

Illinois 2020 Skip-Year SGP Analyses

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COVID-19 Pandemic

- Oh what a difference a couple of months make.
- Most Spring 2020 tests have been cancelled:
 - State assessments in ELA/Math have been cancelled
 - Many ELP assessments (WIDA/ACCESS) were completed, at least by most students in the state
- States, including Illinois, have been given assessment and accountability waivers by ED for 2020.
- Because student academic growth as measured by state summative assessments utilizes prior assessment data in its calculation, the impacts of the 2020 pandemic will have ripple effects in 2021.
- My colleague Adam VanIwaarden and I wrote a blog post on this topic in April which can be found here: <https://www.nciea.org/blog/sgp/issues-and-considerations-covid-19-pandemic-presents-measuring-student-growth>

2021 SGP Calculation

- I have discussed whether growth can be calculated in 2021 and whether it can be used for accountability (e.g., school or teacher) with more than two-dozen states.
- Simple answer: Yes, SGPs can be calculated using 2019 (and earlier data) as priors.
 - Several states have been calculating two-year growth for years when there is not annual sequence of tests. For example, 8th to 10th grade growth in ELA or Mathematics or End of Course testing.
 - Growth projections which yield Adequate Growth Percentiles (AGPs) will also be calculable in 2021.
- The harder question is whether these SGPs can/should be used as part of state accountability.
 - Are two-year SGPs valid as indicators of annual growth?
 - Beyond technical viability, is it tenable (e.g., politically) to use two-year SGPs as a substitute for one-year SGPs?

2021 SGP Calculation

- Are two-year SGPs valid as indicators of annual growth?
 - The paper on which this presentation is based shares some findings and will be discussed hereafter.
- Is it tenable (e.g., politically) to use two-year SGPs as a substitute for one-year SGPs?
 - A much harder question that likely differs from state to state.
 - Answering it well requires technical due diligence which, hopefully, this report/presentation begins to address.

Illinois SGP Calculation

- Illinois, as a member of the PARCC consortium has had SGPs calculated since Spring of 2016.
- Illinois assesses students in ELA and Mathematics in grade 3, 4, 5, 6, 7 and 8.
- As mentioned previously, there is no summative data in 2020 due to the COVID-19.
- To investigate the use of two-year SGPs in lieu of one-year SGPs, we used historical data as follows

Illinois SGP Calculation

- Using historical data from 2016 to 2019, two-year SGPs from 2017 to 2019 were calculated using 2019 as the dependent variable and 2016 and 2017 as the independent variables (i.e., order 1 and 2 SGPs)
 - Two-year SGPs are calculated for grades 5, 6, 7, 8 in ELA and Mathematics.
 - SGPs are calculated separately for each norm-group.
- One-year SGPs from 2018-2019 were available from previous SGP analyses.
 - One-year SGPs are calculated for grades 4, 5, 6, 7, and 8.
 - SGPs are calculated separately for each norm-group.

Illinois SGP Results

- Frequencies associated with SGPs.

Grade	ELA				Mathematics			
	SGP 2 YEAR	SGP 1 YEAR ORD 1	SGP 1 YEAR ORD 2	SGP 1 YEAR	SGP 2 YEAR	SGP 1 YEAR ORD 1	SGP 1 YEAR ORD 2	SGP 1 YEAR
All	541,363	689,217	533,925	689,217	541,236	688,203	532,786	688,203
4		135,833		135,833		135,167		135,167
5	135,827	139,260	134,307	139,260	136,019	139,286	134,329	139,286
6	137,429	140,613	135,752	140,613	137,494	140,559	135,665	140,559
7	134,271	137,744	132,338	137,744	134,271	137,674	132,304	137,674
8	133,836	136,567	131,528	136,567	133,452	135,517	130,488	135,517

- In general, there are between 135,000 and 140,000 students with SGPs in each grade and content area.
- Note when more priors are used, the count decreases slightly due to some students not having the additional prior.

Illinois SGP Results: Individual

- Correlations between two-year SGPs and one-year SGPs (of order 2) were all high.
 - Correlations ranged from 0.85 to 0.9 across grades and content areas.
 - When one-year/order 1 SGPs are considered, correlations drop to 0.65 to 0.7. This is likely due to the fact that the 2017 score is not a part of both one- and two-year analyses.
- Differences between individual SGPs can be large.

Grade	ELA			Mathematics		
	0.05	Median	0.95	0.05	Median	0.95
All	-25	0	26	-26	0	27
5	-24	0	25	-26	0	29
6	-25	0	26	-23	0	25
7	-27	0	27	-29	0	30
8	-25	0	26	-24	0	26

Illinois SGP Results: School Level

- School level data was not provided as part of Pearson data sets. We substituted another states data for this part until IL school data becomes available.
- Correlations between two-year mean SGPs and one-year mean SGPs (of order 2) were all high, higher than at the individual level.
 - Correlations ranged from 0.9 to 0.95 across grades and content areas.
- Differences between two- and one-year mean SGPs can be large.

Grade	ELA			Mathematics		
	0.05	Median	0.95	0.05	Median	0.95
All	-5	0	6	-6	0	5
Elementary	-4	0	5	-6	0	5
Middle	-5	0	4	-4	0	5

Illinois SGP Results: School Level

- For context, the year-to-year correlations between mean school SGPs is approximately 0.5 to 0.6.
- Model-to-model (i.e., one-year to two-year) SGP correlations are much higher than year-to-year correlations implying that changing student populations
- Correlations of 0.9 are common in comparisons between SGP and VAM.
- SGP differences of 5 correspond to an effect size of 0.18.
 - The majority of mean SGP difference correspond to small effect sizes.

Summary

- Two-year growth (2019 to 2021) is not difficult to calculate and has been done in many states over the last decade.
- In examining differences between two-year (2017-2019) growth and one-year (2018-2019) growth:
 - At the individual level, correlations are high, but some individual differences are large. It is probably not realistic to substitute two-year growth as a measure of individual one-year growth.
 - At the school level, correlations are high and school mean differences are modest. It is likely technically defensible to substitute two-year growth as a measure of school one-year mean growth.
- Whether it is practically tenable is another question.

For more information:

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