

Syracuse University

## SURFACE at Syracuse University

---

Center for Policy Research

Maxwell School of Citizenship and Public  
Affairs

---

11-2017

### Updated Pupil Weights for New York's Foundation Aid Formula

John Yinger

*The Maxwell School, Syracuse University, joyinger@syr.edu*

Emily Gutierrez

*The Maxwell School, Syracuse University*

Follow this and additional works at: <https://surface.syr.edu/cpr>



Part of the [Economic Policy Commons](#), [Economics Commons](#), [Education Policy Commons](#), and the [Public Policy Commons](#)

---

#### Recommended Citation

E. Gutierrez & J. Yinger, 2017. "Updated Pupil Weights for New York's Foundation Aid Formula," *It's Elementary*, November.

This Policy Comment is brought to you for free and open access by the Maxwell School of Citizenship and Public Affairs at SURFACE at Syracuse University. It has been accepted for inclusion in Center for Policy Research by an authorized administrator of SURFACE at Syracuse University. For more information, please contact [surface@syr.edu](mailto:surface@syr.edu).

# It's Elementary

A Column by Emily Gutierrez (CPR Graduate Associate) and John Yinger (EFAP Director)

November 2017

## Updated Pupil Weights for New York's Foundation Aid Formula

In New York as in most other states, the main state education aid program uses a foundation formula. With this type of formula, state aid equals a foundation amount minus an expected local contribution. The foundation amount is the spending level state policy makers believe is required to meet the state's student performance standard. In New York, the foundation amount, called the Adjusted Foundation Amount or AFA, has several multiplicative components, including a phase-in percentage, a regional cost index, and a pupil need index, PNI.

We have recently completed an analysis of the PNI. This index indicates the percentage increase in educational costs in a given district associated with that district's at-risk students. Many studies show that a district with a high concentration of at-risk students must spend more than other districts to achieve a given student-performance target.<sup>1</sup> New York, like most other states, uses pupil weights to account for the extra costs of educating at-risk students. In the standard terminology for this type of aid formula, a weight of 1.0 for students from poor families leads to twice as much aid for these students as for non-poor students, all else equal. This column describes the pupil weights in New York State's education aid formula, presents new weights estimated with recent data, and shows the extent to which the current pupil weights understate the cost differences implied by up-to-date estimates.

The current aid formula in New York is a legacy of the Campaign for Fiscal Equity case, which concluded in 2006.<sup>2</sup> In this case, the New York Court of Appeals expressed the constitutional requirements for state educational support in New York State (NYS) and ruled that the aid formula existing at the time did not provide the constitutionally required amount of aid to New York City (NYC). In response to this ruling, NYS passed a new aid formula for all the state's school districts in 2007. Among other things, this formula significantly increased the weight for at-risk students.

As indicated above, these pupil weights appear in the PNI. Because it is a multiplicative component of the AFA, the PNI serves to increase aid per pupil in the neediest districts relative to the baseline established by the other components. A district's value for this index depends on the share of the district's students who are in poverty, the share of the district's students who are English language learners (ELL), and the weights placed on these two district characteristics.<sup>3</sup>

---

<sup>1</sup> This principle is discussed in many previous It's Elementary columns. See, for example, the column from October 2016 at [http://cpr.maxwell.syr.edu/efap/about\\_efap/ie/Oct\\_2016.pdf](http://cpr.maxwell.syr.edu/efap/about_efap/ie/Oct_2016.pdf).

<sup>2</sup> For more on this case and its legacy, see the It's Elementary column for November 2013, available at [http://cpr.maxwell.syr.edu/efap/about\\_efap/ie/Nov13.pdf](http://cpr.maxwell.syr.edu/efap/about_efap/ie/Nov13.pdf), and the material posted at <http://schoolfunding.info/>.

<sup>3</sup> In a few small districts, the PNI also reflects the district's sparsity. This is a relatively small adjustment and we do not consider it in this column.

The poverty component combines two measures of poverty: the three-year average share of students who are eligible for a free or reduced-price lunch, FRPL, and the three-year average share of students from poor families as counted by the Census, POOR.<sup>4</sup> Each measure has a weight of 0.65. The weight for ELL students is 0.5. These weights are combined in the extraordinary needs component of the formula, EN:

$$EN = (0.65)FRPL + (0.65)POOR + (0.5)ELL$$

The final PNI is  $(1 + EN)$  with a cap of 2.0. Suppose FRPL and POOR both equal 100% and ELL equals 10% in a given district. Then  $EN = (0.65)(100\%) + (0.65)(100\%) + (0.5)(10\%) = 1.35$ . Because of the cap, the final PNI is  $(1 + 1) = 2$  instead of  $(1 + 1.35) = 2.35$ . As of 2015, no district had an EN value above 1, but several, including Rochester and Buffalo, had values above 0.95. Further increases in FRPL or POOR in these districts will push them above the cap, which means they will not receive full compensation for their added costs—even using the pupil weights in the current formula.

