



Student Grades as an Outcome Measure in Program Evaluation: Issues of Meaning and Validity

Preliminary Research – November 2009

Kelci Price
Chicago Public Schools, Department of Research and Evaluation

Contents

- ▶ What do course grades look like across time?
- ▶ What is the relationship between course grades and test scores?
- ▶ Do school-level factors influence the relationship between course grades and test scores?
- ▶ What are the implications for evaluation?

Importance of grades

- ▶ Central way schools communicate about students' academic achievement
- ▶ Grades are “high stakes” - play critical role in decisions about students' academic future
 - ▶ Promotion to next grade
 - ▶ Graduation
 - ▶ College entrance
 - ▶ Eligibility for remedial/accelerated programs

What do grades mean?

- ▶ Presumed to represent academic achievement
- ▶ Holistic – achievement across a relatively long window of time, across multiple modes of assessment
- ▶ Components of knowledge, effort, behavior, ?
- ▶ *But how good a measure are grades of content knowledge?*

School effects on meaning of grades

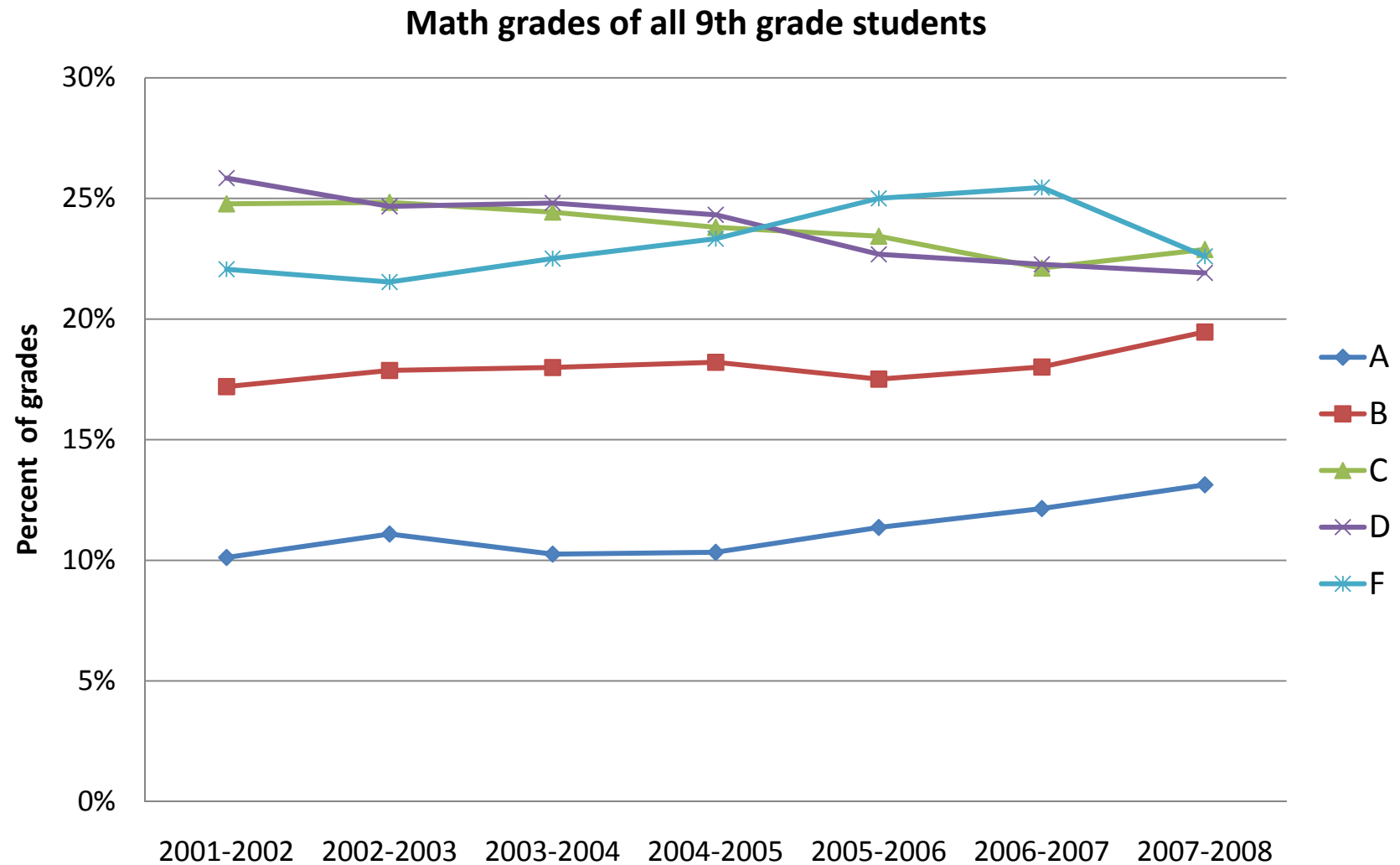
- ▶ Are there systematic differences between schools that relate to differences between grades and test scores?
- ▶ Addresses concept of differential grading
 - ▶ “Differential grading standards result from different schools assigning different grades for the same level of student achievement” (Woodruff and Ziomek, 2004; p. 1)

