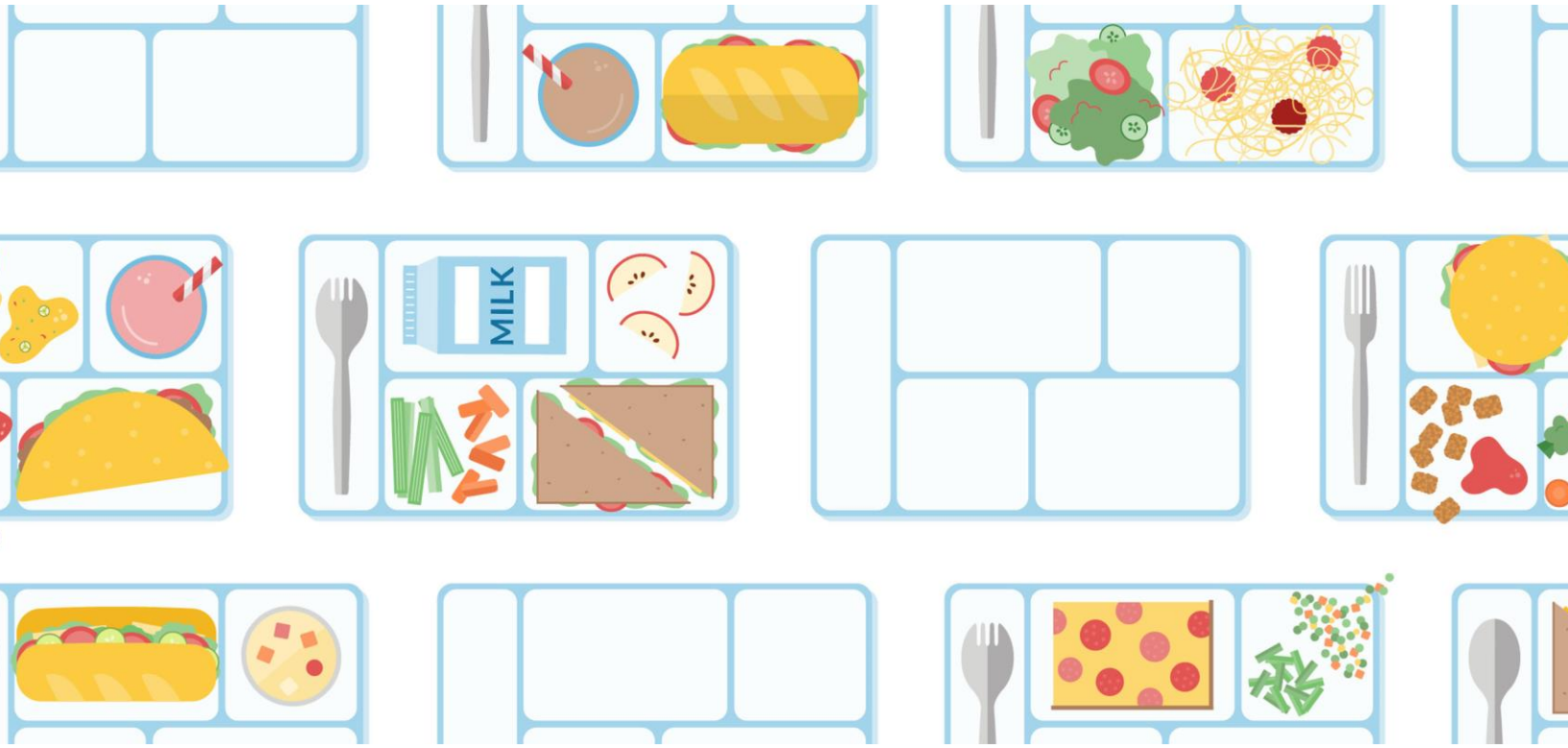

RESEARCH REPORT

Measuring Student Poverty

Developing Accurate Counts for School Funding, Accountability, and Research

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Executive Summary

Since 2010, the Community Eligibility Provision (CEP) has expanded access to free school meals while jeopardizing a key measure of student poverty used across the field of education: free and reduced-price lunch (FRPL) status. States and school districts are pioneering alternative measures of student poverty, which vary in their composition and policy contexts. This framing paper identifies key issues surrounding the use of alternative measures of student poverty. We divide stakeholders into two groups: administrators and data users.

Administrators collect and report data on students' socioeconomic status. They are tasked with

- identifying and implementing measures of student poverty;
- communicating changes to measures; and
- improving existing measures.

Data users rely on student poverty data for research, programmatic, and related purposes. Their challenges include

- interpreting communications from administrators;
- making adjustments to align longitudinal or multisite data; and
- specifying and testing alternative measures of student poverty.

We expand on these issues before looking at developments in the field and new questions emerging in the post-CEP era.

Measuring Student Poverty

How we count matters. Measures of student poverty illuminate the demographic composition of schools, define school finance allocations, underpin accountability systems, support the estimation of opportunity and achievement gaps, and allow low-income students to receive targeted services and discounts on educational goods.

For nearly three-quarters of a century, one measure has served these purposes: free and reduced-price lunch (FRPL) status. Research shows this measure was always flawed (Domina et al. 2018; Harwell and LeBeau 2010). But its near-universal availability and common usage allowed many stakeholders—including policymakers, researchers, journalists, philanthropists, and direct service providers in education and beyond—to share vocabulary central to their work and to communicate clearly about public education's goals and outcomes.

This easy metric, made accessible thanks to the National School Lunch Program (NSLP) administered by the US Department of Agriculture's Food and Nutrition Service (FNS), has become unwieldy because of the Community Eligibility Provision (CEP). The CEP began with state pilots from 2010 through 2013 and rolled out nationally in 2014 through the Healthy, Hunger-Free Kids Act of 2010.[1] It allows schools with high shares of low-income students to provide universal school meals while easing the administrative burden on families and school and school district staff. These are worthy goals. And research shows that universal school meals can improve student outcomes (Gordanier et al. 2019; Gordon and Ruffini 2018; Schwartz and Rothbart 2019). Yet, in addition to existing efforts—notably, provisions 1, 2, and 3 of section 11(a)(1) of the National School Lunch Act[2]—and common data reporting errors, the CEP has made FRPL status a less valid measure of student poverty because it does away with household forms that have long allowed students and families to report their household incomes with few barriers and little scrutiny.

This report describes recent changes to, and resulting limitations of, FRPL status as a measure of student poverty and socioeconomic background. We outline the decline of FRPL status nationwide and in many states and communities and then describe alternative measures state and school district administrators have pioneered. We summarize the challenges facing administrators responsible for communicating and improving counts of low-income students, as well as those facing researchers and others who use those counts to answer questions about policy and practice. Finally, we highlight emerging issues and next steps for administrators and users of student poverty data.

