



The Distribution of Teacher Quality in Illinois

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National Comprehensive Center for
Teacher Quality

March 28-29, 2007

Washington, D.C.



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*



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

School Level Teacher Characteristics

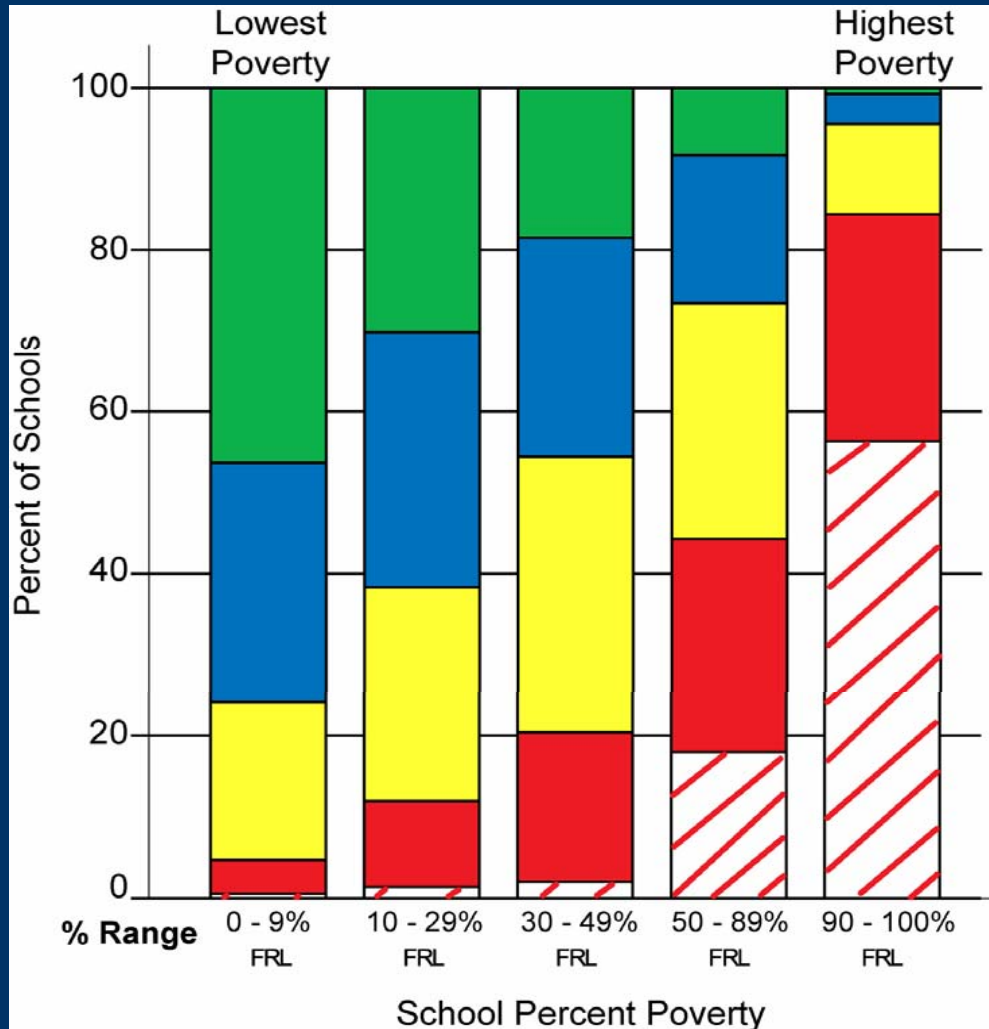
Weight

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

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Example of Distribution of School TQI: by School Percent Poverty

