Closing Achievement Gaps with SAGE

Measurement Considerations from the Office of Educational Accountability

10/22/14

Committee Proposal

SAGE

- Focus on class size reduction
- No accountability
- Limited eligibility requirements

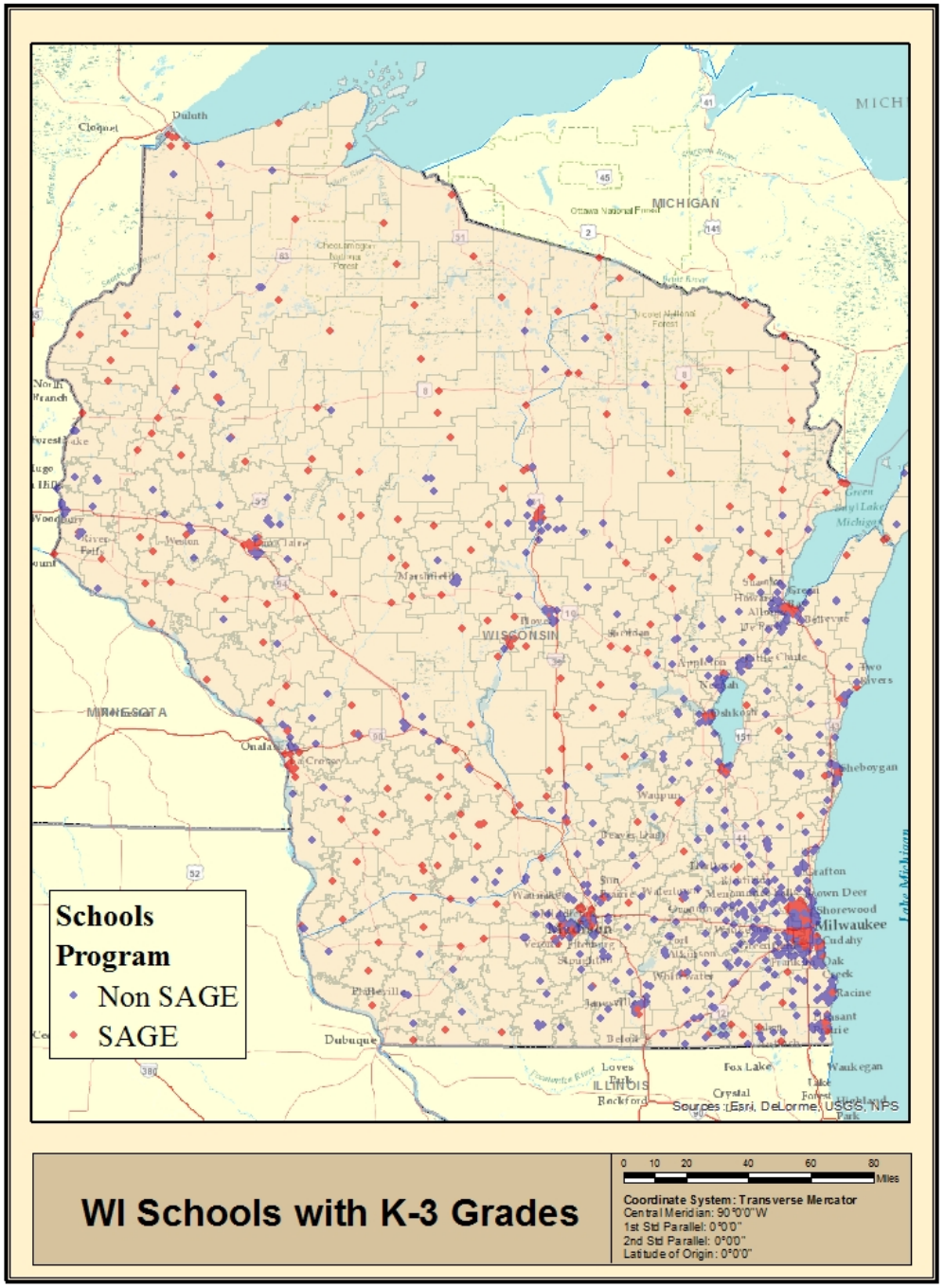
Proposed Program

- Focus on closing achievement gaps through three possible interventions:
  - Class size reduction (still 18:1) with professional development
  - 1:1 tutoring with a licensed educator
  - Instructional coaches
- Accountability by tying continued eligibility to gap closure over the five years of the program
- Possible eligibility requirement: the school must be at least 50% economically disadvantaged

