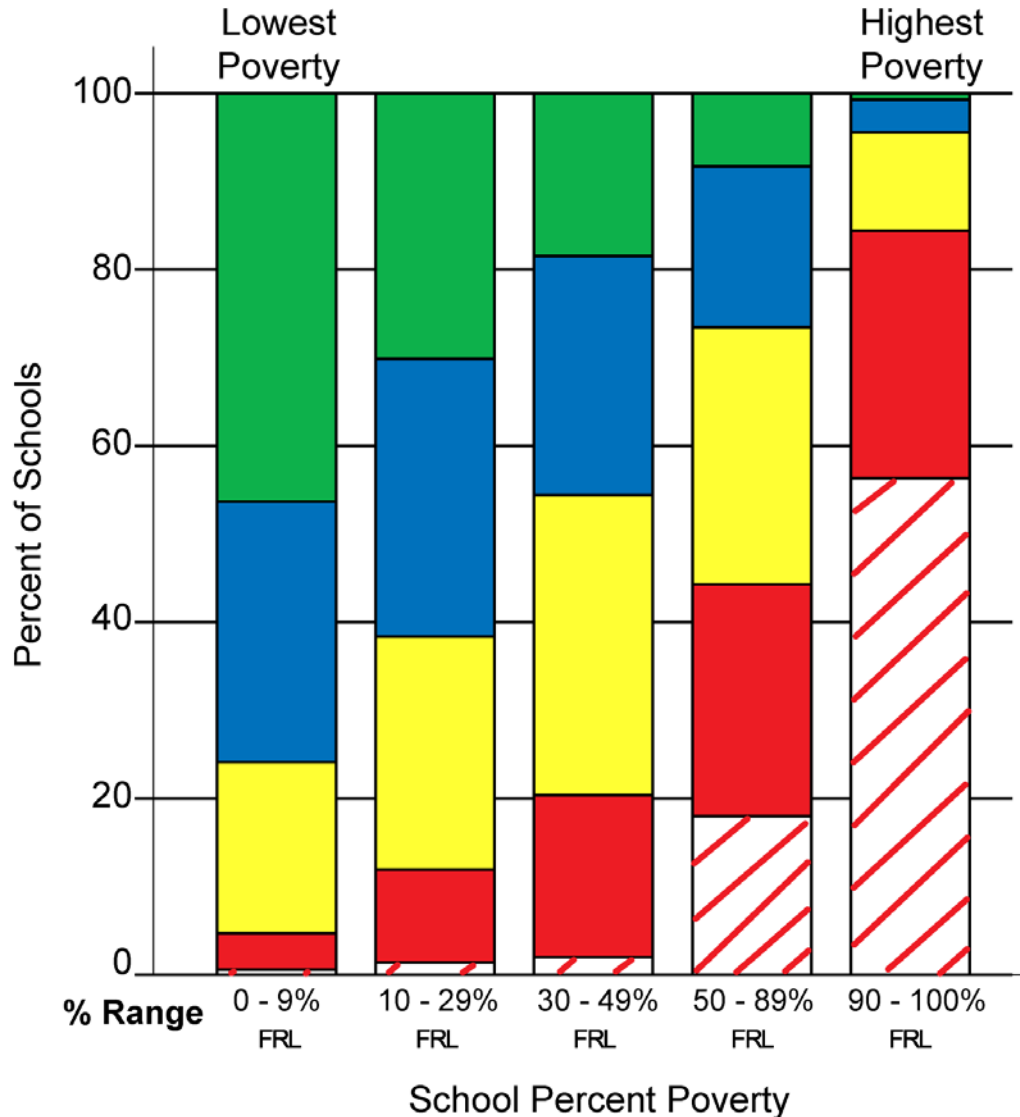


- We divided all schools in the state into four statewide quartiles, based on their TQI. The quartiles (and lowest 10%) are shown in the four colors in the graph.*

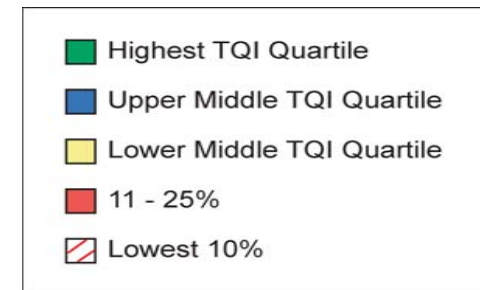
| Average TQI by Quartile | | | | | |
|-------------------------|------------------|--------|--------------|--------------|---------|
| | Lowest Quartile | | Lower Middle | Upper Middle | Highest |
| | 0-10% | 11-25% | | | |
| TQI | -2.1 | -0.8 | -0.1 | 0.4 | 1.1 |