Methodology

- ▶ **Elementary school grades (3, 6, 8) and ISAT**
 - ▶ Year-end course grades in math and reading
 - ▶ Grades 3 (n=20,325), 6 (n=23,517), 8 (n=21,000)
 - ▶ 2006-2007 school year
- ▶ **Math grades in 11th grade and PSAE**
 - ▶ Math GPA in 11th grade cf. end-of-year math PSAE scores (n=16,007)
 - ▶ 2004-2005 school year
- ▶ **High school semester grades**
 - ▶ First semester math course grades for 9th, 10th, and 11th grade between 2000-2001 and 2007-2008

What does the distribution of
grades within CPS look like
across time?

Grade distributions: across time



Grade distributions: % changes in math grade distributions between 2001-2002 and 2007-2008

	A's	B's	C's	D's	F's
9th grade	+ 3%	+ 2%	- 2%	- 4%	+1%
10th grade	0%	+1%	-2%	-4%	+1%
11th grade	+2%	+1%	-1%	-3%	+1%

How are grades related
to test scores?

General relationship between grades and test scores

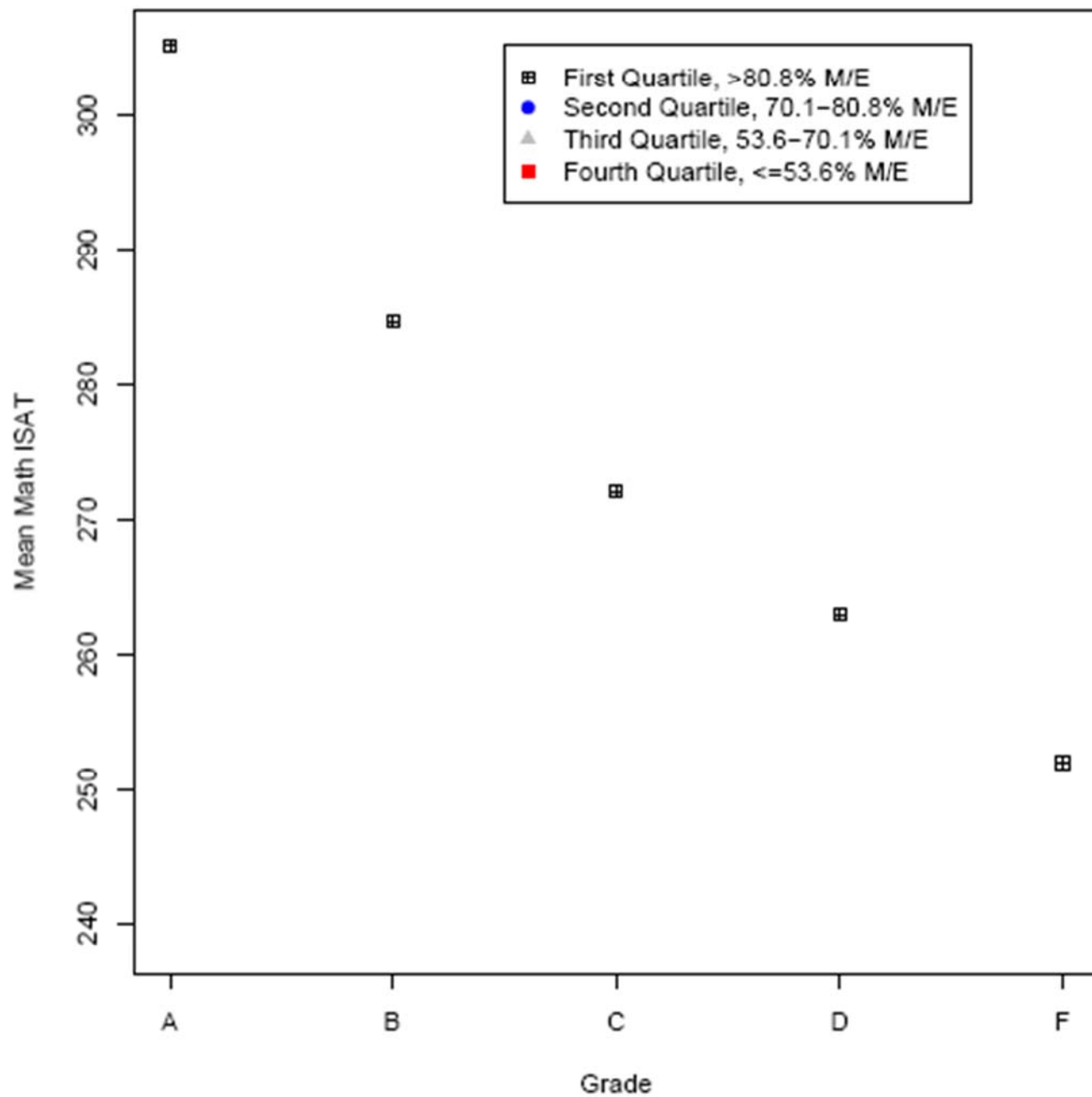
- ▶ In general, grades and test scores rise together
 - ▶ Strength of the relationship is somewhat lower at higher grade levels

	3rd grade (06-07)	6th grade (06-07)	8th grade (06-07)	11th grade (04-05)
Math	0.66	0.61	0.55	0.42
English	0.68	0.56	0.48	--