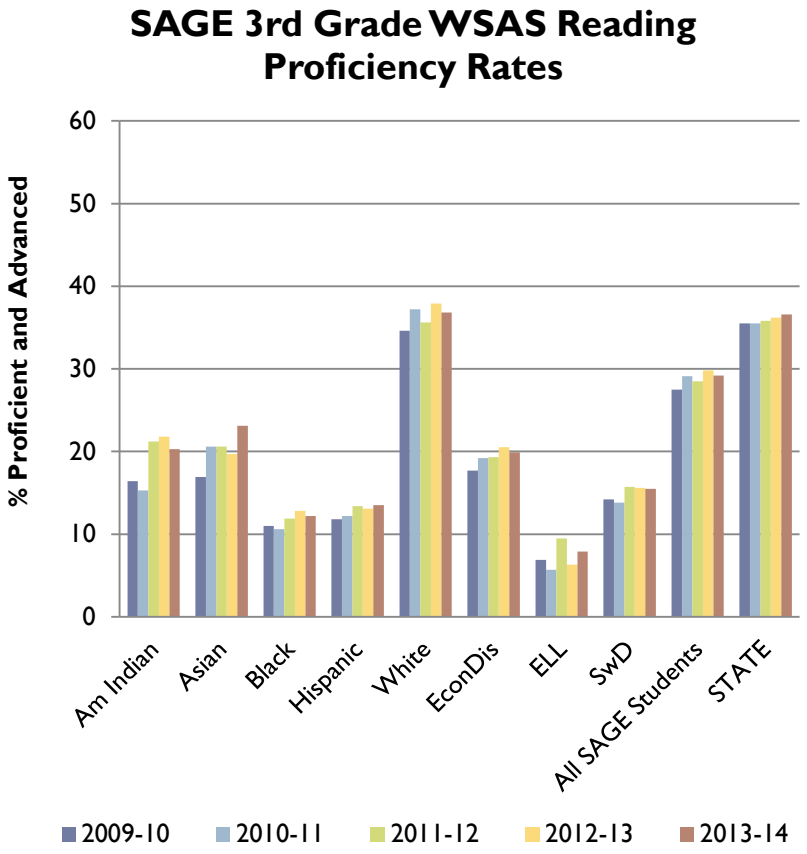
SAGE Schools

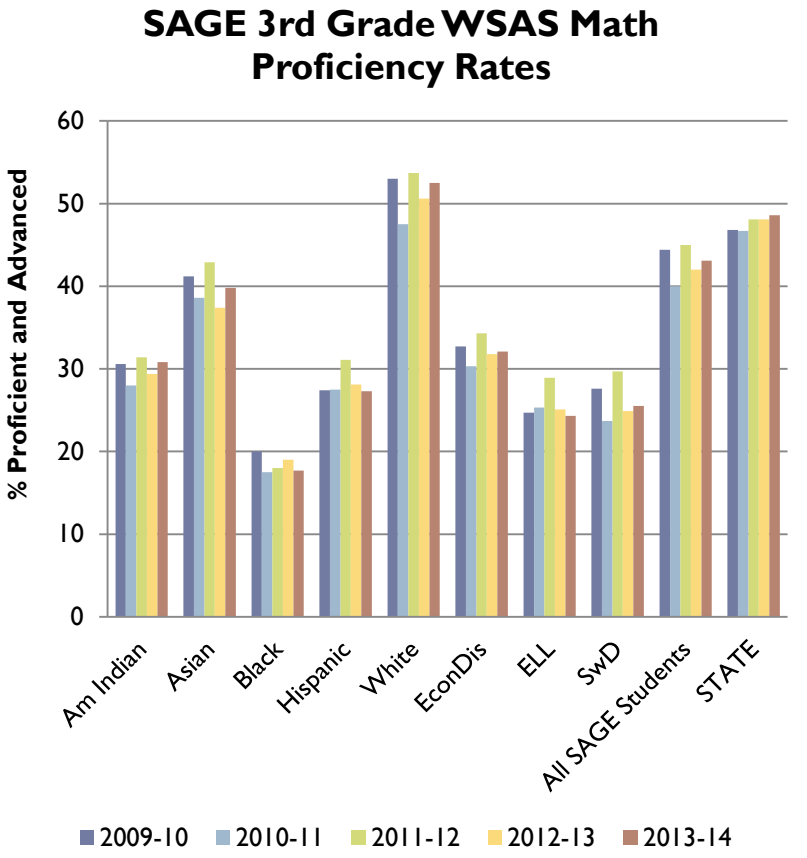
2013-14:

- 424 schools
- 82,354 students (K-3)
- 403 schools have a tested grade
  - 21 (5%) do not have a tested grade
  - 71 (18%) have fewer than 20 FAY tested 3rd grade students