This report comes during a transition. Many states and school districts have moved away from FRPL status as their singular or primary measure of student poverty and are fine-tuning alternatives. The new landscape of poverty measures is more opaque and varied than the one that preceded it, and current federal guidance from the US Department of Agriculture and US Department of Education allows for this variation.[3] Stakeholders seeking a uniform measure of student poverty—or post hoc methods for aligning existing measures—see a need for clear communication and collaboration to solve measurement and data collection problems. This report clarifies this need and advances the conversation so available measures of student poverty can align with pressing policy goals.

Background and Literature Review

Since 1946, the National School Lunch Program has provided nutritious school meals to low-income children during the school day. The program has grown to serve about 22 million lunches to low-income students each day.[4] Subsidized meals have been associated with improved health (Gundersen, Kreider, and Pepper 2012) and educational outcomes (Gordanier et al. 2019; Gordon and Ruffini 2018; Hinrichs 2010; Schwartz and Rothbart 2019). To identify qualifying students, the program provides resources for schools to collect household income information through common eligibility forms. Although the NSLP was designed to address food insecurity and reduce agricultural surplus, it had the unintended benefit of generating a national proxy measure of student poverty.

Today, participation in the program is the most common method states use to determine student socioeconomic status for school funding and accountability. Its biggest strength is its universality. Schools attempt to identify nearly every student as eligible or not eligible, which mitigates nonresponse bias (Harwell and LeBeau 2010). Schools then provide simple, well-populated data that can be obtained at a low cost.

Despite the ubiquity of FRPL status as a measure of socioeconomic background, evidence on its accuracy in capturing student poverty is mixed. A nationally representative study found that FRPL status at the school level is strongly associated with various community-based measures of poverty (Nicholson et al. 2014). Additionally, participation in the NSLP may predict student test scores better than annual household income reported for tax purposes (Domina et al. 2018). A cumulative measure of FRPL participation strongly predicts student achievement (Michelmore and Dynarski 2017). But studies of the NSLP suggest the program is underused, especially among certain groups. Eligible suburban and rural students are less likely to take advantage of the program than their urban-dwelling peers (Carson 2015). Older students are less likely to participate than students ages 8 to 13. In the past, this has been linked to perceived stigma around receiving free meals (Glantz et al. 1994; Newman and Ralston 2006). One study using census poverty estimates found free lunch status was not sufficient to reliably predict school district poverty (Cruse and Powers 2006). Additionally, an internal review by the USDA (2015) found that 20 percent of children who were classified as eligible for free lunch or reduced-price lunch or were denied eligibility were placed in the wrong category.

In 2010, policy changes enacted by Congress established the Community Eligibility Provision. The CEP follows additional provisions in the National School Lunch Act (known as provisions 1, 2, and 3[5]) that seek to reduce paperwork and expand access to school meals. The CEP gives FRPL status to all

students in participating schools and districts with at least 40 percent of students found eligible by virtue of participating in other public benefit programs (i.e., the identified student percentage). The identified student percentage is computed by matching school enrollment data to public benefit databases. For example, a student participating in the Supplemental Nutrition Assistance Program (SNAP, formerly known as Food Stamps, which mirrors the free-lunch eligibility threshold at 130 percent of the federal poverty level) may be directly certified for FRPL without collecting additional data from the student's family.[6] Direct certification systems were allowed under the Child Nutrition and WIC Reauthorization Act of 1989 and required under its reauthorization in 2004 to verify information collected through free-lunch forms.[7] States built out these systems under the Healthy, Hunger-Free Kids Act of 2010, which established the CEP and made it available nationwide starting in the 2014–15 school year. As of 2015, 99 percent of students in NSLP-participating schools attend districts that use direct certification to identify students based on their participation in SNAP or other programs (Moore et al. 2016).

In 2017–18, 28,614 schools in 4,698 districts serving more than 13.6 million children participated in the CEP.[8] As states adopt the CEP, some have shifted the way they report data on FRPL participation. For example, to guide data collection for the Common Core of Data, the US Department of Education's EDFacts Submission System now instructs states to report counts of students eligible for FRPL and counts of directly certified students (ED 2017a). Some states report FRPL eligibility in CEP schools as 100 percent of students receiving free lunch, while others report information from the most recent administration of paper forms or leave FRPL fields blank and report direct certification counts instead. States are not asked to report on the details of their direct certification systems, which can affect the accuracy of counts of low-income students. The CEP and similar earlier provisions[9] aim to relieve school administrators and parents and bring needed nutrition to millions of students. But they also herald the end of FRPL status as a uniform, student-level measure of economic disadvantage.

Many states are replacing measures of student poverty in their school district funding formulas and accountability systems, and replacement options vary (CBPP and FRAC 2017). Some states use the most recent available information from paper lunch forms, but this information becomes more outdated each year. Other states collect alternative income forms, annually or less frequently, though they do so at their own expense and without incentives for completion among the growing number of families in CEP districts and schools. States such as Massachusetts use direct certification to create individual-level measures of student poverty based on participation in an approved list of public benefit programs.[10] Some use a multiplier of 1.6 to adjust school-level counts of low-income children,[11] but this approach cannot help schools or districts understand which individual students are low income.

Meanwhile, states and districts that still use FRPL status or are in transition are exploring these and other options:

- Georgia is weighing direct certification as the preferred alternative to FRPL as a poverty measure for data analysis but is concerned that many fewer students will be recognized as disadvantaged. The state also notes that differences in Temporary Assistance for Needy Families (TANF) and SNAP standards around the country will render cross-state comparisons difficult.[12]
- Baltimore City Public Schools have transitioned to the CEP, but the prevalence of English language learners and Hispanic and Latinx students, who use public benefits at lower rates, led to significantly lower counts of economically disadvantaged students. City schools have already lost Title I funds and other grants they previously qualified for, and data could fail to fully capture the financial means of a school's students.[13] As a result, the city is considering advocating for Maryland to build out its system of direct certification to include additional programs, such as Medicaid and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and is seeking alternative forms of poverty data as a supplement to existing sources (Carrico, François, and Wohn 2018).
- Virginia is expanding its direct certification procedures to encompass the entire state in its matching process. Initial testing of the new software has been successful, with equal or greater numbers of students matched compared with previous local methods.[14]

Researchers and policymakers must also identify alternative measures of student poverty that capture student socioeconomic status. New measures may or may not leverage NSLP data. For example, as a direct response to changes to FRPL status, New York City's Independent Budget Office developed a measure that quantifies student poverty relative to the median household income in the student's census tract (NYC IBO 2015). Other methods researchers have proposed include parental education levels (Owens, Reardon, and Jencks 2016) or the share of poor or single-parent households with school-age children in the school's neighborhood (Geverdt and Nixon 2018; Kurki, Boyle, and Aladjem 2005).