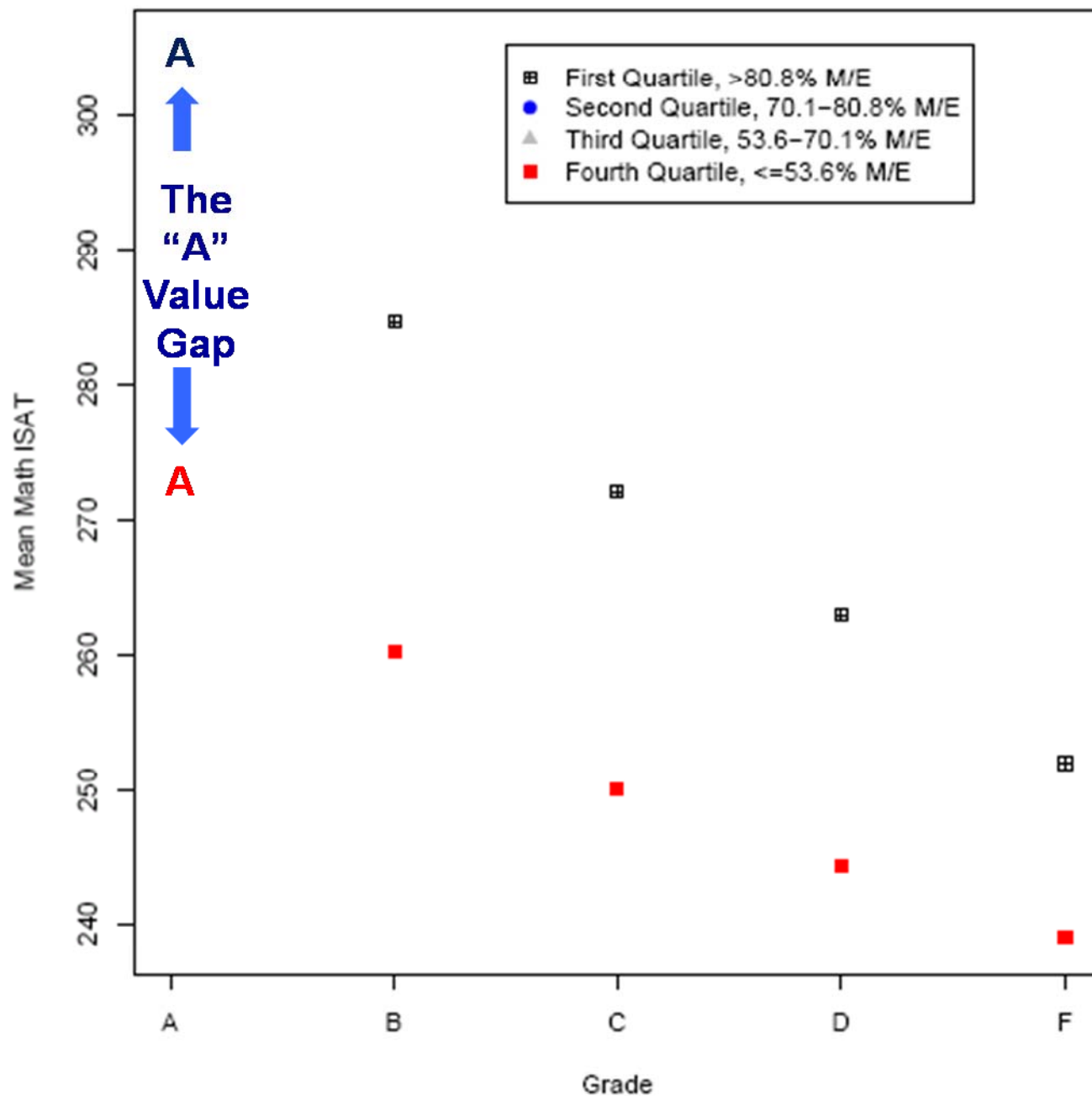
Differential Grading

Is an “A” always an “A”?