Achievement Context





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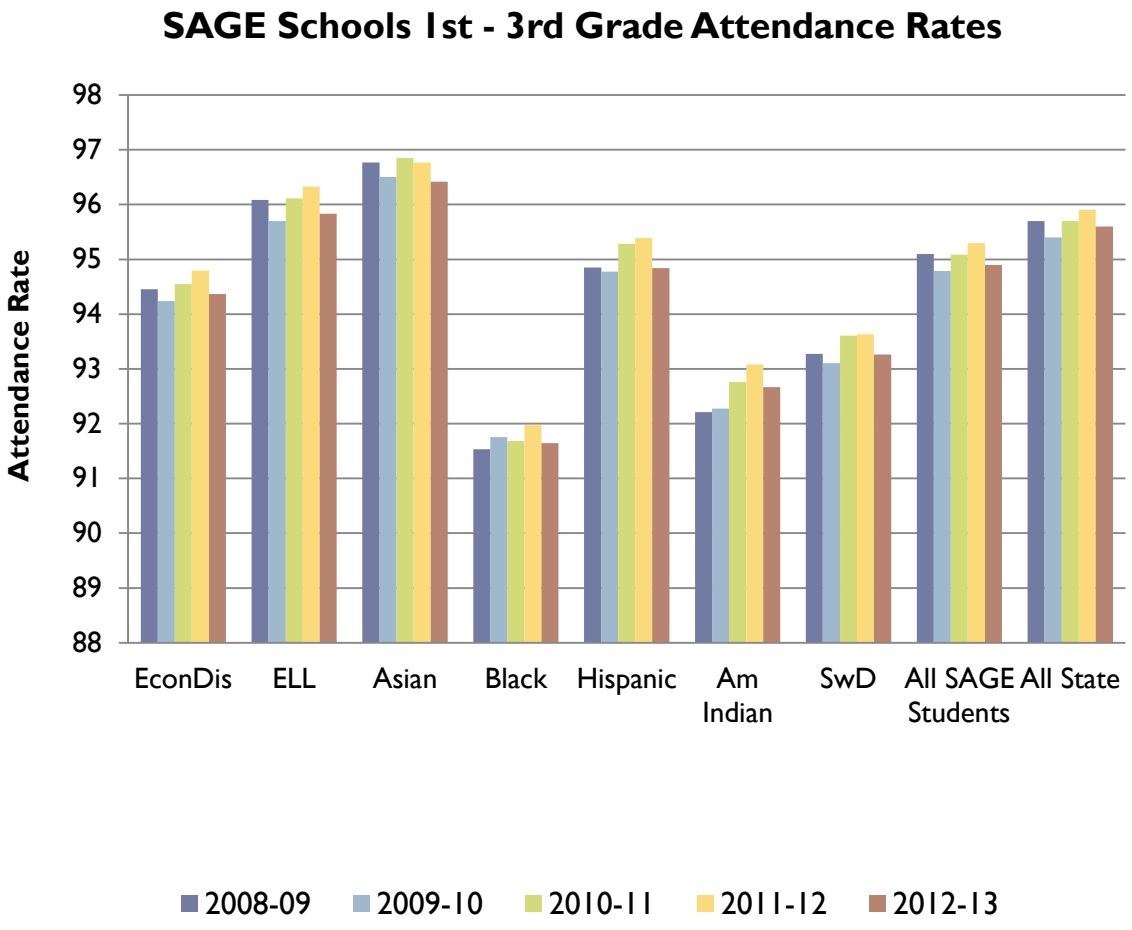
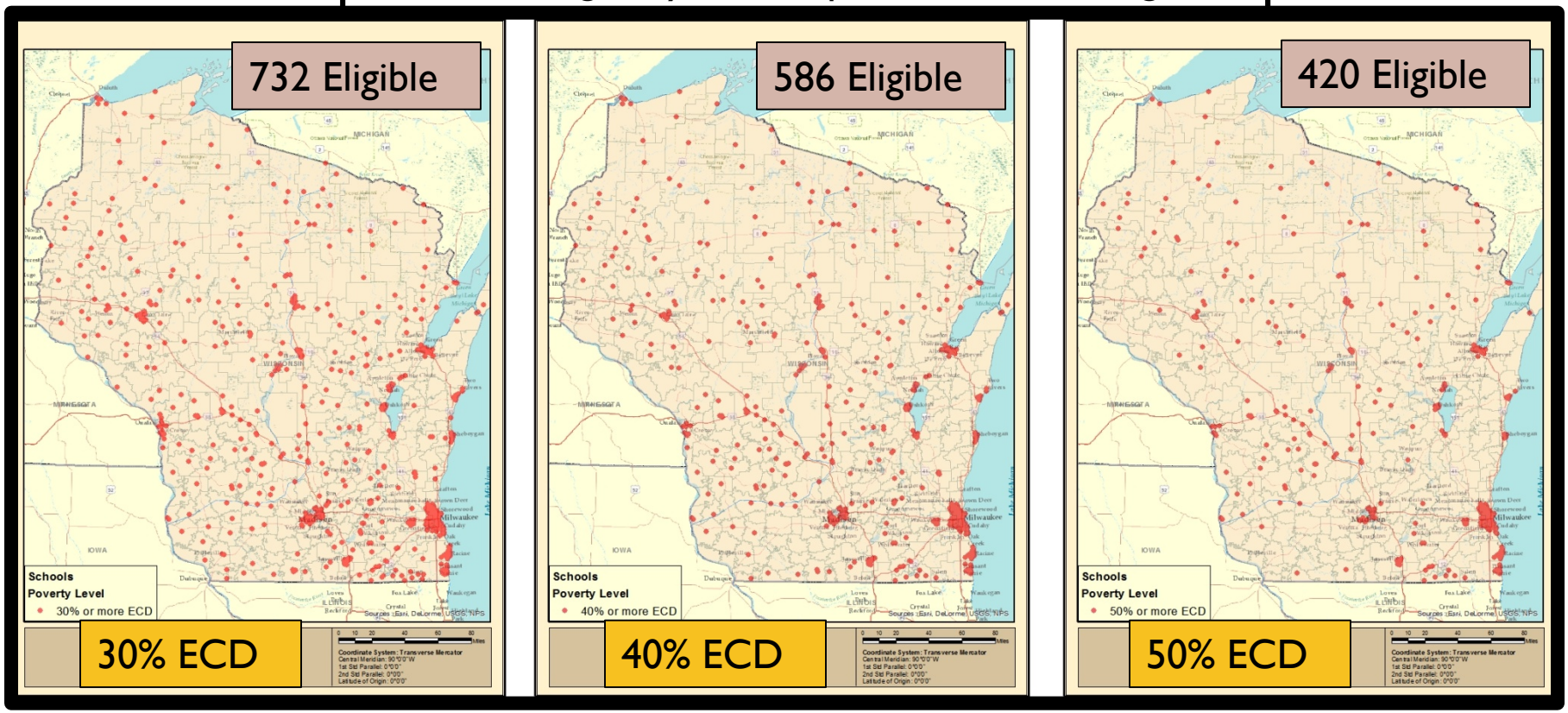


