School Lunch and P-EBT Benefit Valuation in the 2021 Supplemental Poverty Measure

Em Shrider[1]

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Introduction

The Supplemental Poverty Measure (SPM) is released annually by the U.S. Census Bureau based on data collected in the Current Population Survey Annual Social and Economic Supplement (CPS ASEC). The SPM accounts for many sources of government assistance when estimating the poverty rate. It includes benefits provided by the National School Lunch Program (NSLP), which subsidizes lunches served in public and nonprofit private schools. When the NSLP is operating normally, all student lunches are either partially or fully subsidized. The value of this subsidy is included as a resource in the SPM, traditionally calculated using per-meal reimbursement rates for a 179-day school year.

The COVID-19 pandemic and associated response disrupted school lunch provision during 2020. Using the traditional method to value SPM school lunch benefits was inadequate given school closures and the implementation of the Pandemic Electronic Benefit Transfer (P-EBT) program. A new method was developed for 2020 that accounted for school closures and P-EBT (Shrider 2021). Due to additional changes in school operating status, the P-EBT program, and school lunch provision, a different method is needed for 2021.

This paper describes the NSLP and how school lunch provision changed in response to the COVID-19 pandemic. It then describes the updated method for calculating and assigning school lunch values in the 2021 SPM, comparing the traditional method and the new method. The paper concludes with a discussion of the limitations of the new method.

NSLP and the COVID-19 Pandemic

The NSLP provides low-cost or no-cost meals to children at public and nonprofit private schools and residential childcare institutions. Participating schools receive cash and USDA Foods subsidies for each reimbursable meal they serve. In exchange, participating schools must meet three requirements. First, they must serve meals that meet federal nutritional standards. Second, those meals can only be served at set times in group settings on school premises to children who were in attendance that day. Third,

[1] The views expressed in this paper, including those related to statistical, methodological, technical, or operational issues, are solely those of the author and do not necessarily reflect the official positions or policies of the U.S. Census Bureau. The author accepts responsibility for all errors. All comparative statements have undergone statistical testing and are statistically significant at the 90 percent confidence level unless otherwise noted. More information on confidentiality protection, methodology, sampling and nonsampling error, and definitions within the Current Population Survey Annual Social and Economic Supplement (CPS ASEC) is available at <www.2.census.gov/programs-surverys/cps/techdocs/cpsmar22.pdf>. All estimates have been rounded as required by the Census Bureau's DRB disclosure avoidance guidelines. The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. Data Management System (DMS) number: D-0000010797, Disclosure Review Board (DRB) approval number: CBDRB-FY22-SEHSD003-045.

they must offer free or reduced price meals to students who qualify.[2] Traditionally, children qualify for free or reduced price lunches if their family income is below 185 percent of the federal poverty level; if they participate in certain assistance programs, like the Supplemental Nutritional Assistance Program (SNAP); or if they are homeless, a runaway, a migrant, or a foster child.[3]

When schools closed due to the pandemic, it became impossible to provide school meals under the NSLP's normal rules. The Families First Coronavirus Response Act of 2020 (FFCRA) (PL 116-127), passed by Congress and signed into law in March 2020, granted exceptions to many NSLP rules and those of two other USDA child nutrition programs, the Seamless Summer Option (SSO) and the Summer Food Service Program (SFSP). In non-pandemic times, these programs provide meals when school is not in session in areas where 50 percent or more of the children are in low-income households. The FFCRA allowed these programs to operate during the school year and waived the eligibility requirements so that sites could operate regardless of local income levels. While schools were closed, these flexibilities allowed for the provision of grab-and-go meals. As schools shifted back to in-person learning, the SSO flexibilities were used to provide free on-site lunches to all children, regardless of income level.

In addition to permitting flexibilities in the NSLP, SSO, and SFSP programs, the FFCRA established the P-EBT program, which distributed the value of school meal benefits to children who received free and reduced price lunches.[4] If schools were operating with reduced hours or were closed for at least 5 consecutive days, children could receive temporary emergency nutrition benefits. If the child normally received SNAP, the value was added to either their or their family's SNAP card. If they did not receive SNAP, they would receive the value on a separate P-EBT card.[5]

Together, P-EBT and the program flexibilities changed both the way school lunch benefits were provided and the value of those benefits. During school closures, when the SSO and SFSP were being used to provide grab-and-go meals, there was no guarantee that children received the same number of meals that they would have received had schools been open. Neither program requires sites to provide daily meals, so some sites may provide a single meal a week, whereas others might provide the equivalent of a daily breakfast and lunch. As such, it is not reasonable to assume that children received the same number of meals as they would have if school had been in person. Using the traditional school lunch value calculation could considerably overestimate the value of lunch benefits for children relying on sites that offered fewer meals or in areas with no distribution at all.