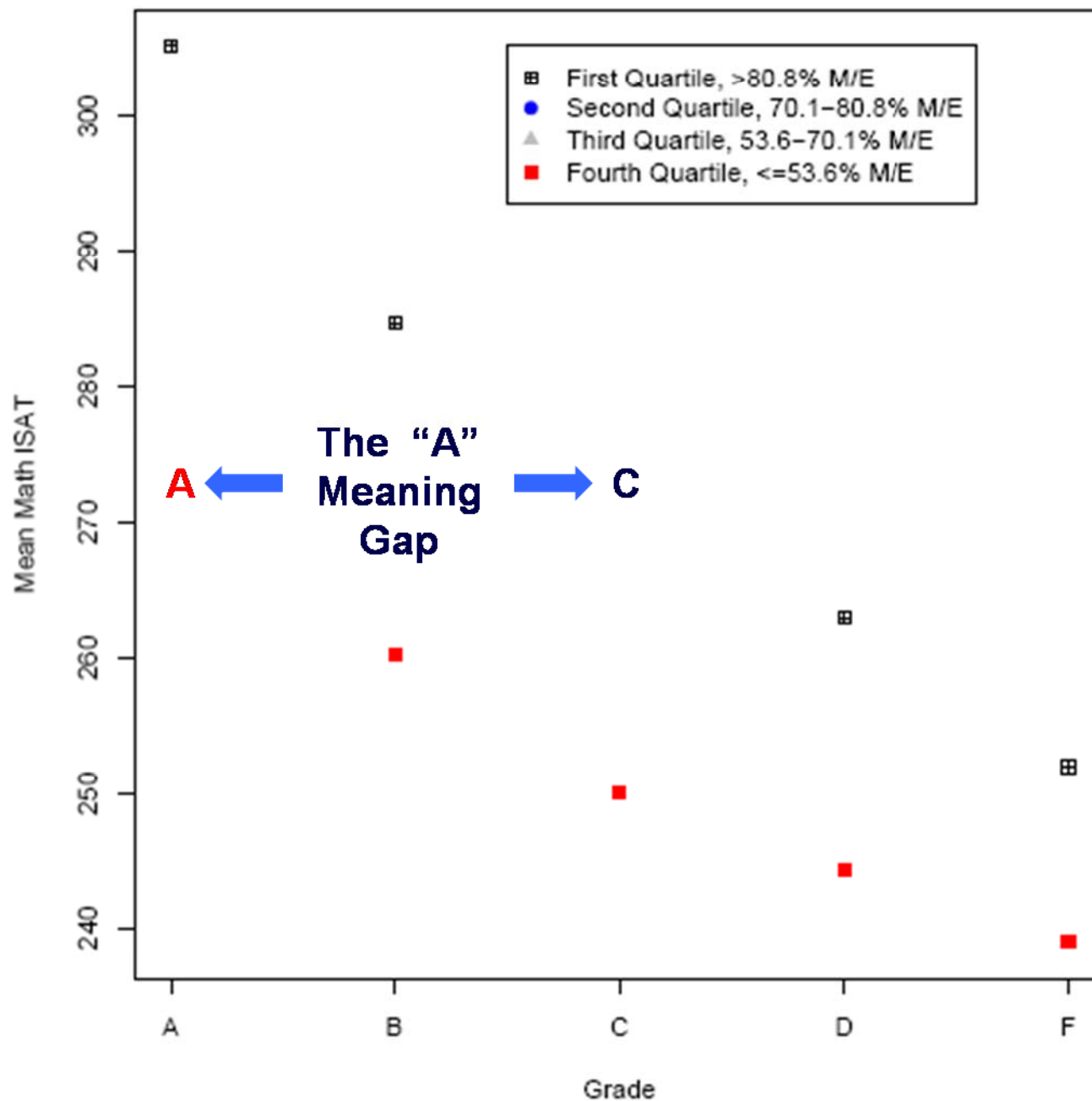
Differences in Grade 8 Math ISAT by Course Grade and School Achievement