Committee Proposal Impact

In 2013-14:

- 291 current SAGE schools (69%) are more than 50% economically disadvantaged
- Statewide 420 schools would meet SAGE eligibility (having a K-3 grade and 50% economically disadvantaged.)

School Eligibility Based upon ECD Percentages



Committee Proposal Impact: Contract Timeline

- SAGE contracts are renewed every five years. Following is the schedule for when existing SAGE contracts expire, including the percentage of students in poverty (2013-14 data):

School Year in which current contract ends	Total number of schools	Number of schools under 30% economically disadvantaged	Number of schools with less than 50% economically disadvantaged (includes under 30%)
2014-15	352	12	130
2015-16	33	0	2
2017-18	39	0	0

- Renewal Timeline:
  - Renewal applications sent out: January 2015
  - Applications due: April 2015
  - Contracts in place: July 2015

Task: identify a target for expected gap closure over the 5-yr SAGE contract

Challenges in measuring progress toward a statewide goal:

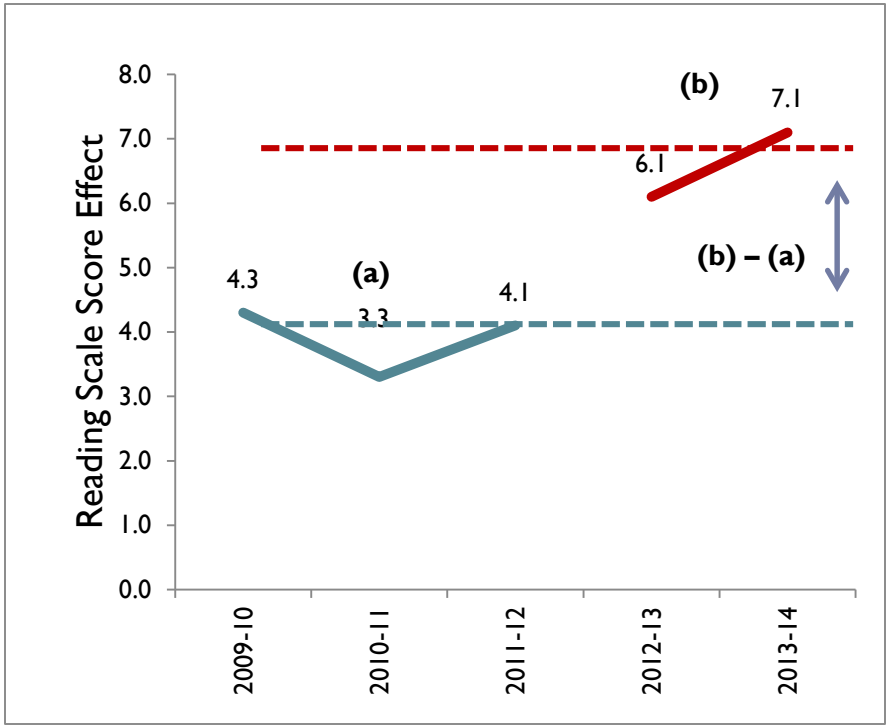
- Cell size
  - The most recent WCER statewide evaluation has found mostly positive effects of SAGE at Grades K – 2, yet the only statewide test available is at Grade 3.
- Potential bias in measures
  - Biases in statistical studies of SAGE remain. The "quality" of high-risk populations are likely different between SAGE and non-SAGE schools – a quality that likely makes effect calculations biased. Any evaluation scheme will retain those biases and must be thought through carefully.
  - Evaluating SAGE at the school level will contain the same biases and may even be magnified.
- Schools without scores
  - Too small
  - No 3rd Grade
- Assessment Transition
  - An appropriate baseline is critical in setting high-stakes expectations.

