



STUDENT GROWTH PILOT PROJECT

*Understanding Growth Data Presented
on MSIP 2011-12
Annual Performance Report*

*Discussion Points for
Informational Webinars*

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These documents are available to Pilot Project participants on MCDS Portal:

- *2011 Pilot Student Growth Data for Review (Summary of APR MAP Standards)*
- *MAP Growth Estimates (Median SGPs & VAMs)*
- *Overview (in PPP Format) of the Appendix to Understanding your Annual Performance Report, 2011-12*
- *Use of Pilot Growth Data Form*



Webinar Agenda

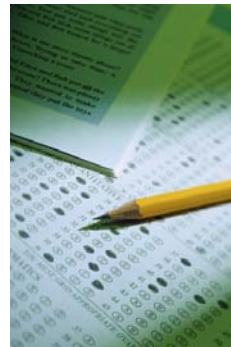
- PART I: Student Growth Percentiles and Value-Added Measures
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Definition of “Student Growth” as Applied to 2011-12 MSIP 4th-Cycle APR

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“Student growth,” as applied to the 2011-12 MSIP Annual Performance Report for Pilot Project participants, is the change in achievement (as measured by the MAP Communication Arts and Mathematics Assessments) for an individual student between two or more points in time.



MAP Scale Scores for Individual Students Are Used to Calculate MSIP Growth Estimates

	2006	2007	2008	2009	2010
3	a	x	y	z	m
4	b	a	x	y	z
5	c	b	a	x	y
6	d	c	b	a	x
7	e	d	c	b	a
8	f	e	d	c	b

MAP Communication Arts Scale Score Range (Grades 3-8):

455-875

MAP Mathematics Scale Score Range (Grades 3-8):

450-885



Student Growth Percentiles . . .

- *Describe* growth in terms of individual student percentiles (which can be aggregated)
- Provide a normative context for growth in achievement
 - Range=1 to 99; Reference Group Median=50
- Express growth relative to that of a student’s “academic peers”-- “students who started at the same place” and “who have, in the past, walked the same achievement path” (Betebenner, 2011)
- Are calculated using quantile regression, which uses a student’s prior scores as the conditioning variable; thus are related to estimating the probability of observing a student’s current achievement, taking account of their past achievement (Betebenner, 2011)
- See Betebenner (2009) for detailed information about calculation methods.



Value-Added Measures . . .

- Provide estimates of contributions to student test scores made by districts, buildings, and educators (Harris, 2011)
- Represent a normative measure of “*effectiveness*”
 - Scale range = -3.00 to +3.00; scale average = 0
- Take into account (i.e., control for) student characteristics (previous test scores, race/ethnicity, gender, F/RL eligibility, IEP status, ESL status, and “full academic year” status)
- Also take into account characteristics associated with the district (% F/RL eligibility, % “full academic year”, % IEP, % ESL, % minority, % female)
- Are calculated using a two-step regression procedure
- See MU Department of Economics (in press) for detailed information about calculation methods.



SGPs and VAMs Used in MSIP APR

- Five-Year Median Student Growth Percentile is based on the growth of tested students in the district since 2006 (initial baseline year).
- Value-Added Measure is based on the growth of each student tested in the district since 2006 (initial baseline year).
- Five-year Median SGPs and multi-year VAMs are more stable estimates than those based on only one year's data.



Interpreting SGPs Used in MSIP APR

- A 5-year Median SGP of 54 for a district indicates that the majority of the students outperformed at least half of their academic peers.
- A 5-year Median SGP of 44 for a district indicates that the majority of students were outperformed by their academic peers. However, a Median SGP below 50 does not mean that no growth occurred.



Interpreting VAMs Used in MSIP APR

- A statistically significant VAM of +0.03 for a district indicates that, over time (2006 through 2011), students in the district performed better than predicted and that the district's contribution to that growth was greater than the average of all districts' contributions.
- A statistically significant VAM of -0.01 for a district indicates that, over time (2006 through 2011), the students in the district performed below predictions and that the district's contribution to that growth was below the average of all districts' contributions. A negative estimate does not mean, however, that no growth occurred.



Confidence Intervals Applied to SGPs

- Represent a measure of the stability (i.e., reliability) of the Median Student Growth Percentile
- Provide information about whether a district's Median SGP is significantly different than 50 (state median)

- Sample data illustrating how a SGP Confidence Interval is expressed:

<i>Lower Bound of CI</i>	<i>Calculated Median SGP</i>	<i>Upper Bound of CI</i>
46	50	52
49	53	58
54	54	55
52.5	56	60.525

- Interpreting a SGP Confidence Interval:

We can say with 95% confidence that, if we were to repeatedly measure growth, the Median SGP would fall between the Lower Bound and the Upper Bound of the Confidence Interval.