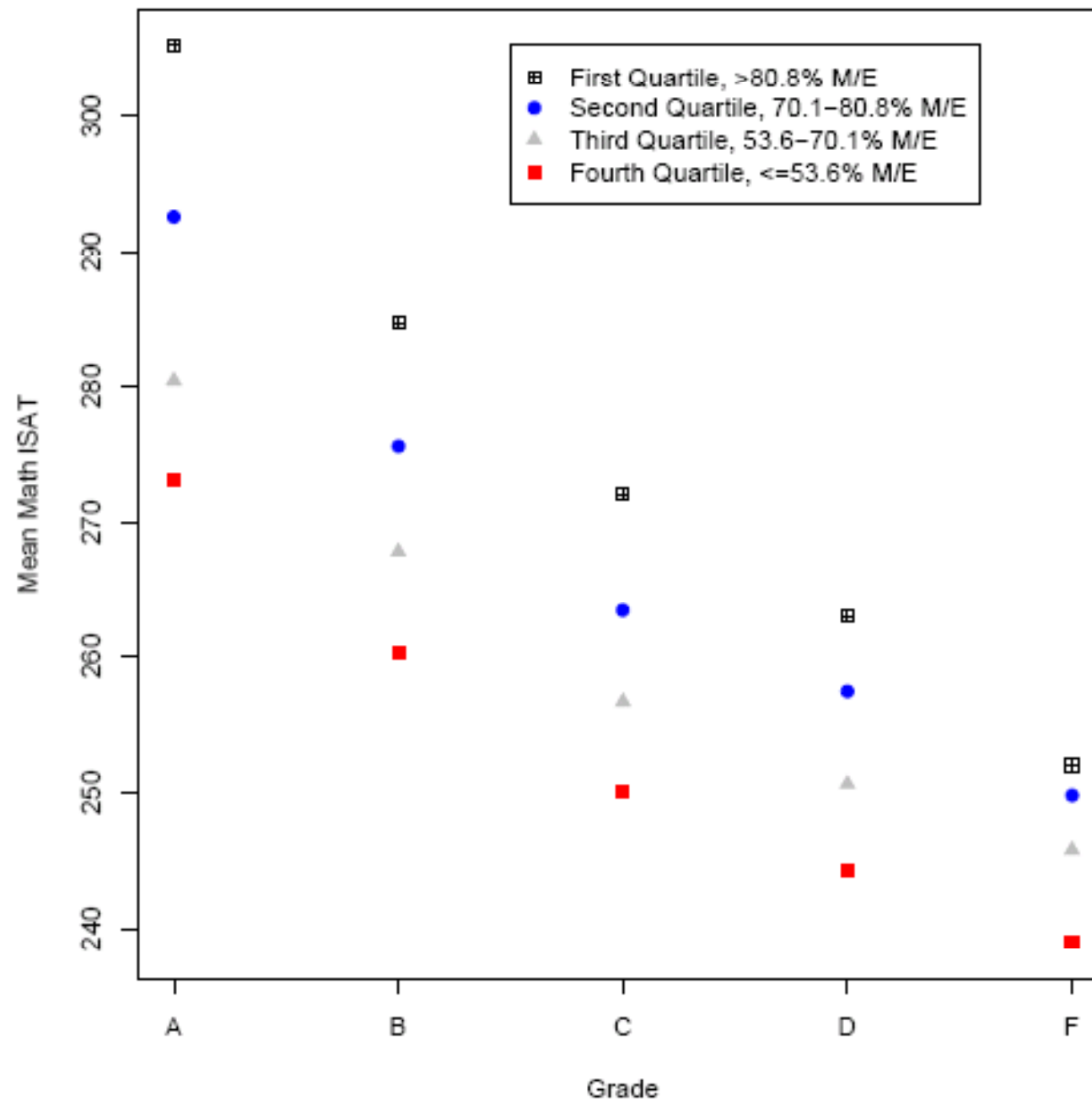
Differences in Grade 8 Math ISAT by Course Grade and School Achievement