Issues for Administrators

Administrators who collect and report data on student poverty—and use these data to implement policy—face multiple challenges as schools and districts increasingly adopt the CEP. Administrators must communicate the implications of the CEP policy to district administrators and to parents. If standards for classifying FRPL shares change, they must also help others identify how these changes affect resource distribution and the interpretation of accountability metrics for schools. Finally, administrators may work to improve their identification and measurement of students classified as low income.

BOX 1

Who Are Data Administrators?

Administrators are public officials who collect, report, and synthesize data on K–12 students in public schools. Administrators also need to make decisions using these data. Administrators can include staff in school districts and at the state and federal level.

In general, schools and districts report data to the state, which can use them to develop school and district report cards, to allocate funding, or for other uses. States typically aggregate these data and report up to federal data collections, including the Department of Education's Common Core of Data, EDFacts, and assessments such as the National Assessment of Educational Progress. In turn, these national data collections inform national analyses and policy.

At multiple points in data collection, administrators set the criteria for how data are collected and reported to the public and to researchers. Some states collect data from school districts on student poverty—or broader measures such as community wealth—that other states do not.

Measuring Economic Disadvantage for Accountability and for Funding

Administrators and policymakers must set the measurement criteria for counting low-income students when assessing student performance on state tests. In addition, many states distribute funding to districts using student economic need as a factor for allocating additional funds. In these states, policymakers must develop a robust measure of the number of low-income students.

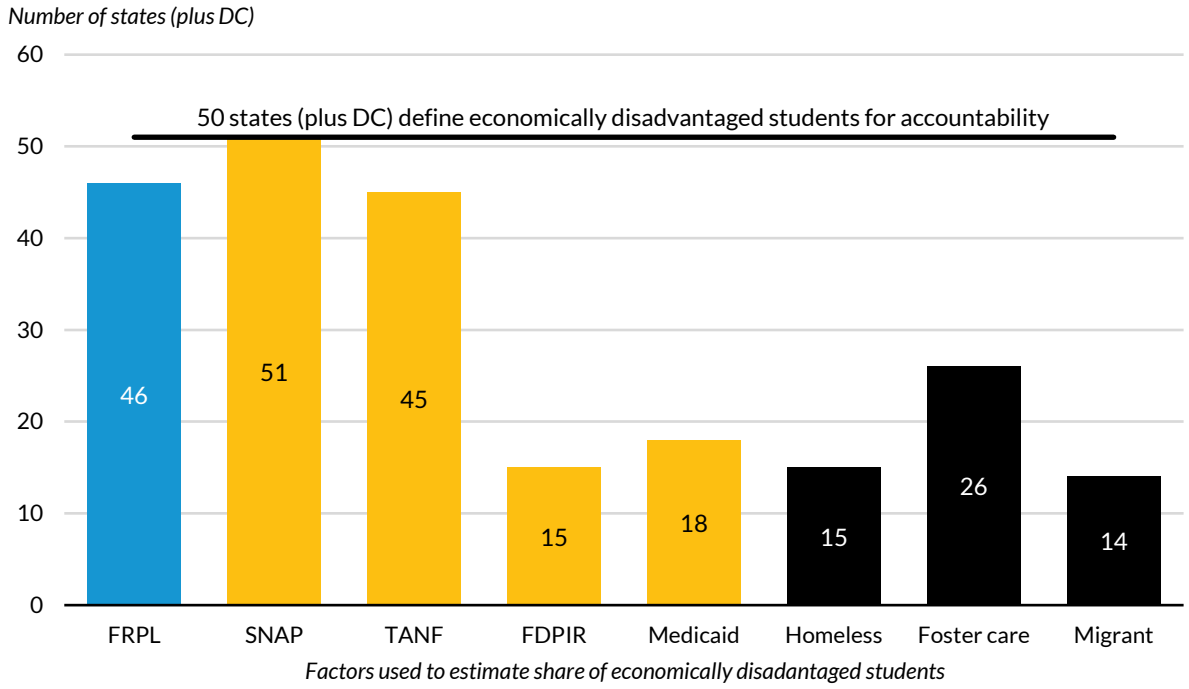
The Every Student Succeeds Act (ESSA) requires that states produce report cards to help parents and the public understand student achievement at each public school. These report cards must include student outcomes, such as performance on annual statewide tests, disaggregated for students who are economically disadvantaged (ED 2017b). But, similar to regulations under the previous reauthorization of the Elementary and Secondary Education Act, No Child Left Behind, states can decide how to define economically disadvantaged students.

Under No Child Left Behind, most states used FRPL status as their measure for economically disadvantaged students. But with increased use of the CEP, as well as increased flexibility for state decisionmaking on accountability under ESSA, some states have revised their definition of economically disadvantaged. Delaware, Massachusetts, South Carolina, Tennessee, and Washington, DC, no longer use FRPL status in determining economically disadvantaged status. Instead, they identify these students through direct certification, using household participation in safety net programs as an indicator of low-income status.

States are required to certify students for FRPL using SNAP, and states that no longer rely on FRPL status still rely on SNAP for their economically disadvantaged counts. All 50 states (plus Washington, DC) rely on SNAP rolls to identify economically disadvantaged students for accountability purposes (figure 1). Our original data collection shows that 45 states also use TANF participation, and 15 states use participation in the Food Distribution Program on Indian Reservations. Eighteen states have piloted using Medicaid data—namely, family income—to further identify students eligible for FRPL. Finally, some states include special student statuses. Students experiencing homelessness (15 states), living in foster care (26 states), or having migrant status (14 states) may be identified as economically disadvantaged.