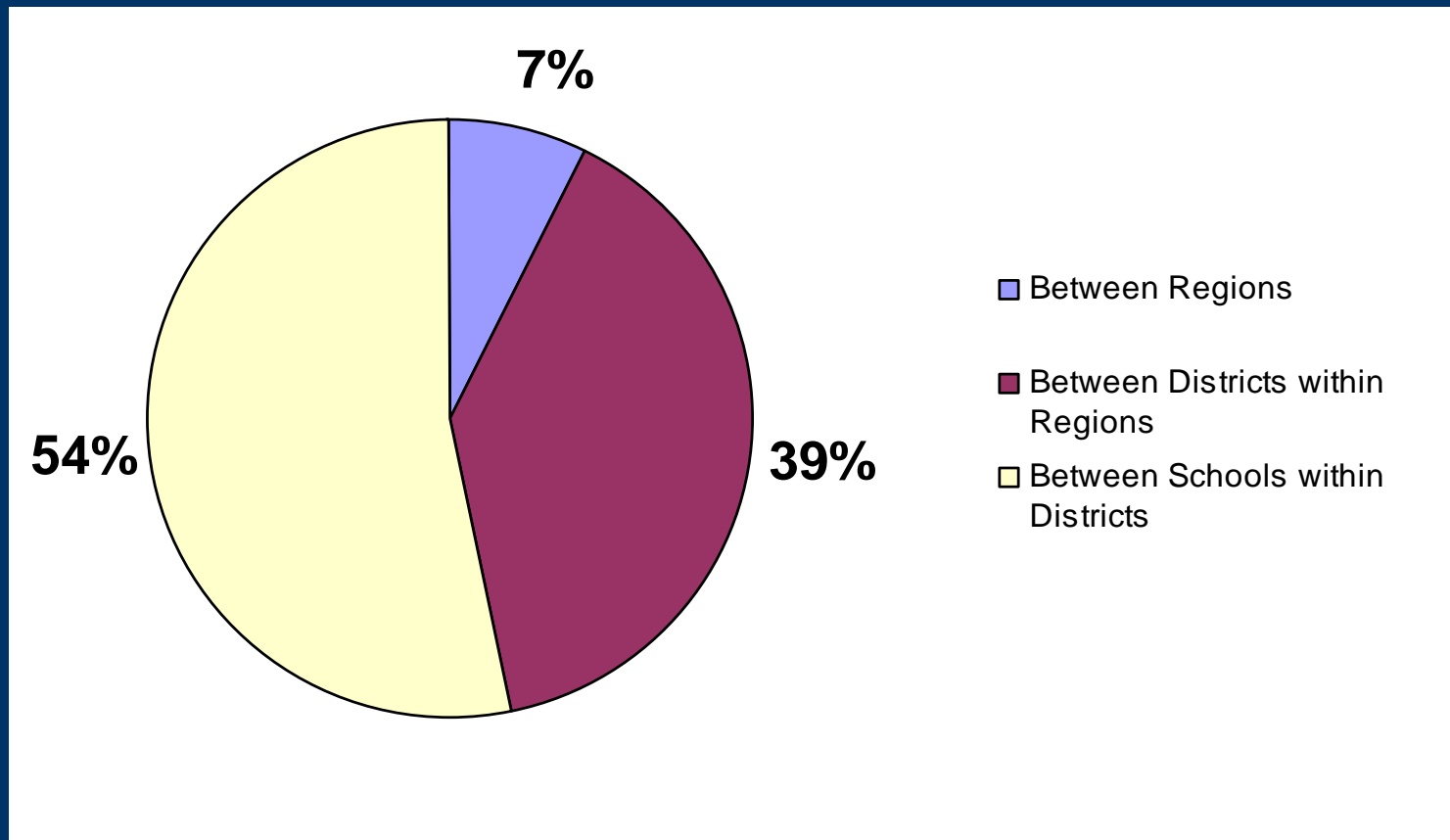


- *TQI distribution is related to school poverty levels.*
- *Pattern is similar for schools that are 50%- 99% minority.*





Sources of Variance in School TQI



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

Statewide 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.*



Some Preliminary New Findings Related to School Performance on State Tests*

ELEM/MID SCHOOLS	All Schools	Chicago	Non-Chicago
Increase 1 SD in TQI	+0.10	+0.14	+0.07
Increase 1 SD TQI without experience (iTAQ)	+0.09	+0.14	+0.07
Increase 1 SD % Inexperienced teachers	-0.10	-0.01	-0.13
HIGH SCHOOLS	All Schools	Chicago	Non-Chicago
Increase 1 SD TQI	+0.28	+0.28	+0.31
Increase 1 SD TQI without experience (iTAQ)	+0.28	+0.24	+0.31
Increase 1 SD % Inexperienced teachers	+0.00	+0.02	-0.01

- **Teaching experience** has very little relationship to school achievement in Chicago, or in high schools state-wide; but it has a relatively large (negative) relationship at the elementary/ middle school level outside of Chicago
- **iTAQ** strongest for Chicago, and for high schools

*Regression analysis controlling for school percent minority and percent FRL.
iTAQ = Index of Teacher Academic Quality (TQI minus experience).



Summary of Findings

- TQI is distributed unequally by school percent poverty and percent minority.
- Districts play an important role in teacher distribution.
- TQI matters.
 - It matters more for high-poverty/high minority schools,
 - And especially for high schools.
- Recent new teachers may be bringing stronger academic backgrounds, especially in Chicago.