Differences in Grade 8 Math ISAT by Course Grade and School Achievement

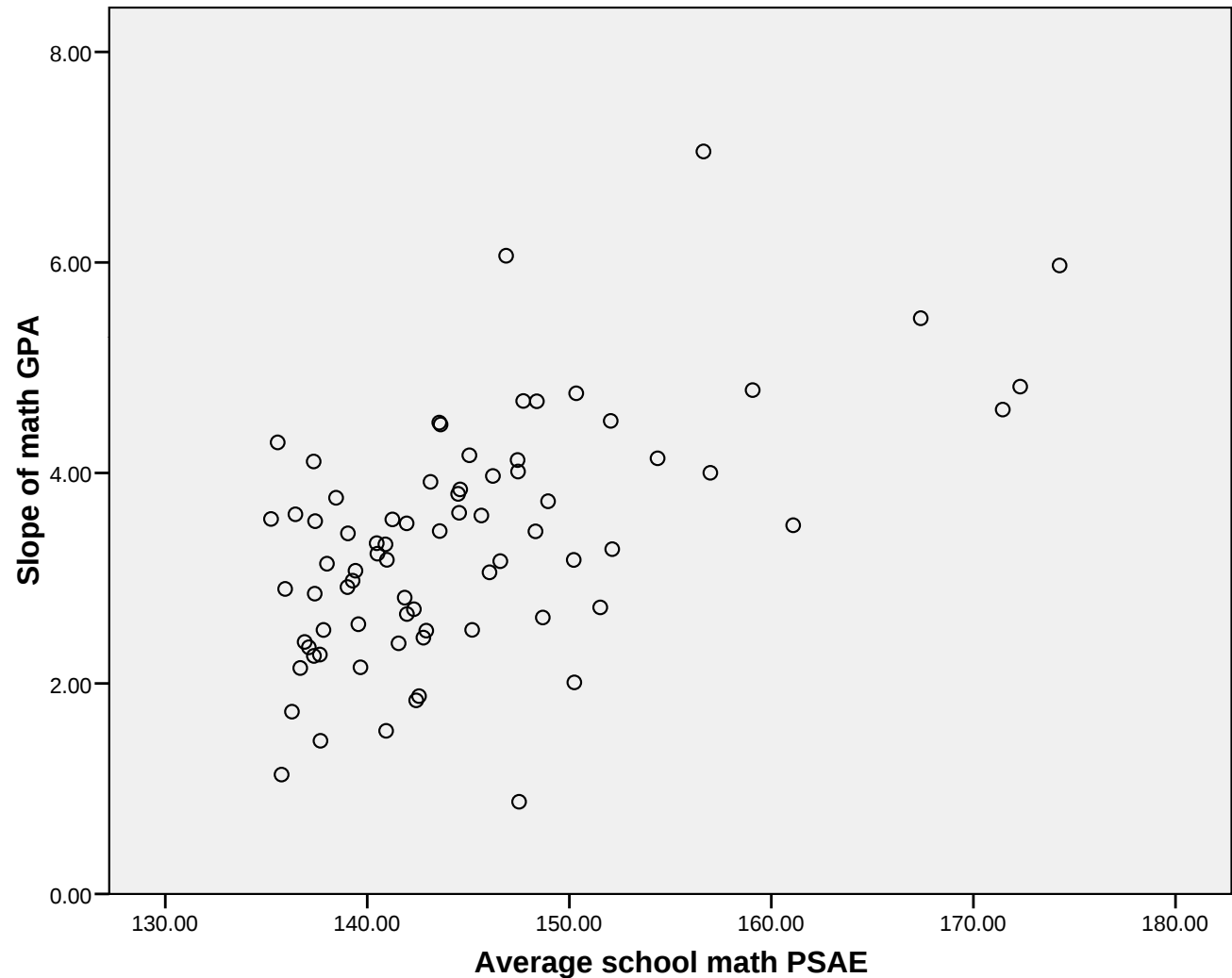


Differences in Grade 8 Math ISAT by Course Grade and School Achievement



What does this mean at the school level?

- ▶ **At the highest performing schools, the predictiveness of grades can be up to 7 times better than at the lowest performing schools.**



Main findings

- ▶ Consistent distributions of grades across time, schools, grade levels
 - ▶ Nothing is happening?
 - ▶ Implicit grade distributions?
- ▶ Differences in absolute levels of achievement for a certain grade (e.g., “A”)
 - ▶ Expectations of content knowledge?
 - ▶ Rigor of material taught?
- ▶ Differences in relationships between grades and test scores
 - ▶ Content of grading schemes?

Implications for measurement of program effectiveness and school improvement

- ▶ *“We can compare grades across schools”*
 - ▶ Cannot assume grades mean the same thing across schools, especially when schools vary substantively on important dimensions such as achievement
- ▶ *“If the program works/students are learning then grades will go up”*
 - ▶ Grades are moderate measure of some types of content knowledge
 - ▶ May be implicit grade distributions – relative expectations

View from a CPS high school

Consider what this teacher had to say about grading students in her class:

TEACHER: *My standards have gone down so much since working here. Part of me, when the kids show up and they sit down and write—anything, whether it's right or wrong—I want to pass them. Which is really unfair to them, because most of them can't do the work.*

...

TEACHER : *Mostly the reasons that I fail people, is because they don't come to school.*

REPORTER: *So basically if you just show up and ...What? Do anything?*

TEACHER : *Uh –huh.*

REPORTER: *You get a D at least?*

TEACHER : *Yeah.*

*From “50/50: Grading Mykelle”
on “Eight Forty-Eight”, Chicago
Public Radio, 3/31/2009*

Portfolio of Research

- ▶ The results presented here form part of an on-going portfolio of research regarding the relationship between grades and outcomes in CPS. Additional information, presentations, and papers will be posted to our website as they become available.

Contact Information

Kelci Price

Chicago Public Schools

Department of Research and Evaluation

kprice1@cps.k12.il.us

Website: <http://research.cps.k12.il.us/cps/accountweb/Evaluation>