FIGURE 1

State Combinations of Criteria to Measure Economic Disadvantage



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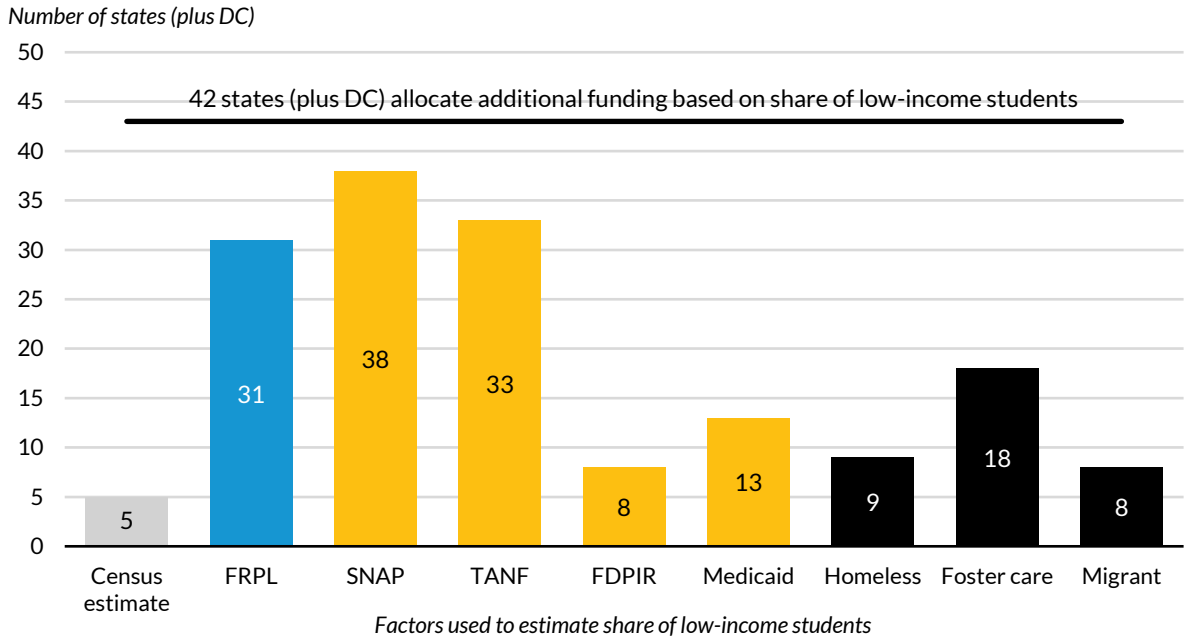
Source: Urban Institute analysis of state accountability policies.
Note: FDPIR = Food Distribution Program on Indian Reservations; FRPL = free and reduced-price lunch; SNAP = Supplemental Nutrition Assistance Program; TANF = Temporary Assistance for Needy Families.

For accountability purposes, students must be individually identified as economically disadvantaged. But for state funding mechanisms, states do not necessarily have to identify student-level economic disadvantage because state funding is allocated at the school district level.

Most state funding structures (43 states plus Washington, DC) try to send more state aid to districts with higher shares of low-income students (figure 2). But the measures used to assess low-income status are diverse. Nevada, New York, Oregon, Pennsylvania, and Texas include information from large national surveys, such as the American Community Survey, to estimate the share of school-age children living in low-income families in each district. Thirty-one states use information on FRPL status, and 38 states use SNAP, either in support of FRPL data collection or separately to count only those who are directly certified. Other programs, including TANF (in 33 states), the Food Distribution Program on Indian Reservations (8 states), and Medicaid (13 states) supplement counts of low-income students.

FIGURE 2

State Combinations of Criteria to Measure Low-Income Students by District



URBAN INSTITUTE

Source: Urban Institute analysis of state school district funding policies.
Notes: FDPIR = Food Distribution Program on Indian Reservations; FRPL = free and reduced-price lunch; SNAP = Supplemental Nutrition Assistance Program; TANF = Temporary Assistance for Needy Families. Census estimate indicates that the state uses data collected by the US Census Bureau, such as from the American Community Survey or the Small Area Income and Poverty Estimates, as part of its calculation. Additional categorical eligibility statuses, such as being incarcerated, are used in a few states and are captured in our original data collection available at "Measuring Student Poverty: Dishing Up Alternatives to Free and Reduced-Price Lunch," Urban Institute, September 20, 2019, http://urbn.is/lunch.

Communicating Changes in Measuring Low-Income Students

One of the biggest challenges state and federal administrators face is how to communicate changes in the FRPL measure to school leaders and to parents. For purposes of accountability or funding, states could count all students in CEP schools as receiving FRPL, which is often interpreted as "low income." Or states can move to a different measure, such as direct certification, which may appear to underestimate of the share of low-income students.

States and districts can take several steps to communicate changes in their definition of low-income status to families and the public. Administrators can provide clear documentation of data sources and procedures for identifying economically disadvantaged students, along with exceptions or instances of

missing information. Administrators can also provide descriptive data on how estimates of other demographic characteristics change when the definition of a low-income student changes. By documenting the increase or decrease in the documented share of different groups—such as students of color, English language learners, or students enrolled in different districts—when the low-income definition changes, administrators can provide context for what the low-income variable captures. Administrators can also clearly delineate changes in the low-income category by using new terminology. A state might transition from describing students as "low income" to describing them as "economically disadvantaged" or "directly certified." Clear and consistent use of revised terms for low-income status can signal the transition to a new measure.

Changes in Accountability Data

When states or districts transition to a new measure of poverty to report student test results under ESSA, they must be aware of how this shift can affect the public's understanding of changes over time. Changes to the categorization of low-income students can create the impression of changes in other measures, even if the underlying data do not change. To demonstrate this, we model a hypothetical school district with five schools. In this district, students who are directly certified as low income have a lower likelihood of scoring well on a state assessment. Directly certified students have an average score of 38.2, while those not directly certified have an average of 49.5 (table 1).

As the definition of low income is expanded, first to schools who receive FRPL through paper submission in addition to direct certification, and then, in schools 4 and 5, through the CEP, the average score of low-income students rises, even though the underlying score data do not change. In addition, in the aggregate and in three of the five schools, the average score of students who are not low income also increases. Changes in the low-income definition appear to improve test scores for both groups, even though the test score data do not change. This phenomenon, Simpson's Paradox, is likely to occur when an outcome is correlated with a student's economic status.

TABLE 1

Changes in Test Score Averages by Low-Income Categorization

If test scores are correlated with student poverty, average scores in both groups will rise as the low-income definition expands

		School					State
	Identification method	**1**	**2**	**3**	**4**	**5**	**average[a]**
Share of low-income students	Direct certification	32%	36%	47%	65%	63%	49%
	FRPL	43%	40%	64%	77%	76%	60%
	FRPL with CEP	43%	40%	64%	100%	100%	69%
Low-income students, average score	Direct certification	39.9	34.1	30.8	36.1	40.2	36.2
	FRPL	43.2	33.9	33.6	37.7	42.5	38.2
	FRPL with CEP	43.2	33.9	33.6	40.8	43.4	39.0
Not low-income students, average score	Direct certification	48.9	50.0	50.3	49.7	48.9	49.5
	FRPL	48.1	51.2	54.6	51.3	46.3	50.3
	FRPL with CEP	48.1	51.2	54.6	N/A	N/A	51.3

Source: Urban Institute simulation of potential test score changes.

Note: CEP = Community Eligibility Provision; FRPL = free and reduced-price lunch; N/A = not available.

[a] Unweighted average for all five schools.