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[2] More details on NSLP are available at: <https://www.fns.usda.gov/nslp/nslp-fact-sheet>.

[3] If the child's family income is at or below 130 percent of the federal poverty level, they are eligible for free lunches. Those who fall between 130 and 185 percent of the federal poverty level are eligible for reduced price lunches.

[4] The P-EBT program was later amended and continued by the Continuing Appropriations Act 2021 and Other Extensions Act (PL 116-159), the Consolidated Appropriations Act 2021 (PL 116-260), and the American Rescue Plan Act of 2021 (PL 117-2).

[5] New York is an exception; it uses a Common Benefit Identification Card (CBIC) to administer several public assistance programs simultaneously. If the child receives other benefits on a CBIC but does not receive SNAP, the P-EBT benefits were loaded onto the CBIC. If the child does not receive benefits on a CBIC, they received a separate P-EBT card.

On the other hand, when schools reopened and used the SSO flexibilities to provide free meals to all children, the traditional calculation would have undervalued the benefits for children who normally received reduced price lunches or who paid for lunch. The P-EBT program also provides more benefits than the traditional school lunch value allots. The P-EBT rate accounts for breakfast, lunch, and a snack, so it is reimbursed at a higher rate than the traditional SPM school lunch value calculation, which only accounts for lunch. Thus, the traditional method for valuing school lunch also would undervalue the school lunch benefit for everyone who received P-EBT. Because the P-EBT benefit is based on the free reimbursement rates, this would especially affect those who normally receive reduced price lunches. An updated method is needed.

School Lunch Value Calculations

Traditionally, school lunch values are assigned based on two questions in the CPS ASEC. The first is whether children usually eat a complete meal provided by the school, and the second is whether they usually received free or reduced price meals through the NSLP. The NSLP question was updated in the 2022 CPS ASEC to account for the expansion of free lunches under the SSO flexibilities. The updated question asked:

> *During 2021, which of the children in this household received free or reduced priced lunches because they qualified for the Federal School Lunch Program or their school provided free lunches to all students?*

The survey also added a new question to capture P-EBT receipt. The new question went to all respondents with at least one child between 5 and 18 years old in the household. The question asks:

> *During 2021, did you or anyone in this household receive a school meal debit, pandemic EBT, or P-EBT card?*

These new and updated questions were used, along with questions about SNAP receipt, to determine school lunch values. The process for calculating and assigning these values is outlined below.

Traditional Value Calculation

Traditionally, the school lunch values have been based on a formula that takes a calendar-year weighted average of the federal reimbursement rate, adds the weighted average commodities, and adds the bonus commodities received by each school per child.[6, 7] These values are then multiplied by 179 days to get the school lunch value for the year.[8] Different rates are used for those who received free, reduced

[6] Lunch reimbursement rates are set for each school year. In 2021, the spring months were reimbursed at the 2020-21 rate, while the fall months were reimbursed at the 2021-22 rate. Because the CPS ASEC asks about the previous calendar year, it contains five months of one school year and 4 months of the next school year. The traditional method uses the weighted average of these two reimbursement rates as the yearly rate. Commodity values are also weighted to account for the different school years.

[7] Participating schools receive commodities, which are USDA Foods distributed based on program participation. The amount of commodities schools receive is a regular part of the NSLP. Bonus commodities are extra USDA Foods that are distributed to schools when there is a surplus. The amount of bonus commodities varies over time.