The pupil weights in the current formula were informed by scholarly estimates of these weights available when the formula was designed. However, these weights have not been updated since then. We gathered the relevant data for approximately 612 K-12 school districts in New York State during the school years 2011-12 to 2014-15.<sup>5</sup> We estimated education cost functions using methods that are widely recognized in the scholarly literature.<sup>6</sup> These cost functions determine the extra spending associated with at-risk students holding student performance and other factors constant, which is the definition of a pupil weight. Our preferred estimates define student performance as an index that equally weights the share of students reaching the state's proficiency standard on math and English exams in the third through eighth grades, as well as Regents Diploma rates.

We find that the share of students eligible for a free lunch, FL, is the poverty measure with the strongest link to spending.<sup>7</sup> The average district pupil weight for this measure is 1.25; that is, it costs 125% more to bring a poor student (by this measure) up to the same level of student performance as a non-poor student.<sup>8</sup> Our estimated weights are 0.61 for ELL students and 0.39 for students with a severe disability. This ELL weight is significantly higher than the 0.5 weight in the current aid formula.

By combining these weights with the share of students in each of these at-risk categories, we can also calculate the extra spending that is required to bring at-risk students up to any student performance standard selected by NYS.<sup>9</sup> We find that to attain any given student performance standard, state-wide school spending outside NYC has to increase by 37.1% to account for the state's

---

<sup>4</sup> This information comes from the Census' Small Area Income and Poverty Estimates (SAIPE) program which provides annual estimates of poor children, aged 5-17, by school district.

<sup>5</sup> Data sources include the Bureau of Labor Statistics, the American Community Survey, the New York Comptroller, the New York Department of Taxation and Finance, the New York State Education Department.

<sup>6</sup> For a review of this literature, see Duncombe, William D., Phuong Nguyen-Hoang, and John Yinger. 2015. "Measurement of Cost Differentials." In *Handbook of Research in Education Finance and Policy*, 2<sup>nd</sup> Edition, M.E. Goertz and H.F. Ladd (eds.), New York: Routledge, pp. 260-278.

<sup>7</sup> Scholarly estimates of pupil weights make use of pupil characteristics that best explain observed spending, controlling for other factors. We find that FL does a better job explaining the added costs of poor students than FRPL, POOR, or the combined measure in the current state aid formula.

<sup>8</sup> The estimated pupil weights for each district are weighted by enrollment.

<sup>9</sup> Because of the multiplicative nature of New York State's aid formula, we can express these results as a required percentage increase in spending. This percentage increase applies to any spending amount.

economically disadvantaged students, by 2.5% to account for LEP students, and by 6.7% to account for students with severe disabilities. The required extra spending obviously varies across districts. Tables 1 and 2 indicate the percentage increase in spending required to cover, respectively, the added costs of free-lunch students and ELL students in the state's 10 largest districts outside NYC. These added costs vary over time because the share of students in each of these categories varies. From 2014 to 2015, for example, many districts experienced an increase in the share of their students eligible for a free lunch and hence experienced an increase in their required added costs for this student category. See Table 1.<sup>10</sup>

As explained above, the current NYS foundation aid formula depends on two different measures of poverty. In some districts, such as Yonkers, the census poverty measure, POOR, is much smaller than the FRPL measure. In these districts, the current aid formula provides significantly less funding than a formula based on our estimated pupil weights. In other districts, such as Buffalo, POOR is almost as large as FRPL, and these districts receive almost as much funding through the current formula as they would through a formula based on our estimates. Table 3 shows these poverty measures for ten high-poverty districts outside NYC. The PNI based on our estimated weights is larger than the official PNI in all of these cases, but the difference between these two PNI measures varies widely across districts. An alternative way to express these results appears in Figure 1, which describes funding gaps in high-poverty districts. More specifically, this figure indicates, for economically disadvantaged and ELL students combined, the gap in funding between an aid formula based on our estimates and the current aid formula. This gap is expressed as a percentage of baseline spending. Figure 1 indicates, for example, that the state aid formula would have to give the Syracuse schools an additional 16 percent of the state-wide baseline spending in 2015 to cover the added costs of economically disadvantaged and ELL students in the district. Tables 1 and 2 indicate that the overall added costs of free-lunch and ELL students in Syracuse in 2015 are  $(90\% + 9\%) = 99\%$  of the baseline, so this result indicates that the PNI in the current state aid formula covers  $(99\% - 16\%) = 83\%$  of Syracuse's spending need.