State policymakers must find ways to convey this new information to the public and ensure that incorrect comparisons are not made across years when the data about economic disadvantage are reported differently. States can demark these different results on their school and state report cards using different colors or other distinguishing notation. This process may be similar to the process for switching the scoring or content of a state assessment. Officials can denote the start of a new trend and include language that warns against comparing across years.

Changes in Funding Data

The transition to a different metric for allocating funds to districts with higher shares of economically disadvantaged students brings different challenges. When state legislators transition to a new funding structure for K–12 education, they often include a "hold harmless" provision that attempts to protect districts from losing funding caused by formula changes. In current funding formulas, states often use these provisions to prevent or mitigate the reduction of funding levels for districts with declining enrollment. According to a 2014 survey of hold harmless policies, 12 states had hold harmless provisions that guaranteed, at minimum, level funding, and 22 had policies that mitigated the loss of funds when district enrollment declined (Atherton and Rubado 2014).

States that have amended their characterization of low-income students for funding have worked to ensure the new funding is at least as progressive as the previous allocation, in terms of addressing differing levels of student economic disadvantage. Because the share of students directly certified for free lunch is typically lower than the share identified through paper-based forms, schools could face a

funding decline if a change is not made. This change could be an increase in the funding allocated per directly certified student or the development of a ranked economic disadvantage measure. Massachusetts developed a ranked measure such that schools were ranked in deciles by direct certification levels (DESE 2017).

Improvement of Low-Income Student Reporting and Implementation

State and local administrators have multiple avenues to improve how they measure low-income students going forward. Although most students are accurately identified through direct certification, studies of the processes states use have found room for improvement (Moore et al. 2016; Ranalli et al. 2009). Namely, states can improve direct certification matching by using multiple data points for identification and employing a "fuzzy" or probability-based match, increasing the number of times during the school year that enrollment and safety net program data are updated and rematched, confirming near matches with the local school district, and extending eligibility to students from the same household, even if they are not identified in the matching process. States can also strengthen their programs by using other safety net data to identify students from low-income families. For example, states that have piloted the use of Medicaid data can identify income-eligible households using the income reported when the household applied for Medicaid coverage.

Another avenue for improving low-income student reporting is counting students who are income-eligible for free lunch but whose families do not participate in safety net programs. States and districts must develop new ways to capture these students, particularly in CEP schools. Some states employ paper forms for families to report their income, but schools must ensure return rates are high (e.g., by providing classroom-based rewards for the highest share of forms returned) because the submission of the form no longer conveys a benefit for the student.[15] Other states have broadened their eligibility categories, incorporating experiencing homelessness, being in foster care, or being incarcerated as statuses that count as low income.

When students remain uncounted (e.g., if children of unauthorized or mixed-status immigrant families are not captured in the direct certification data because their families do not participate in safety net programs), states and districts may need to find other ways to ensure schools with a potential undercount of low-income students have the resources they need. For example, increasing the funding weight for English language learners could address some of the gaps between reported and actual need

within a school. Likewise, a poverty concentration weight (where the per student funding allocation increases as the share of students from low-income families increases) could ensure schools with the highest need get more funding, even if some students are not counted. Finally, states can look to other measures, such as census data or links to administrative data on parent income or student mobility, to build the most accurate measure of student poverty.

Issues for Researchers and Other Data Users

Changes to widely used measures of student poverty can pose challenges for research, policy, and practice. But researchers and other consumers of education data—including advocates, social service organizations, philanthropists, and policymakers—may be particularly disconnected from data generation and documentation. Their resulting inability to fully understand and account for changes in measures of student poverty can undermine research findings and lead public initiatives off target.

Researchers and other data users are likely to encounter three key challenges:

1. interpreting communications from administrators and other data generators
2. making adjustments to align longitudinal or multisite data
3. specifying and testing alternative measures of student poverty

In this section, we discuss each issue and offer strategies to mitigate resulting challenges.

Interpretation of Student Poverty Measures

The primary challenge created by changing measures of student poverty lies in understanding existing data, especially data collected across states or over multiple years. Depending on data source and documentation, users may have a clear picture of their underlying information and how it was generated—or they may have to summarize and visualize available data to detect changes in measures and then retrace steps to understand their findings. In some sources, such as the Common Core of Data, new variables measuring student poverty have been included. Additions such as the Common Core's direct certification variable (collected starting in 2016–17) suggest a need to investigate all available measures and to consider updating longitudinal or replicated cross-sectional studies to ensure they reflect the most current and comprehensive information on student poverty.

In the post-CEP era, measures of student poverty are changing quickly in national, state, and local databases. In some states, adjustments are made annually as administrators review counts of low-income students, investigate alternative approaches to data collection, and tweak direct certification systems or alternative household income forms. In others, shifts to direct certification in CEP schools are leading to inconsistencies with non-CEP schools and pushing administrators to implement new

uniform measures statewide. Among data users, up-to-date public documentation of these changes might not be easy to find or interpret. Some states (e.g., Connecticut) continue to label measures as "FRPL" even as underlying data move to a mix of public benefit receipt indicators and household forms. In addition, it may be difficult (or even counterintuitive) to seek out information on both school funding and accountability metrics and document differences between them. Even data administrators may be unfamiliar with metrics used in offices outside their own or what measurement differences mean for accurate counts of low-income students.

BOX 2

Who Are Data Users?

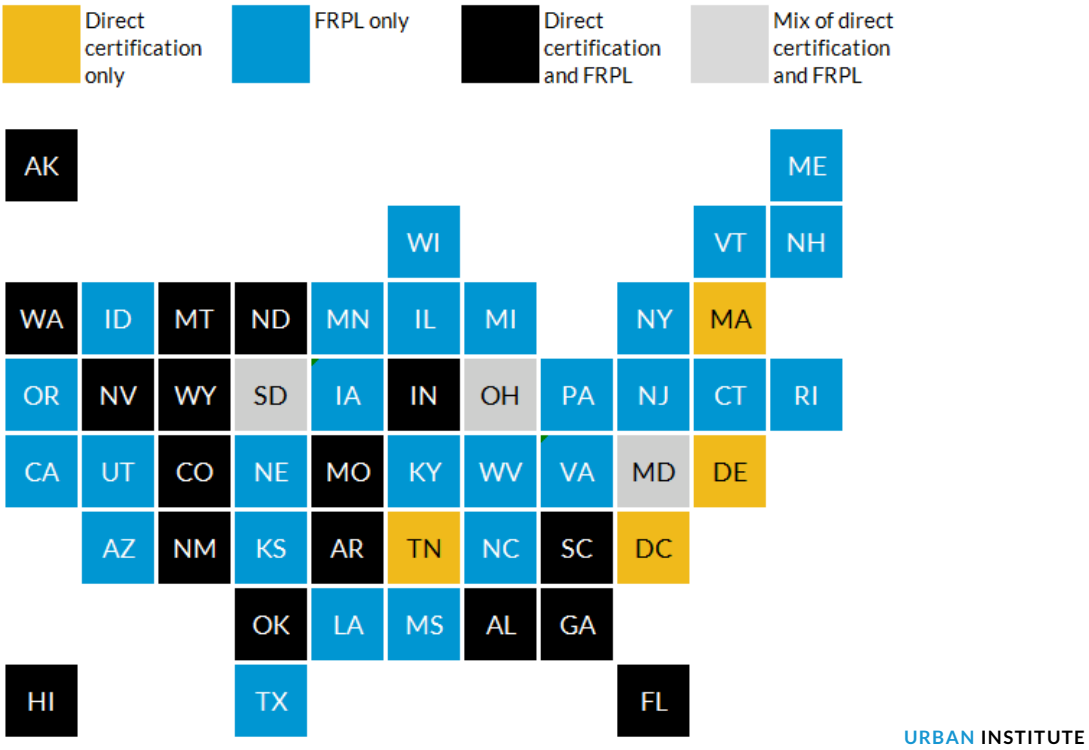
Student poverty data underlie education research, advocacy, and policymaking. Data users in diverse organizations and agencies access, analyze, and interpret data on students' socioeconomic status. Data can be available at the student level or aggregated by grade, school, district, or state. Data can be reported by a school, a local education agency, a state, or the US Department of Education.

