One way to estimate a teacher’s effectiveness is to compare the improvement of his or her students with the improvement of other similar students. This approach is called student growth percentiles (SGPs). SGPs are used to make student growth comparisons fair by comparing the growth of students who start in academically similar places. SGPs are used in places where standardized tests are administered annually to all students.

SGPs rank how much a student grew in test scores compared with peers with similar past academic trajectories.

As a simple illustration, consider a student who scored 300 on last year’s test. Her performance on the test this year will be compared with students who also scored 300 on last year’s test. Her percentile rank indicates the percentage of those peers who received lower scores than she did. For example, if she scored in the 75th percentile among this group of students, then she scored better than 75 percent of her peers who also scored 300 last year. Separate SGPs are calculated for each grade and tested subject.

In practice, more than one year of prior test scores are used in SGP models. In cases where multiple years of prior test scores are used, students are compared with their peers who have the same combination of prior-year test scores.

A teacher’s score is the aggregate of the SGPs of the students in his or her classroom.

There are two common methods of aggregating the SGPs of students in a teacher’s classroom—taking either the mean or the median of the student SGPs. The mean SGP is the average of the student SGPs in the classroom. The median SGP is the middle score in the classroom. By definition, half of the students in the classroom performed worse than the median SGP, and half performed better. The median SGP is often preferred because, unlike the mean, it is less sensitive to situations in which a few students do unusually well or poorly relative to their peers in a given year.

SGPs have become widespread, in part, because of their ease of interpretability.

Some policymakers prefer SGPs over another popular statistical measurement of teacher effectiveness, value-added models (VAMs), because they view SGPs as more interpretable. Ranking students of similar baseline academic performance based on how much they grew in the year is intuitive for policymakers, practitioners, and the community. Additionally, calculating the mean or median of student-level SGP to obtain a teacher-level score is mathematically simple and retains the interpretability of SGPs. SGPs are easier to understand than many other complex statistical models.
Although the calculations behind them are sophisticated, SGPs present information about growth in percentile terms that are familiar to most teachers and parents. They provide a clear indicator of progress for each student.

**SGPs do not provide information on the adequacy of a student’s growth or the level of a student’s academic achievement.**

While SGPs provide information about the relative ranking of a student’s growth, SGPs provide no information on whether the growth level is deemed adequate by stakeholders. Furthermore, SGPs provide no information about the level of student achievement and whether the education system would deem a student’s particular level of achievement as adequate.

**SGPs are more sensitive to classroom composition than VAMs.**

Unlike VAMs, SGPs typically do not adjust for differences in student characteristics beyond prior achievement, such as income or special education status. This is one reason why SGPs sometimes perform more poorly than VAMs when students are not randomly assigned to classrooms. In other words, teachers who teach more disadvantaged students or students in specialized programs tend to have lower SGP scores than their peers. Although this pattern is also seen in VAMs, which do control for student characteristics, the relationship is often weaker.

**Related Readings**


**About This Research**

The author defines student growth percentiles and discusses how they are used to rank student test-score growth compared with peers and to produce a score for a teacher. This research in the public interest was supported by RAND, using discretionary funds made possible by the generosity of RAND’s donors and the fees earned on client-funded research.

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