We do not present a comparable table for students with a severe disability, because considerable funding for students with disabilities is provided outside the foundation aid formula—and hence outside the scope of this column.

The estimates in this column are not the final word on pupil weights in New York. The issues that need further examination include adding data for the 2015-16 school year, considering alternative definitions of school district performance, exploring additional measures of poverty, and exploring alternative ways to account for the added costs of students with special needs. We recommend the creation of an office in the New York State Education Department with a staff that is qualified to investigate these and other cost-estimation issues. In addition, several other parts of the state aid formula affect the relative aid received by high-need districts. A full evaluation of the state aid formula requires an investigation of the other provisions in the formula, too.

Our analysis leads to three key conclusions. First, the current aid formula in NYS makes a significant contribution to educational equity by accounting for the added costs of educating students in poverty and students who are English language learners. Second, despite this valuable contribution, the current formula does not provide many high-need districts with the funding necessary to fully offset

---

<sup>10</sup> For more information on recent poverty increases, see "Growing Student Poverty: Challenges for Achievement and State Aid," by the New York Association of School Business Officials. Available at: [https://www.nysasbo.org/uploads/reports/1510154391\\_Growing%20Student%20Poverty%202017.pdf](https://www.nysasbo.org/uploads/reports/1510154391_Growing%20Student%20Poverty%202017.pdf).

their cost disadvantages. Third, thanks to growing poverty in many NYS schools, the cap in the formula may soon begin to magnify the gap between actual and needed state aid in some high-need districts.

These findings imply that the pupil weights in the current formula should be updated and the cap should be removed. An office in NYSED with responsibility for estimating these weights could provide additional insight into the range of issues raised by cost-function estimation and by changes in pupil characteristics over time.

Table 1. Required Extra Funding for Free-Lunch Students in NYS's 10 Largest Districts (Excluding NYC)

School District	2012	2013	2014	2015	Avg. Share Free Lunch	Avg. Enrollment
Brentwood	64%	81%	81%	88%	63%	17,266
Buffalo	90%	95%	91%	96%	75%	30,986
Greece	16%	39%	74%	80%	42%	11,092
New Rochelle	50%	45%	45%	51%	38%	10,512
Newburgh	70%	73%	30%	39%	42%	10,955
Rochester	104%	100%	101%	105%	82%	28,958
Sachem	13%	14%	20%	21%	14%	14,030
Syracuse	91%	89%	90%	90%	72%	19,676
Wappingers	36%	15%	15%	23%	18%	11,550
Yonkers	85%	88%	85%	90%	70%	24,357

Table 2. Required Extra Funding for ELL Students in NYS's 10 Largest Districts (Excluding NYC)

School District	2012	2013	2014	2015	Avg. Share LEP	Avg. Enrollment
Brentwood	17%	18%	19%	19%	29%	17,266
Buffalo	7%	7%	8%	9%	13%	30,986
Greece	1%	1%	8%	9%	8%	11,092
New Rochelle	6%	6%	6%	6%	10%	10,512
Newburgh	9%	9%	2%	2%	9%	10,955
Rochester	7%	7%	7%	8%	12%	28,958
Sachem	1%	1%	1%	1%	1%	14,030
Syracuse	8%	9%	9%	9%	14%	19,676
Wappingers	1%	1%	1%	1%	1%	11,550
Yonkers	7%	7%	7%	7%	12%	24,357

Table 3. A Comparison of Poverty Measures in 10 High-Poverty Districts, 2015

District Name	Share Free Lunch	Share Reduced Lunch	Share Poor	Share ELL	PNI	Our Estimates
Brentwood	70	9	16	30	0.77	1.06
Buffalo	77	3	59	14	0.98	1.05
Hempstead	62	3	26	30	0.74	0.96
Longwood	37	7	11	4	0.38	0.49
New Rochelle	41	9	17	10	0.49	0.57
Newburgh	64	8	27	14	0.71	0.89
Patchogue Medford	38	9	12	11	0.44	0.54
Rochester	84	2	56	13	0.98	1.13
Syracuse	72	2	42	15	0.83	0.99
Yonkers	72	6	26	12	0.74	0.97

Figure 1. Spending Gap for Free-Lunch and ELL Students in 10 High-Poverty Districts