Data users include the following:

- professional researchers in all types of organizations, including colleges and universities, for- and nonprofit research organizations, federal agencies such as the US Department of Education, and other social service organizations that use student data for policy and planning
- advocates working in school finance, accountability, education equity, school choice, and related topics, as well as advocates in other areas of child and family policy
- journalists with beats in education or related topics
- students in secondary and postsecondary education investigating education and poverty
- direct service providers in public, private for- and nonprofit, and blended organizations
- other consumers not involved with data collection

FIGURE 3

Measures of Socioeconomic Status Reported in the 2017–18 Common Core of Data



Source: Urban Institute analysis of the National Center for Education Statistics' Common Core of Data.
Note: FRPL = free and reduced-price lunch.

For many education data users, new measures of student poverty bring up questions about policies and programs far beyond their areas of expertise. Direct certification offers an example of resulting challenges. Public benefit programs have multiple and sometimes conflicting eligibility requirements, and they are not generally well aligned with public education goals. Implementation[16] and take-up (FNS 2019) of public benefit programs used for direct certification vary across states and are subject to changing state and federal policies.[17] States that have more expansive safety nets or use more programs for direct certification may identify more students than states with weaker safety nets or limited direct certification procedures. Data users relying on seemingly similar direct certification measures from multiple states must be aware of potential differences in safety net programs that undergird the measurement. Interpreting these and other new measures can mean diving into program guidance and following shifting policy landscapes to make sense of changing counts of low-income students and understand how to use them.

Interpreting new measures also requires understanding errors in reporting. These errors have been well documented for FRPL status before the CEP expansion (Bass 2010; Domina et al. 2018; Harwell

and LeBeau 2010). But new measures vary in their potential to under- and overreport. For example, newly released Common Core data demonstrate that some CEP schools report 100 percent of students as having FRPL status, while others report 0 percent. Schools, districts, and states using multiple measures—such as direct certification paired with alternative household income forms—are likely to see their total counts of low-income students rise as families have multiple opportunities to demonstrate need. Understanding the sources of new poverty measures, and who they are and are not suited to identify, can clarify reporting errors. Once interpretation is clear, data users can consider the value of, and potential approaches to, adjustments that improve data quality and comparability.

Statistical Adjustments to Student Poverty Measures

In many cases, student poverty data can be revised to account for changes in underlying data sources, data collection methods, and program and policy implementation. Adjustments can be universal or targeted to specific states, schools, or student groups; made at the state, school district, school, or student level; and done by incorporating supplemental data or post hoc corrections based on established assumptions. Documentation is critical in clarifying adjustments for all stakeholders. And where data quality is too poor or adjustments are otherwise impracticable, research can motivate future changes to improve the accuracy of student poverty measures.

Before initiating any novel adjustments, data users should consider consulting with administrators to check on work in progress. Users seeking to modify data from one state or school district, or even a handful of municipalities, can benefit from solutions pioneered by state and local agencies. They may consider requesting updated data or data cleaning code. News of upcoming adjustments or even initial agency diagnostics can inform the timing and nature of user-initiated changes. Still, although these consultations may prove fruitful in many cases, they might have limited utility in others. Researchers and other data users seeking to conduct national or longitudinal analyses or draw on data collected during periods of transition between measures may need to make their own adjustments absent guidance from administrators.

Adjustments to student poverty data can occur at several levels. Adjustments at aggregate levels—including national, state, school district, and school—can often leverage additional data sources and draw on existing statistical techniques to improve the accuracy or comparability of raw data. Use cases include the following:

1. correcting overall counts and shares of low-income students

2. adjusting counts for school and school district funding, including funding allocated through state funding formulas and Title I

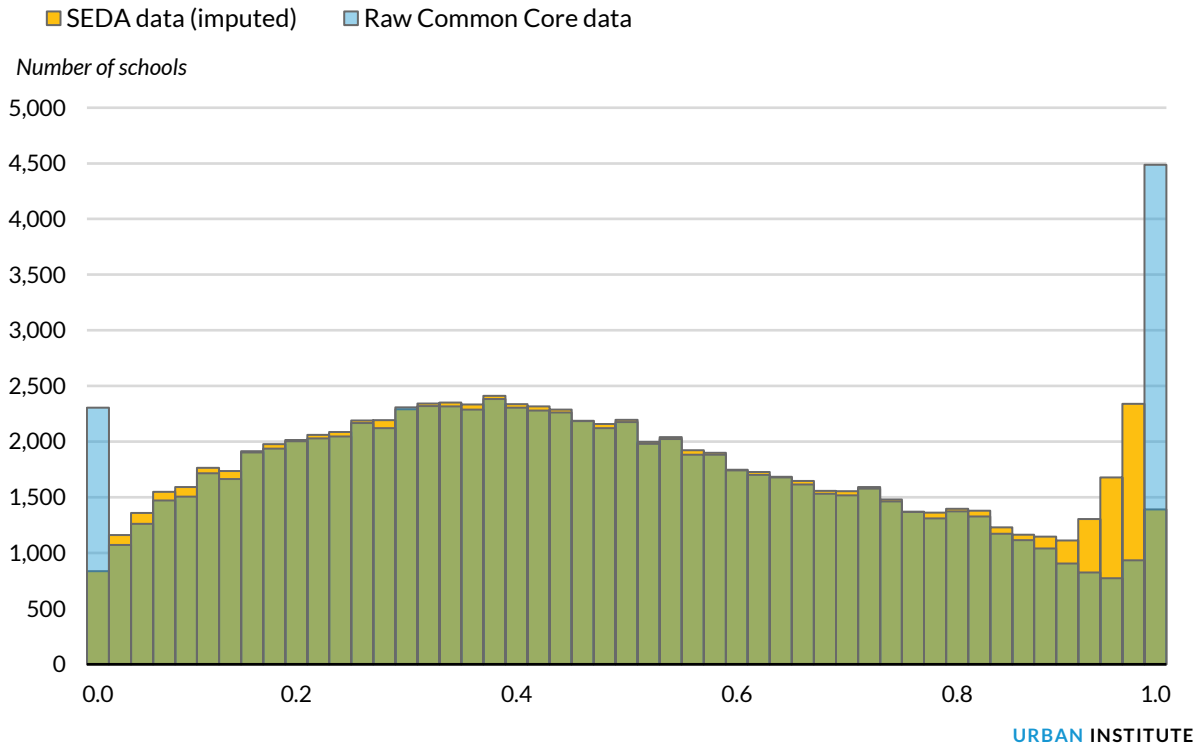
Aggregate adjustments include some margin of error but can be refined using knowledge of limitations in existing data, supplemental datasets, population changes, and other factors. Aggregate adjustment options include the following:

- **Multipliers and deflators.** Data users know that household income forms, direct certification, or other processes can systematically under- or overcount low-income students. To correct for these biases, companion data sources can inform the creation of simple multipliers or deflators. For example, the Department of Agriculture recommends multiplying counts of directly certified students by 1.6 to account for incomplete take-up of public benefit programs and match totals generated by household lunch forms (FNS 2016). Although the appropriate multiplier can vary by school and district, this kind of approach can provide a quick and easy fix to problems of undercounting.
- **Imputation.** Instead of adjusting counts of low-income students, imputation allows data users to replace existing counts of low-income students with predicted values based on one or more sources. One form of imputation is a simple average. In a year of transition to a new student poverty measure, where data appear inaccurate and unreliable, data users may decide to replace raw counts with the average of counts from previous and subsequent years. More sophisticated forms of imputation, drawing on multivariate regression methods, are also promising. Multiple imputation by chained equations and related approaches allow modelers to incorporate multiple data sources to estimate counts of low-income students. Past student poverty data, current racial and ethnic composition and counts of English language learners, and community characteristics can inform current estimates. Training models on data from the pre-CEP era or current non-CEP schools can derive counts similar to those from old FRPL forms.
- **Bounding exercises.** It can be helpful to conceive of what-if scenarios that push the limits of available data. In their simplest form, bounding exercises allow data users to set parameters and play out their implications for counts of low-income students. Data users might lay out assumptions around the share of students who remain low income year over year or who might be low income based on other observable characteristics. Testing high and low assumptions can inform a sense of the range of possible counts and comparisons with those derived from existing measures.

The menu of adjustment options is expanding, as is their sophistication. The Stanford Education Data Archive imputes FRPL status from the Common Core of Data using multiple imputation by chained equations.[18] Researchers use decades of data from EDFacts on economically disadvantaged students, information provided directly by state departments of education, and schools' racial and ethnic composition, urbanicity, and grades served to improve counts of low-income students.[19] Figure 4 illustrates how these adjustments produce a distribution of schools that looks more realistic than the one generated by Common Core data alone.

FIGURE 4

Comparing Imputed SEDA Data and Raw Common Core Data on Shares of Free-Lunch-Status Students



Source: Urban Institute calculations from 2015–16 data from SEDA and the Common Core of Data.
Notes: SEDA = Stanford Education Data Archive. Histogram includes a matched sample of 87,382 schools with nonmissing data in both sources.

Student-level adjustments are more difficult to make than those at aggregate levels because of limited data availability. Child-, family-, and household-level data are rare, and linking relevant databases to student rosters comes with substantial privacy and confidentiality concerns, as we have outlined in describing systems of direct certification. Alternative household income forms are

promising, but without school meals or other incentives, return rates can be low and collected data can be misleading.

Use cases for student-level data include the following:

1. reporting for accountability purposes
2. allocating educational and other support services
3. providing discounts to students (e.g., SAT fee waivers)

Where additional data are available, student-level adjustments can be made using some of the same approaches as aggregate-level fixes. Imputation is particularly promising. Additional student characteristics in administrative data and community characteristics linked to student addresses can be informative predictors of student poverty. Understanding errors associated with these types of adjustments, and how errors vary across jurisdictions and populations, will be critical moving forward.

Across all adjustments, data users are likely to focus on specific groups for whom new measures of student poverty often fall short. These groups include students from unauthorized and mixed-status immigrant families, students in states with greater barriers to public benefit receipt, and students with varied name spellings and other challenges to matching under direct certification. Researchers are equipped to provide empirical guidance on improving student poverty measures for these groups and harmonizing measures across states and over time. They are also equipped to investigate the next generation of student poverty measures.

Alternative Measures of Student Poverty

In the post-CEP era, states have moved quickly to address changes to FRPL status as a measure of student poverty. Some have found solutions in direct certification systems, alternative income forms, census estimates, and combined metrics drawing on multiple sources. Other states are considering changes to their student poverty measures—both in CEP schools and statewide—and some are iterating as replacement measures generate new questions about who is and who is not counted. New measures are still evolving. For data users, these changes can lead to questions about alternatives that are valid and reliable across jurisdictions and over time.

Data users may be interested in exploring alternative measures of student poverty in place of, or in addition to, changing measures reported in state and school district databases. They may also consider broader measures of student socioeconomic status, need, or educational disadvantage. Existing

alternatives depend on the levels (national, state, school district, school, and student) and geographies of interest; they vary in their advantages and limitations. But research and evaluation work suggest several proxies worthy of consideration:

- parent education, included in some state longitudinal K–16 databases (Owens, Reardon, and Jencks 2016)
- household income reported in tax filings to the Internal Revenue Service (Domina et al. 2018) or on novel surveys fielded by researchers or public agencies, possibly adjusted for cost of living
- community socioeconomic characteristics available in census-type sources linked to geocoded student address or school location data (Geverdt and Nixon 2018)
- receipt of additional safety net programs (e.g., Medicaid in most states, state benefit programs)
- student mobility or other indicators of instability (Sandstrom and Huerta 2013)
- early exposure to poverty, captured in longitudinal income data or through WIC receipt (Duncan and Magnuson 2013)
- ever-exposure or cumulative measures of poverty, similar to Michelmore and Dynarski (2017)

Investigations of these alternatives should be fully documented and shared with administrators and data users to facilitate review and proliferation of best practices. Notable models for comparing student poverty measures are already available (Domina et al. 2018; Gindling et al. 2018; Koedel and Parsons 2019). Future explorations can lead to supplemental or even replacement measures. By improving on the validity and reliability of FRPL status, new measures—including categorical and continuous measures with greater predictive power—may ultimately be better suited to measuring the socioeconomic background of all students.