[8] Traditional school lunch valuation is still available on the public use CPS ASEC file at the family level as F_MV_SL, while the new valuation is available at the SPM unit level as SPM_SCHLUNCH.

price, and paid lunches.[9] Breakfast, snacks, and summer meals are not included in the calculation because it is hard to determine both the value of the meals and who actually receives them.[10]

Paid, free, and reduced price lunch values then are assigned based on respondents' answers to the lunch questions in the CPS ASEC. Those who indicated that they did not eat school lunches were assigned no value. Those who indicated that they ate lunch at school but did not receive a free or reduced-price lunch were assigned the paid value. Those who indicated they received a lunch at school and that they received a free or reduced price lunch were given the free rate if they are in a family with an income below 150% of the federal poverty line. If they were not in poverty, half were randomly assigned the free rate and half were randomly assigned the reduced rate.

Using the traditional method for 2021 would have given a value of $107.50 for children receiving paid lunches, $613.70 for children receiving reduced price lunches, and $685.30 for children receiving free lunches.

Updated Value Calculation

The updated method for 2021 needs to account for school closures, the provision of nearly universal free lunch when schools reopened, and P-EBT.[11] All of these depend on school operating status. When schools are operating in-person, the method assigns an in-person lunch value. When schools are closed, the method assigns either no value or a P-EBT value, contingent on whether the respondent reported P-EBT and SNAP receipt. The method also accounts for additional P-EBT payments that were distributed in 2021. All of these values are then added together to get the yearly value.

Determining School Operating Status

Whether students are given a P-EBT value or a school lunch value depends on school operating status. There was geographic variation in the return to in-person schooling, but due to data constraints, it is impossible to determine exactly how many and which days specific schools were open. Using state average open and closed days allows us to account for some geographic variation despite these limitations.

State average open and closed days were calculated using data from the U.S. School Closure and Distance Learning Database (Parolin and Lee 2022). This database uses mobile phone usage data from SafeGraph to compare cell phone traffic at schools in a given month to the same month in 2019, before the pandemic closed schools to in-person learning. If the number of visitors to a school fell substantially between comparison months, it suggests that the school was closed or hybrid.

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[9] All school lunches for children are partially subsidized. "Paid" refers to the partially subsidized lunches that are purchased by children not eligible for free or further reduced price lunches.

[10] Considering summer food provision in non-pandemic times would be particularly tricky. The coverage of the federal summer food programs is uneven, the frequency of food distribution varies by site, and there are no eligibility requirements for individual children because site eligibility is based on the local poverty rate.

[11] For the purposes of this paper, "closed" refers to times when schools were either operating remotely or are fully closed.

The updated school lunch value calculations used the district-level file of this database. The district-level file includes the estimates of the number of students in each district and the share of schools with at least a 25%, 50%, and 75% cell phone traffic reduction. Following Parolin and Lee (2020), we coded a 50% reduction in traffic as "closed." If the reduction was between 25% and 50%, it was coded as hybrid. If the reduction was less than 25%, it was considered open. These open, hybrid, and closed rates were then multiplied by the number of students in the district, and the weighted average number of days in school per student was calculated for each state.[12]

The state average open days were calculated for two periods, January through May 2021 and September through December 2020.[13] Because schools were largely open in Fall 2021, the method assumes that schools were open and does not account for closures or P-EBT, so average state calculations are unnecessary.[14] The traditional SPM school lunch calculation assumes a 179-day school year, with 5/9ths of the year in the Spring and 4/9ths in the Fall. With rounding, this works out to 99 days in the spring and 80 days in the fall. The updated method calculated the state average closed days by subtracting the average open days from these counts. This gave non-overlapping open and closed days which could then be used for assigning in-person lunch and P-EBT values.

In-Person Lunch Values

In-person lunch values were calculated for January through May 2021 (Spring) and September through December 2021 (Fall). For Spring, the in-person lunch values were obtained by multiplying the average state open days by the school lunch reimbursement rate. For Fall, the school lunch reimbursement rates were multiplied by 80 days.

The reimbursement rates were calculated using a simplified version of the traditional method. The traditional method calculates a weighted reimbursement rate across the entire calendar year, but because the new method calculates spring and fall separately, using a weighted average is unnecessary. The simplified method simply takes the reimbursement rate for the 2020-21 school year plus the value of commodities to get the values for Spring 2021. [15] It then uses the 2021-22 school year reimbursement rate and commodities to calculate the rate for Fall 2021.

Because many schools were using the increased program flexibilities to provide free lunches to all children, we did not assign anyone a reduced price lunch. Some respondents to the CPS ASEC indicated that they still paid for lunch, so they received the paid lunch value, but otherwise it seemed likely that lunches were free. The in-person school lunch value calculations are provided in Table 1.