Confidence Intervals Applied to VAMs

- Represent a measure of the stability (i.e., reliability) of the Value-Added Measure
- Provide information about whether a district's VAM is significantly different from 0 (state average)

- Sample data illustrating how a VAM Confidence Interval is expressed :

<i>Lower Bound of CI</i>	<i>Calculated VAM</i>	<i>Upper Bound of CI</i>
-0.0536561	-0.0162193	0.02121755
-0.1059502	-0.0491452	0.00765974
0.00625204	0.01688022	0.02750841
0.02107845	0.0687758	0.11647316

- Interpreting a VAM Confidence Interval:

We can say with 95% confidence that, if we were to repeatedly measure growth, the VAM would fall between the Lower Bound and the Upper Bound of the Confidence Interval.



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MSIP 4th-Cycle Decision Rules Applied to MAP Growth Estimates

Student Growth Percentiles

If the confidence interval for the 5-year SGP Median is fully above 50 (state median), then the district MET the MSIP growth criterion.

Value-Added Measures

If the confidence interval for the VAM is fully above 0 (state average district contribution), then the district MET the MSIP growth criterion.



Sample APR Growth Data Table

Part II: Sample Data

Mathematics	Value-Added Measure	Median Student Growth Percentile	Significant Growth
Grade Span: 3-5	-0.016 (-0.054 to 0.021) Not Met	49 (46 to 52) Not Met	No
Grade Span: 6-8	-0.020 (-0.046 to 0.006) Not Met	54 (52 to 57) Met	Yes
All Grades: 3-8	-0.020 (-0.042 to 0.002) Not Met	52 (51 to 55) Met	Yes
Comm Arts	Value-Added Measure	Median Student Growth Percentile	Significant Growth
Grade Span: 3-5	0.050 (0.022 to 0.077) Met	55 (52 to 57) Met	Yes
Grade Span: 6-8	-0.033 (-0.053 to -0.013) Not Met	49 (48-51) Not Met	No
All Grades: 3-8	-0.001 (-0.017 to 0.015) Not Met	51 (50 to 52.525) Not Met	No



Application of Grade-Span Bonus

STATUS	PROGRESS	STATUS + PROGRESS	GAP BONUS	GROWTH BONUS	MET/NOT MET
36	20	56			MET
36	10	46			NOT MET
36	10	46	YES	YES	MET
36	10	46		YES	MET



Application of District Growth Bonus

MAP Achievement Bonus	Improvement in Majority of MAP Standards = MET No Improvement in Majority of MAP Standards = NOT MET
District Growth Bonus	District Growth (MET either through SGP or VAM) in Both Communication Arts & Mathematics = MET

NOTE: District may use only ONE Bonus MET earned through MAP Achievement or District Growth.



Webinar Agenda (again)

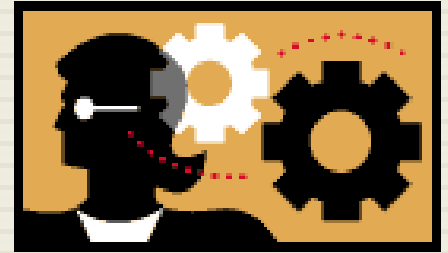
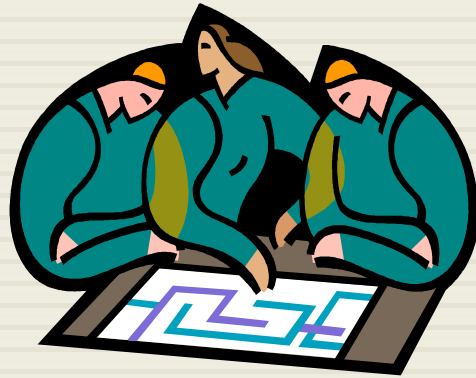
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Points to Keep in Mind as You Consider Whether to Include Growth Data on Your MSIP 4th-Cycle Preliminary APR

- This is a low-stakes application of MAP growth data within the state accountability system. LEA leaders may choose to include these data on the MSIP 4th Cycle Preliminary APR, or they may decide to omit these data.
- If you give permission to include MAP growth data on your Preliminary APR, every Pilot Project growth estimate (i.e., all median SGPs and all VAMs) will be displayed.
- DESE will not display your growth data on the Preliminary APR unless the superintendent or authorized representative gives written permission (as per specified process) by August 10, 5 PM.
- Note: We encourage you to share your growth data with your colleagues and with local stakeholders, even if you do not wish to post it on your APR. The value of growth data extends beyond accountability purposes; these estimates can and should inform important conversations about teaching and learning.





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What questions do you have?



References and Selected Readings

- Betebenner, D. W. (2009). Norm- and criterion-referenced student growth. *Educational Measurement: Issues and Practice*, 28(4), 41-51.
- Betebenner, D. W. (2011). *A primer on student growth percentiles*. Dover, NH: Center for Assessment.
- Braun, H. I. (2005). *Using student progress to evaluate teachers: A primer on value-added models*. (Tech. Rep.) Princeton, NJ: Educational Testing Service.
- Harris, D. N. (2011). *Value-added measures in education: What every educator needs to know*. Cambridge: Harvard Educational Press.
- University of Missouri Department of Economics. (In press). *Description of proposed model for value-added modeling (VAM) estimations*. (Tech. Rep.) Columbia, MO: Author.