Distribution of School TQI by School Percent Poverty

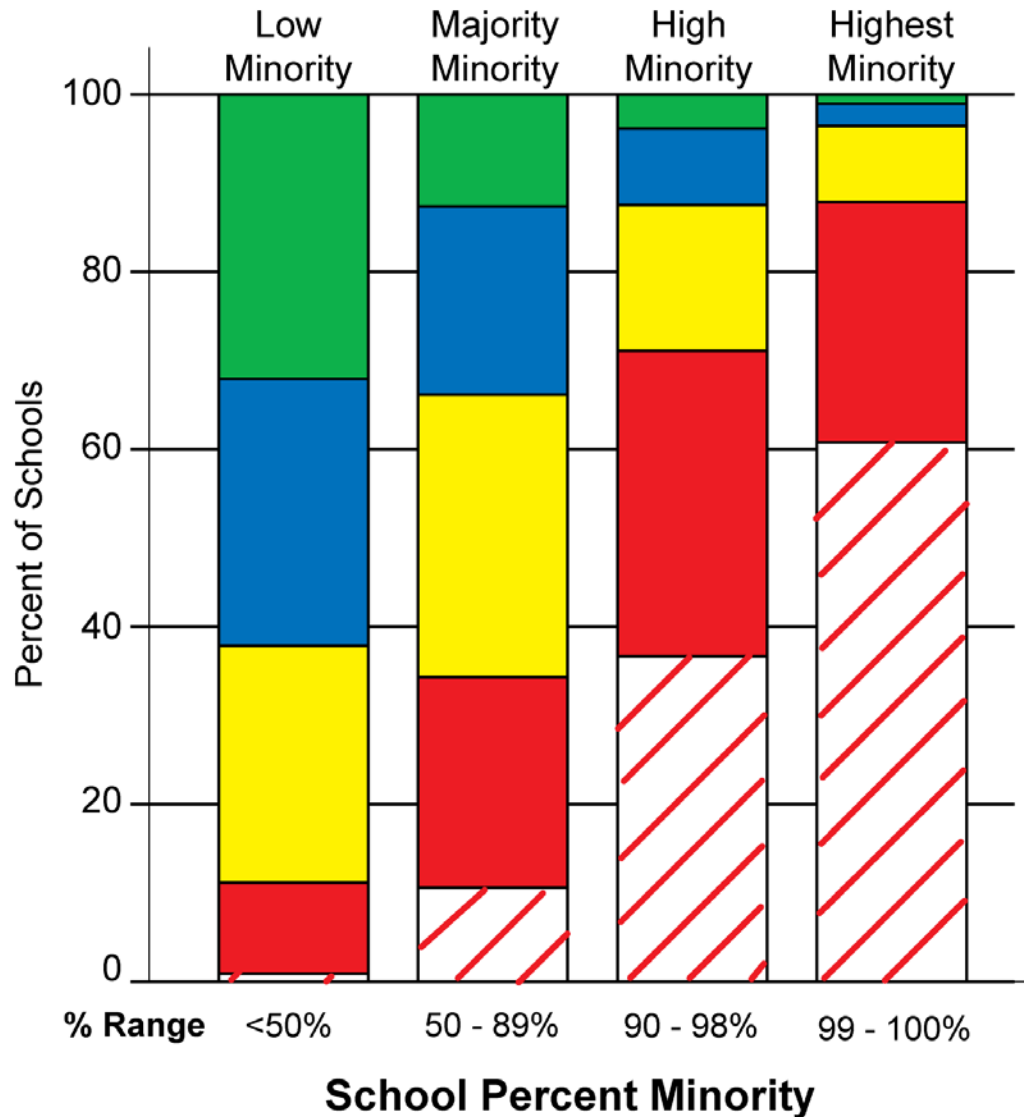


- *TQI distribution is strongly related to school poverty levels ($r=-.63$).*
- *The differences continue across all poverty groupings.*