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[12] Hereafter, the average number of days students spend in school are referred to as "state average open days."

[13] P-EBT backpay from Fall 2020 was distributed in 2021 and is included in the SPM school lunch value. More information is in the P-EBT section below.

[14] P-EBT is distributed if schools are closed for five consecutive days. By Fall 2021, schools were largely operating on a normal schedule, and most reported closures were highly localized and only for a couple of days, and thus effectively no different than normal calamity days. Burbio's school tracker blog has more information on school closures in 2021: https://about.burbio.com/weekly-updates?hsLang=en.

[15] The traditional method also includes bonus commodities. However, so few bonus commodities were distributed in 2021 that they do not change the value of school lunches in either the weighted or unweighted calculation. They are thus effectively excluded.

Table 1. In-Person School Lunch Value Calculations for 2021.

	January – May 2021 (Spring 2021)	September-December 2021 (Fall 2021)
Paid	Avg state open days * $0.585	80 days * $0.620
Reduced	*Not assigned due to free lunch waivers*	
Free	Avg state open days * $3.755	80 days * $3.920

P-EBT Calculations

The P-EBT program was established in March 2020 and was set to expire at the end of the 2019-2020 school year. Originally, P-EBT rates were based on the reimbursement rates for free lunch under the NLSP and free breakfast under the School Breakfast Program (SBP). However, both the end date and the reimbursement calculation changed, extending the program and raising the amount of the benefit.

P-EBT was extended to cover the 2020-21 school year, the 2021-22 school year, and the summer of 2021. The extension to cover the 2020-21 school year was passed in October 2020. Because states then had to apply to operate the program, get approvals, and set up their systems, the first payments were delayed into 2021. As a result, children who received P-EBT benefits in 2021 were often receiving current payments as well as back payments for the fall. As these benefits were received and comingled with the 2021 benefits, we included them in the 2021 school lunch value calculation. Similarly, we included the benefit for Summer 2021. While the SPM normally does not take summer meal provision into account due to the complexity of estimating and assigning a value for it, this was a substantial, fixed benefit and should be included.

As a result of these extensions, we included P-EBT rates from three periods: Spring 2021, Summer 2021, and backpay from Fall 2020. We did not include P-EBT for Fall 2021 because most schools had reopened. For Summer 2021, the value of the benefits was $375 per child. For Fall 2020 and Spring 2021, the value of these benefits was calculated by multiplying the average state closed days for each period by the P-EBT reimbursement rates. These reimbursement rates increased for both periods. Originally, P-EBT rates were based on the reimbursement rates for free lunch under the NSLP and free breakfast under the School Breakfast Program (SBP). In January 2021, the benefit was expanded to include reimbursement for a snack, and this change was made retroactive to the beginning of the 2020-21 school year. Thus, for the 2020-21 school year, the P-EBT rate in the contiguous United States was $6.82 per school day. These calculations are in Table 2.

Table 2. P-EBT Value Calculations

Fall 2020 Backpay	January – May 2021 (Spring 2021)	June-August 2021 (Summer 2021)	September-December 2021 (Fall 2021)
Average state closed days * $6.82	Average state closed days * $6.82	$375	$0

The updated values were assigned using the school lunch questions, P-EBT, and SNAP questions from the CPS ASEC. The decision tree for these assignments is in the appendix. If respondents answered that they did not receive P-EBT, lunch values are assigned based on whether the children regularly ate school lunches and if they received them for a free or reduced price through the NSLP. Such respondents only received a value for in-school lunches.

If respondents answered that they did receive P-EBT, lunch values were assigned similarly, but whether the P-EBT values were added on depended on household SNAP receipt. Because SNAP recipients received their P-EBT benefits on their SNAP cards, it is likely that many recipients did not distinguish between sources when reporting their SNAP benefits in the CPS ASEC. Thus, to avoid double-counting P-EBT benefits for those with SNAP, this method did not assign the P-EBT value for those who reported SNAP receipt. However, if respondents did not receive SNAP but did indicate that they received P-EBT, the P-EBT value was added to the appropriate in-school lunch rate.