Option 1: *Model-Based Approach*

- "Closing the Gap" can occur if…
  - …performance is increased schoolwide for SAGE schools having high numbers of at-risk students
  - …performance is increased for at-risk students specifically at SAGE schools
- How are students at SAGE schools performing?
  - In order to be successful, SAGE schools may be expected to improve overall, and particularly improve performance of disadvantaged students in particular.
  - One approach is to evaluate schools based on a statistical model to gauge improvement between two time periods.

Option 1: Model-Based Approach

- Approach
  - In the simplest version, we will need to assume that there is an expectation for improvement in later years (red) from earlier years (blue).
  - Outcomes
    - 3rd Grade Reading and Math Scale Scores
    - Absenteeism (less than 84% attendance)
  - The model can be extended to include more or fewer statistical controls or techniques.



Pool years into a simple statistical model that has a "before" and "after" component for schools.

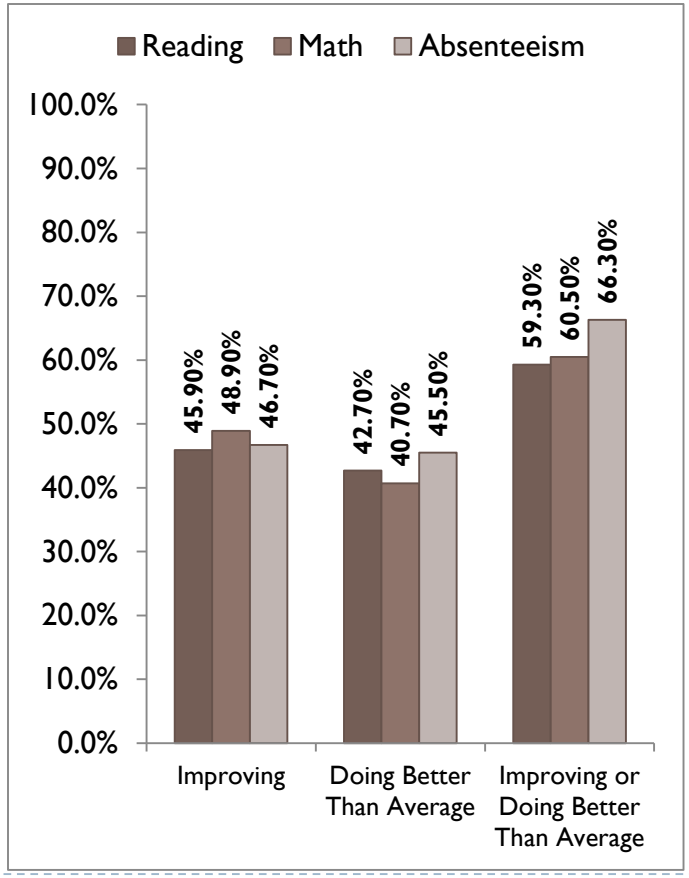
(a) Before*and (b) After. Set a time between which program change occurs.

(b) – (a) = the change, some of which (but not all) may be attributed to improvements in SAGE

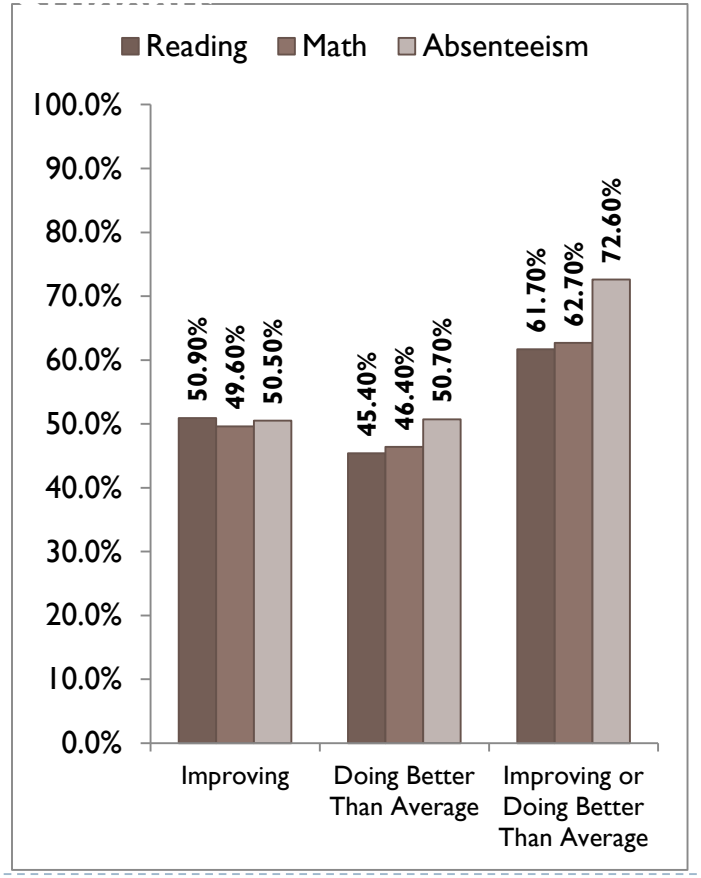
Option 1: Model-Based Approach

- By this model, what proportion of SAGE schools are "improving" or "doing better than average": (Two Examples)