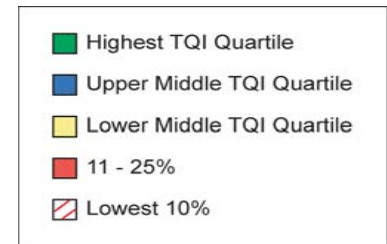




Distribution of School TQI by School Percent Minority

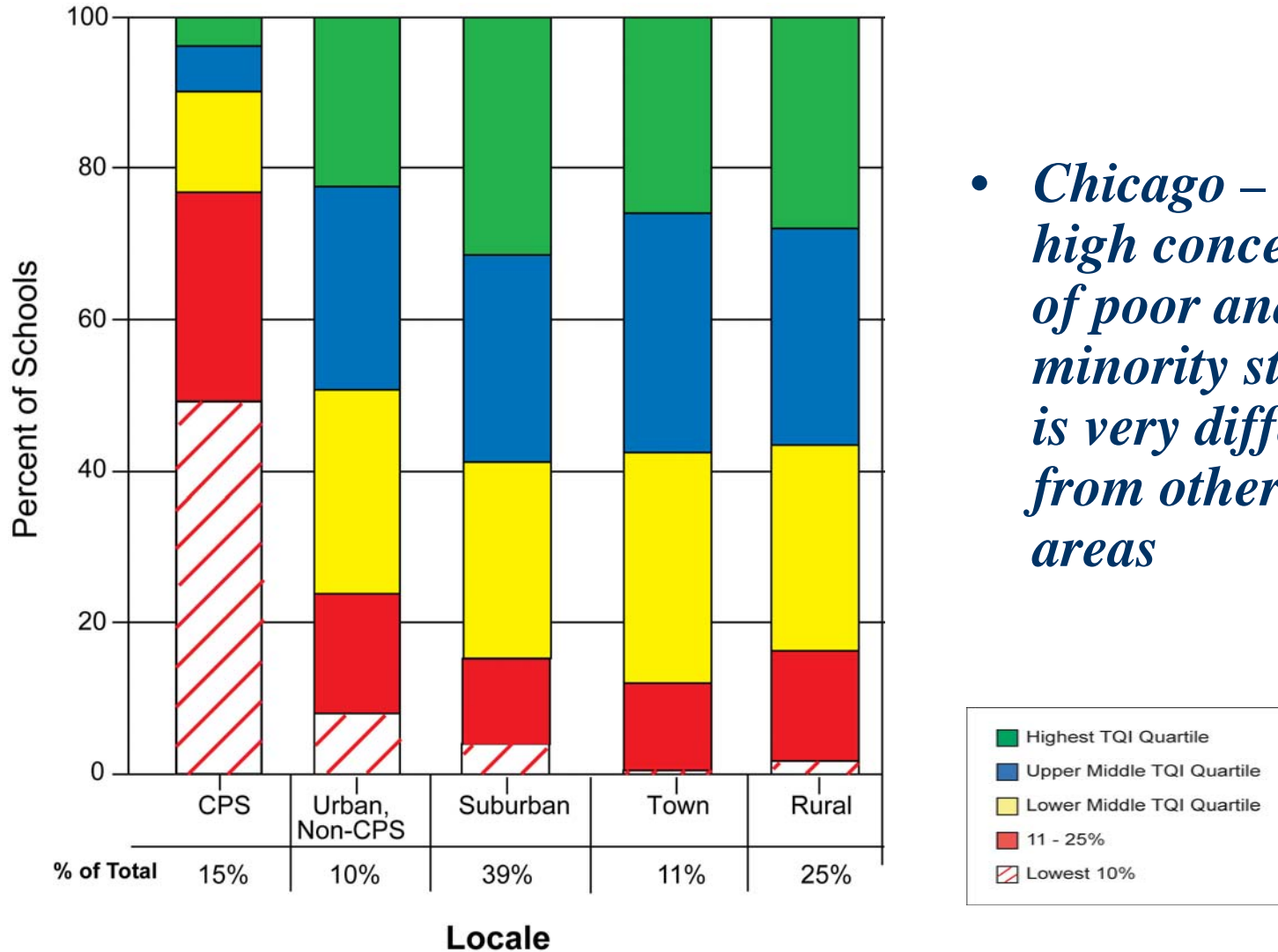


- TQI distribution is strongly related to school minority levels ($r=-.58$).*
- Little difference below about 50% minority*





Distribution of School TQI by Locale



- Chicago – with its high concentration of poor and minority students – is very different from other urban areas*