Effects of New Input Values

Using the traditional method, the SPM considers three lunch values—free, reduced price, and paid—that range from $107.50 to $685.30 per year (Table 3).[16] Had the traditional method been used for 2021, the mean per student value for lunches would have been $549.70 for children who received lunches in schools.

Table 3. Summary Statistics, Traditional and Updated Methods, 2021

	Mean	Standard Error	Minimum Value	Maximum Value
Traditional Method	$549.70	1.50	$107.50	$685.30
Updated Method	$626.20	2.95	$56.00	$1,926.00

Source: U.S. Census Bureau, Current Population Survey, 2022 Annual Social and Economic Supplement

The updated method contains 255 lunch values: the paid and free in-school lunch values, a P-EBT value, and paid and free in-school lunch values with P-EBT, all multiplied by the state average number of days in school for Spring 2021. Using this method, the mean school lunch benefit value was $626.20, with a minimum of $56.00 and a maximum of $1,926.00. It should be noted that some of the children who received a value in the updated method would have received a value of $0.00 in the traditional method. These children received P-EBT but not SNAP and did not regularly eat lunches provided by the school. Given the extension and expansion of P-EBT and the extension of universal free lunch, it is unsurprising that the mean for the updated method is higher than the mean for the traditional method.

Table 4 displays summary statistics on the difference between the updated values and the traditional values at the individual level. Overall, the mean difference between the updated values and the traditional values is $96.00. However, 74.1 percent of children still received a lower value using the updated method than they would have using the traditional method. This is also the case for every level of traditional assignment. The mean values are higher for those receiving paid, reduced, and free lunches than they would have using the traditional method, but for each, the majority of individuals received a lower value under the new method. This is unsurprising, given the gap in maximum values. While the new method results in an approximately $50 reduction on the low end of the reimbursement

[16] To generate these statistics and to make the comparisons in Table 4, some children were assigned reduced price lunches, even though the new method does not use them.

distribution, on the high end, the rates are raised by over $1,200. The children getting the much higher values offset the children who are assigned smaller reduced rates.

Table 4. Summary Statistics, Difference Between Updated Values and Traditional Values, 2021

	Mean Difference (Updated – Traditional)		With Lower Updated Value		With Higher Updated Value	
	Estimate	Std. Error	Percent	Std. Error	Percent	Std. Error
Total	$96.00	2.74	74.1	0.34	25.9	0.34
Paid	$57.30	4.13	90.7	0.51	9.3	0.51
Reduced	$127.20	5.47	71.7	0.68	28.3	0.68
Free	$41.30	3.82	74.0	0.47	26.0	0.47

Source: U.S. Census Bureau, Current Population Survey, 2022 Annual Social and Economic Supplement

Limitations of New Method

While the school lunch values calculated by the updated method are likely more accurate than the traditional method given the pandemic's effect on school lunch provision, there are concerns and limitations surrounding sources of over- and under-estimation and data accuracy.

First, there is a lot of uncertainty in what lunch provisions children received. Knowing that a child ate lunch at school or received P-EBT does not tell us how long they received either benefit. If, for example, they received P-EBT, but only for the summer, their school lunch value is going to be understated. If they received free lunches, but their school was open for significantly fewer days than the state average, their school lunch value will be overstated.

Finally, there are general data concerns. First, the state average open and closed school day estimates are based on a dataset that is in many ways experimental. Although the data has gone through rigorous testing and compares well to other experimental datasets (Parolin and Lee 2020), it is still a new dataset that makes many assumptions. Second, it is unclear how people reported their SNAP and P-EBT benefits. While it seems likely that respondents would not distinguish their P-EBT benefits from increased SNAP benefits, that is not a certainty. It is possible that respondents only reported SNAP benefits, in which case their overall food support values will be under-reported. Finally, the entire method is based on assumptions about how food was provided and whether schools were opened or closed. Given these limitations, caution should be exercised when looking at school lunch values for 2021.

Conclusion

This new method was developed to account for changes to school lunch provisions due to the COVID-19 pandemic. Using the new method, mean lunch values are higher than they would have been using the traditional method, though most individuals received lower lunch values than they traditionally would receive. Further updates to the method for valuing school lunches in the SPM will be necessary to reflect the changing policy response to the pandemic.

References

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Appendix 1. Decision Tree for School Lunch Value Assignment