All Students



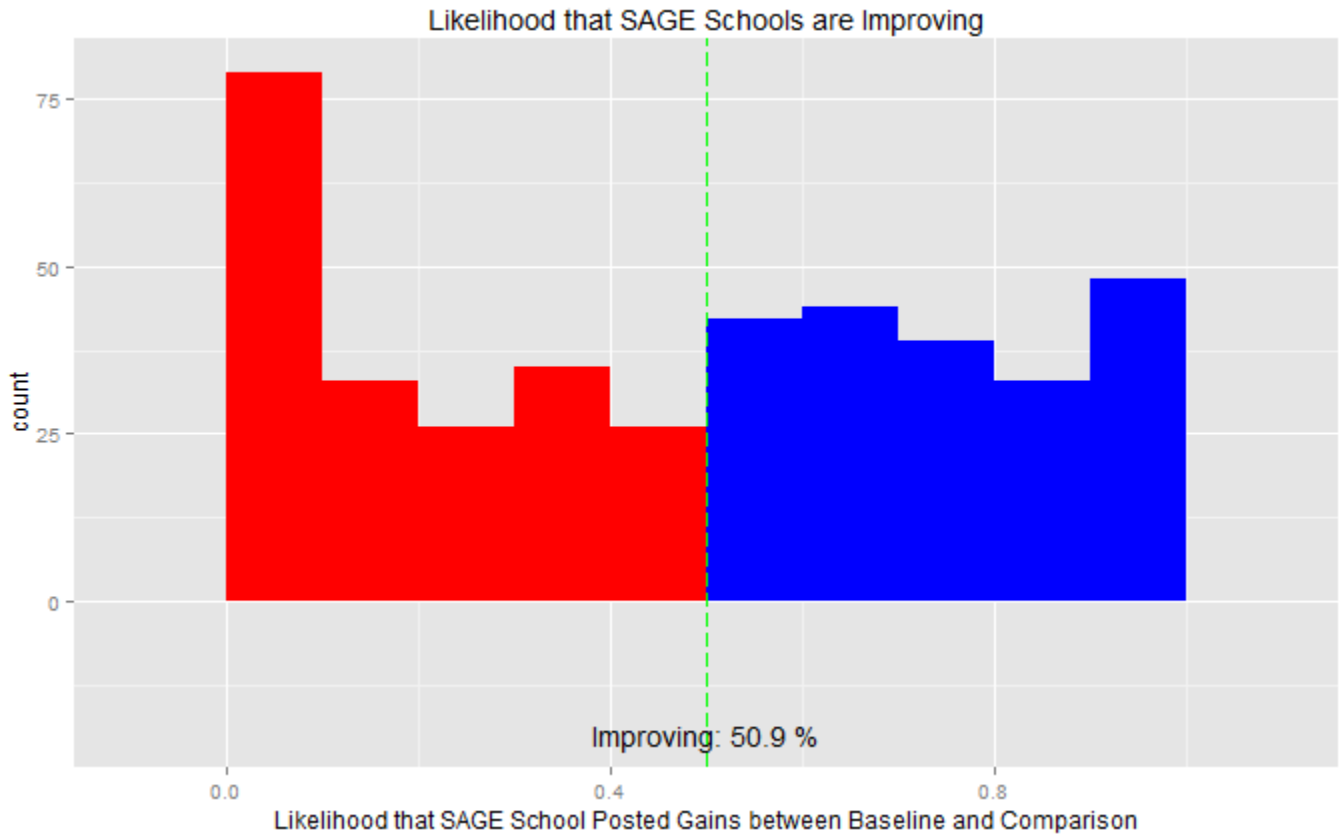
Economically Disadvantaged



Option 1: Model-Based Approach

- The "Improvement" score can also be displayed as a probability:

"a likelihood that a school has improved"



Option 1: Model-Based Approach

- Considerations/Open Questions
  - This kind of statistical modeling may sometimes be opaque to stakeholders
  - Controlling for demographics may imply setting different standards for different students
  - This kind of evaluation simply assesses change between a baseline and a comparison, which leaves little room for evaluating improvement over time
    - Identifying an appropriate counterfactual beyond "before" and "after," especially in future years