Regression Model

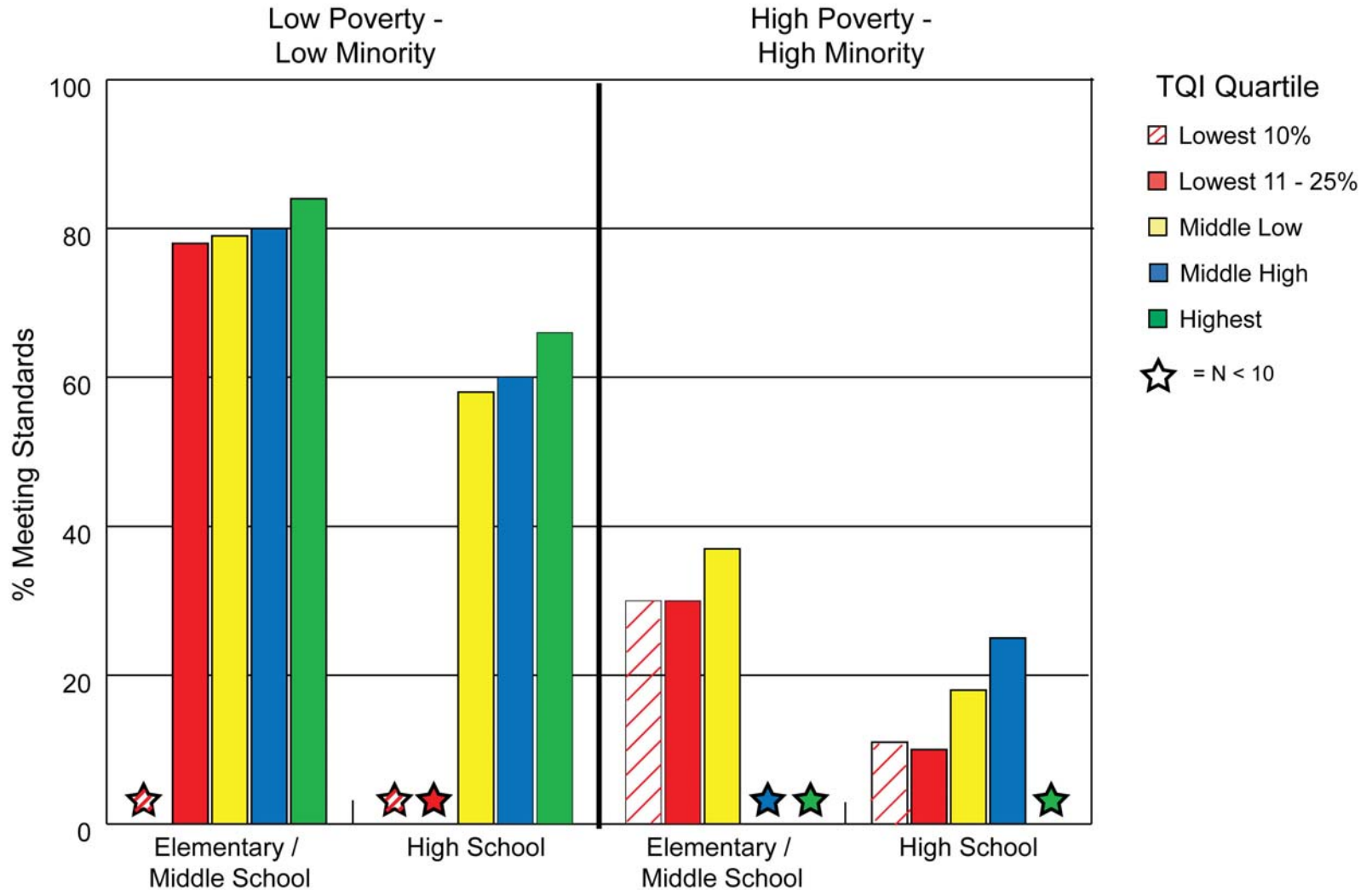
% Meeting or Exceeding State Standards

| | Elem | Elem/Mid | Mid | HS |
|-------------------------------|-------------|-----------------|------------|-----------|
| Intercept | 83.6 | 82.5 | 77.7 | 60.3 |
| TQI | 1.3 | 1.9 | 2.9 | 5.9 |
| 10% Minority | -1.3 | -1.0 | -0.5 | -0.6 |
| 10% FRL | -3.3 | -3.8 | -4.1 | -3.8 |
| | | | | |
| Adjusted R² | .68 | .76 | .72 | .70 |
| N | 1321 | 1357 | 499 | 580 |

All values significant at $p < .01$



School Performance by TQI



- TQI appears to matter more for high-poverty/high-minority schools and for high schools.*



Summary of Findings

- The distribution of teacher quality is strongly related to school poverty and minority levels, regardless of the region of the school.
- Students in the highest-poverty and highest-minority schools typically face qualitatively different teachers than students in other schools.
- TQI appears to have an independent effect on school achievement, especially in the upper grades.



Implications

- Interventions need to be targeted towards high-needs schools to make them more attractive places to work.
 - Salary
 - Working conditions
- Human resource policies and practices (hiring, firing, placement, and transfer) should consider the distribution of teacher quality.
- Improvements in overall teacher quality are needed to ensure that all students have access to high quality teachers.



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