Looking Ahead

Following national implementation and growing participation in the Community Eligibility Provision, we have entered a period of transition in measuring student poverty. Changes will eventually lead to a new normal. In the meantime, administrators and data users must move ahead with their work. They must communicate and understand existing data and, in some cases, make adjustments to improve data quality and comparability. Some will explore novel alternatives, and others will make recommendations for recapturing students left uncounted by existing measures.

This transition provides an opportunity to take stock of past measures of student poverty, assess their limitations, and forge ahead with alternatives. FRPL status was always flawed. The worthy expansion of school meal programs has ushered in the end of an era of "free lunch" for education stakeholders seeking to identify economically disadvantaged students. Now, new questions emerge:

- What do we mean by low income, economically disadvantaged, and at-risk?
- How do we match measures of student poverty with goals for policy, practice, and research?
- To what extent can (and should) we aim for comparability across state and district lines?
- How do we ensure students do not go uncounted?
- What guidance and supporting resources are needed and from what levels of government?
- How do we overcome communications barriers and navigate toward the next generation of measures?

As administrators and data users address these questions, two-way communication is key. Experts on the safety net and other programs outside education are also critical partners in the conversation. Educational efficacy, efficiency, and equity are at stake.

Notes

[1] Healthy, Hunger-Free Kids Act of 2010, Pub. L. No. 111-296, 124 Stat. 3183 (2010).

[2] National School Lunch Act, Pub. L. No. 79-396, 60 Stat. 230 (1946).

[3] For the guidance from the US Department of Agriculture, see National School Lunch Program: Direct Certification Continuous Improvement Plans Required by the Healthy, Hunger-Free Kids Act of 2010, 77 Fed. Reg. 4688 (January 31, 2012); and Child Nutrition Programs: Income Eligibility Guidelines, 84 Fed. Reg. 10295 (March 20, 2019). For the guidance from the US Department of Education, see OESE (2014).

[4] "National School Lunch Program: Participation and Lunches Served," United States Department of Agriculture, March 8, 2019, https://fns-prod.azureedge.net/sites/default/files/pd/slsummar.pdf.

[5] "National School Lunch Program: Provisions 1, 2, and 3," United States Department of Agriculture, November 20, 2019, https://www.fns.usda.gov/school-meals/provisions-1-2-and-3.

[6] Once income and program participation information is provided to state or local education agencies, it becomes part of students' "education records" covered under the Family Educational Rights and Privacy Act of 1974 (FERPA) (42 U.S.C. §1758(b)(3)(F) Direct Verification). FERPA gives parents rights with respect to their children's records and specifies certain conditions under which records can be shared, including through studies on behalf of schools, school districts, or postsecondary institutions (20 U.S.C. §1232g(b)(1)(F) and §99.31(a)(6)).

[7] See the final rule on direct certification for additional history: Direct Certification of Eligibility for Free and Reduced Price Meals and Free Milk in Schools, 64 Fed. Reg. 72466 (December 28, 1999). Direct certification began as self-reported participation in public benefit programs (Food Stamps and Aid to Families with Dependent Children, the precursors to SNAP and Temporary Assistance for Needy Families) through an amendment to the NSLP legislation in 1986.

[8] Food Research and Action Council, "More Low-Income Students Receive Free School Meals in the 2018–2019 School Year through Community Eligibility," news release, June 1, 2019, https://frac.org/news/more-low-income-students-receive-free-school-meals-in-the-2018-2019-school-year-through-community-eligibility.

[9] "School Meals: Provisions 1, 2, and 3," US Department of Agriculture, Food and Nutrition Service, last updated May 5, 2017, https://www.fns.usda.gov/school-meals/provisions-1-2-and-3.

[10] "Redefining Low Income—A New Metric for K–12 Education Data," Massachusetts Department of Elementary and Secondary Education, last updated July 16, 2015, http://www.doe.mass.edu/infoservices/data/ed.html.

[11] National School Lunch Program and School Breakfast Program: Eliminating Applications through Community Eligibility as Required by the Healthy, Hunger-Free Kids Act of 2010, 81 Fed. Reg. 50194 (July 29, 2016). The USDA initially recommended the 1.6 multiplier to adjust for low-income students not captured by direct certification and to make direct certification counts comparable with NSLP eligibility counts before the expansion of the CEP.

[12] Dan Forsberg, "Changes in Free/Reduced-Priced Lunch as a Measure of Student Poverty," Georgia Governor's Office of Student Achievement, October 26, 2015, https://gosa.georgia.gov/changes-freereduced-priced-lunch-measure-student-poverty.

[13] Talia Richman, "Baltimore School with Large Immigrant Population Loses Vital Funding Source," *Baltimore Sun*, May 6, 2019, https://www.baltimoresun.com/education/bs-md-ci-john-ruhrah-poverty-20190423-story.html; and Talia Richman, "Free Lunch Program Unintentionally Cost Some Baltimore Schools Thousands in Federal Funding," *Baltimore Sun*, March 7, 2018, https://www.baltimoresun.com/education/bs-md-ci-poverty-undercount-20180202-story.html.

[14] Sandra Curwood, "Direct Certification Procedures for the 2019-2020 School Year," letter to school nutrition directors, supervisors, and contact persons, July 1, 2019, http://www.doe.virginia.gov/support/nutrition/regulations/director_memos/2019-20/snp-memo-2019-2020-01.docx.

[15] "CEP: Best Practices for Alternative Income Form Collection: Call Notes," Food Research and Action Center, May 5, 2017, http://frac.org/wp-content/uploads/alternative-income-form-call-notes.pdf.

[16] Heather Hahn, Eleanor Pratt, Eva Allen, Genevieve M. Kenney, Diane K. Levy, Elaine Waxman, and Nathan Joo, "Work Requirements Tracker," Urban Institute, last updated July 30, 2019, https://www.urban.org/features/work-requirements-tracker.

[17] "Final Rule on Public Charge Ground of Inadmissibility," US Citizenship and Immigration Services, last updated August 12, 2019, https://www.uscis.gov/legal-resources/final-rule-public-charge-ground-inadmissibility.

[18] "Stanford Education Data Archive: Overview," Stanford Center for Education Policy Analysis, accessed September 7, 2019, https://cepa.stanford.edu/seda/overview.

[19] "The EDFacts Initiative," US Department of Education, last updated May 24, 2019, https://www2.ed.gov/about/inits/ed/edfacts/index.html.

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