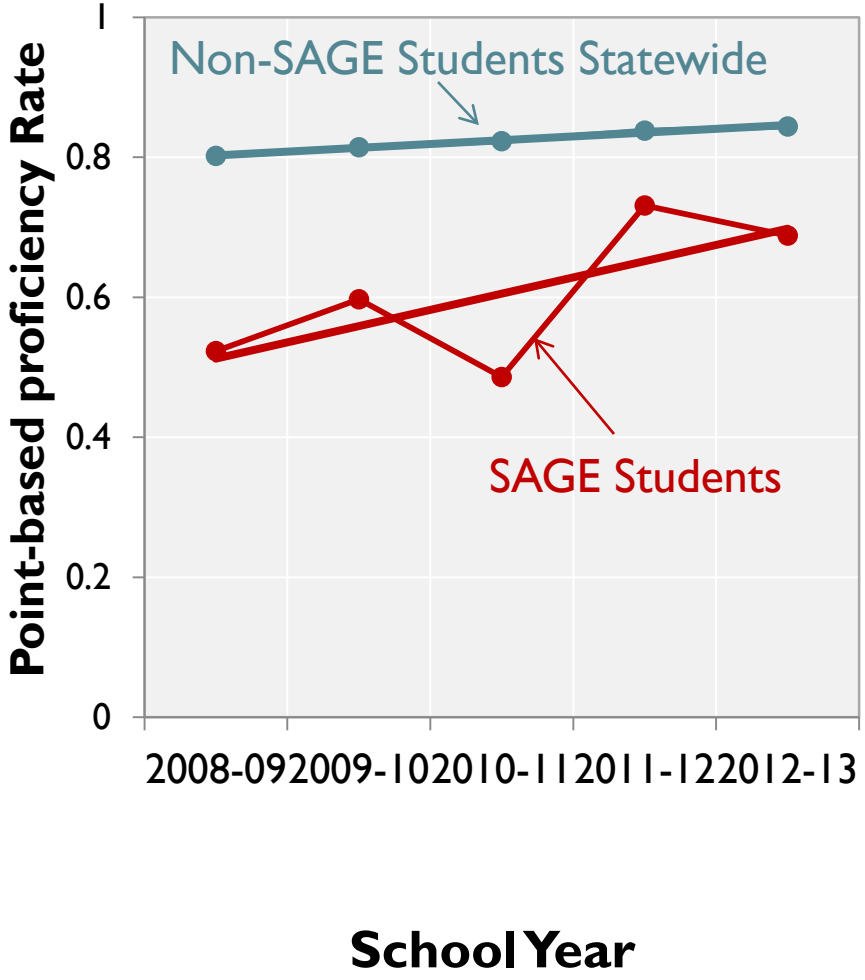
Option 2: *Closing the Achievement and Attendance Gaps between SAGE and Non-SAGE Students*

- We see gaps in achievement and attendance between SAGE and non-SAGE students
- **Successful** programs should close these gaps
- Measuring Gap Closure
  - Multiple years of data
  - Compare the rate of improvement of SAGE students to non-SAGE students across the state of Wisconsin
  - Achievement: 3rd Grade Reading and Math WKCE (Smarter)
  - Attendance: 1st through 3rd Grade attendance

Option 2: Gap Closure - Illustration

- Are SAGE students catching up to students statewide?
  - Compare rates of improvement
  - Red line – SAGE
  - Blue line – Non-SAGE

- A red line slope that is greater than the blue line's indicates gap closure.



Option 2: Gap Closure - Details

- Achievement
  - Compare rates of improvement of SAGE to non-SAGE
  - Outputs for Reading and Math - Averaged
    - Change Score Reading/Math
      - Slope of line of SAGE students – Slope of line of Non-SAGE students
- Attendance
  - Examine gap closure for the lowest attending traditionally disadvantaged group
    - Attendance rates overall are historically very high
  - Compare rate of improvement of target group at the school level to rate of improvement of students not in that group at the state level
  - Output
    - Change Score Attendance
      - Slope of line of lowest attending group – Slope of line of state students not in that group

Option 2: Gap Closure - Example

- School: Lincoln Avenue Elementary in Milwaukee

- Question: Did Lincoln Avenue Elementary's SAGE program demonstrate progress in closing achievement and attendance gaps?

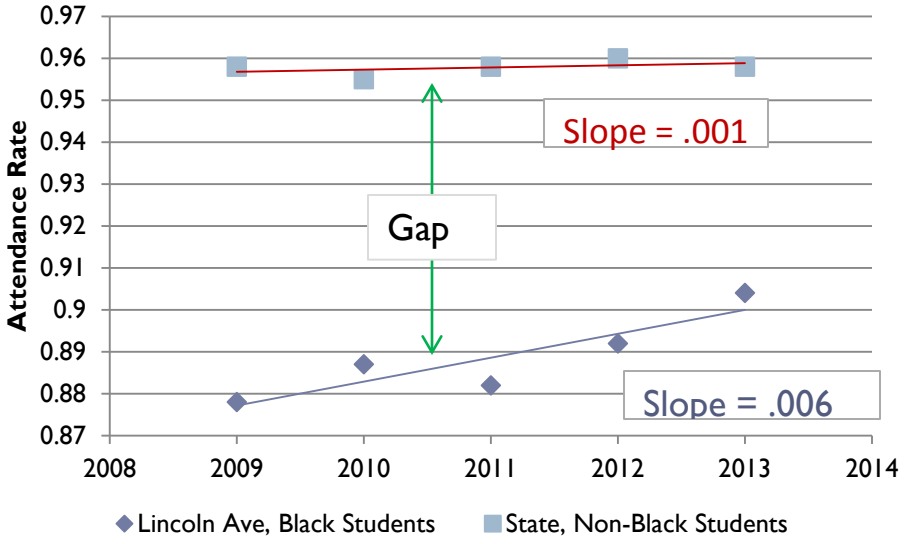
Option 2: Gap Closure Attendance Example

Attendance

- *Which group has the lowest attendance rate (5 yr avg)?*

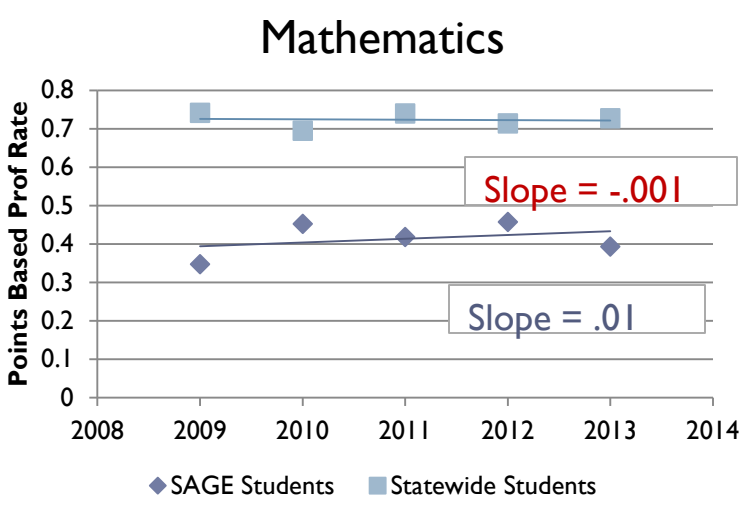
Group	Asian	Black, not Hispanic	Hispanic	American Indian	Students with Disabilities	Economically Disadvantaged	Limited English Proficient
Attendance Rate	NA	89.20%	92.60%	NA	89.60%	91.20%	94.60%

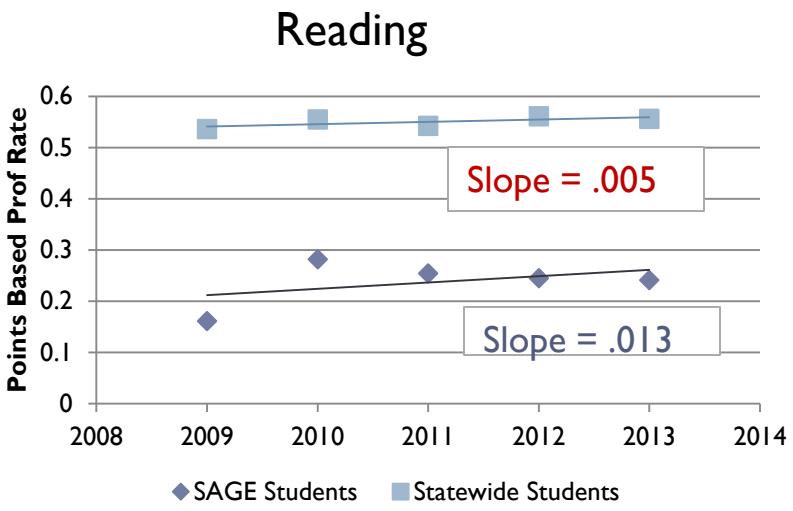
- *What was this group's rate of improvement?*
  - *Black student attendance at Lincoln Ave El is improving at the rate of .006*
  - *Non-black student attendance statewide is improving at the rate of .001*
  - *Lincoln Avenue El's SAGE program is successfully closing the Attendance Gap!*



Option 2: Gap Closure Achievement Example

Achievement





- SAGE students are improving faster in reading and math

Option 2: Gap Closure Outcome Summary

Statewide

- *Achievement*
- 379 schools (of 424) receive achievement gap scores (cell size = 10)
  - Exceptions: Do not have 3rd graders or have too few students
- 172 SAGE schools improved their reading outcomes faster than the state
  - 365 schools with a 95% CI
- 182 SAGE schools were improving math faster than the state
  - 359 schools with a 95% CI

Attendance

- 376 have attendance scores (cell size = 20)
- 134 schools are improving their attendance faster than the state
  - 365 schools with a 95% CI

Questions & Challenges

- Cell size
- Confidence Interval
- Either/or vs both for goals
- Schools without scores
  - Too small
  - No 3rd Grade
- Assessment Transition

Decision Items for Committee

- Timeline:
  - When will the new program go into effect?
    - Recommendation: 2016-17
    - This involves a one-year extension for the majority (#) of SAGE schools.
    - This allows time for legislation to be passed and for schools to adjust their implementation plans.
- What method should be used to calculate the target effect size?
  - Recommendation: regardless of the decision, the effect size itself should not be set at this time, but allow time for at least two administrations of Smarter Balanced.
    - Instead, select the process for calculating effect.