Monthly Poverty Rates in the United States during the COVID-19 Pandemic

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KEY FINDINGS

- In contrast to measures of poverty based on a family's annual resources, we project monthly poverty rates based on a family's monthly resources before and throughout the COVID-19 pandemic.
- The monthly poverty rate increased from 15% to 16.7% from February to September 2020, even after taking the CARES Act's income transfers into account. Increases in monthly poverty rates have been particularly acute for Black and Hispanic individuals, as well as for children.
- In April and May, the CARES Act was successful in offsetting potential increases in monthly poverty, but was not successful at preventing a rise in *deep* poverty, defined as having monthly income lower than half the monthly poverty threshold.
- The CARES Act's stimulus checks and unemployment benefits lifted more than 18 million individuals out of monthly poverty in April, but this number fell to around 4 million individuals in August and September after the expiration of the $600 per week unemployment supplement.
- Due to the expiration of the CARES Act's stimulus checks and $600 per week supplement to unemployment benefits, the monthly poverty rate in September was higher than rates during April or May, and also higher than pre-crisis levels.

INTRODUCTION

Income poverty is typically measured as whether a family's total *annual* income falls below a specified poverty line. The Census Bureau's annual poverty estimates, for example, show the share of individuals whose total income in a given calendar year falls below the poverty line. This report, instead, presents a framework for producing *monthly* estimates of poverty in the United States based on projections of a family unit's *monthly* resources. We provide estimates of the monthly poverty rate from October 2019 through September 2020, the latest month for which data are available as of this writing. In doing so, we are able to provide closer to real-time estimates of how families' monthly incomes have changed throughout the COVID-19 crisis than are available in official statistics. Our report thus provides two critical contributions. First, we are able to understand trends in poverty in the current economic context, whereas official poverty estimates are published with a considerable lag. Second, by moving to a monthly framework, we are able to understand poverty trends in the context of the considerable economic volatility introduced by the COVID-19 crisis and the government's policy responses. Throughout, we use a monthly version of the Supplemental Poverty Measure (SPM) as our poverty measurement framework (see Appendix I).

As this report details, there are advantages and disadvantages to producing a measure of poverty based on monthly resources. The primary advantage of a monthly measure is that it captures within-year fluctuations in poverty that might occur even if a family's annual income puts them above the poverty line. The COVID-19 crisis has induced both the largest declines and subsequent increases in monthly employment ever witnessed in the U.S., and has made clear the importance of high-frequency data on family well-being to inform policymaking.

Our findings show that the monthly poverty rate increased from 15% to 16.7% from February to September 2020, even after taking the government's response (primarily the CARES Act, which we describe below) into account. We find that at the peak of the crisis (April 2020), the CARES Act successfully blunted a rise in poverty; however, it was not able to stop an increase in *deep* poverty, defined as resources less than half the poverty line.

We also find that the expiration of government income supports at the end of July 2020 has contributed to an increase in poverty rates in August and September. The CARES Act's stimulus checks and unemployment benefits lifted more than 18 million individuals out of monthly poverty in April, but this number fell to around 4 million individuals in August and September after the expiration of the $600 per week unemployment supplement. The increases in poverty have been particularly acute for Black and Hispanic individuals, as well as for children.

TOWARD A MONTHLY MEASURE OF MONTHLY POVERTY

Poverty is most often measured on an annual basis according to a family unit's annual resources. This is true not only for official measures of poverty in the United States, but also in the European Union, Canada, Australia, and the United Kingdom (Eurostat 2020, Francis-Devine 2020, Parliament of Australia 2004, Statistics Canada 2020). The U.S. Census Bureau and its international counterparts, for example, generally release comprehensive data on income once per year with a 12-month reference period (Fox 2019).

Annual poverty estimates have several advantages over shorter or longer accounting periods. Relative to shorter time periods (say, monthly measures of poverty), an annual measure tends

to better reflect a family's long-run consumption capabilities; families with more income over the course of a year are better able to adapt and maintain their level of wellbeing in the event of a short-term drop in income (Atkinson 2019). Relative to longer time periods (say, five years), the annual accounting period more appropriately captures economic fluctuations, such as sustained drops in income during a recession, that affect the wellbeing even of families who are, in the long run, generally well-off. As such, the Canberra Report on Household Income Statistics explicitly recommends a one-year accounting period when computing a family unit's poverty status (The Canberra Group 2001).

Despite these advantages, a *monthly* accounting period has certain advantages relative to the annual measure. In the context of rapid fluctuations in economic conditions or large intra-year volatility of a family's income, short-term measures of income and poverty may more accurately represent a family's experiences throughout the year. This is especially true for lower-income families, who may not have the resources to smooth consumption over longer periods of unemployment or income loss.

A monthly measure may be particularly useful when large levels of income transfers are concentrated in a given month (or a few months) throughout the year. Consider the economic context after the onset of the COVID-19 pandemic in the U.S. After the crisis took hold, the economy shed a large number of jobs, leading to large and sustained declines in earnings for many families. This shock was followed by a series of government responses, most notably the CARES Act, which was passed in March 2020. The CARES Act distributed one-time Economic Impact Payments (EIPs) and a $600 per week supplement to unemployment benefits, among other responses. However, the payments were concentrated over a four-month period, and access to the benefits was delayed for many applicants (Parolin, Curran and Wimer 2020). As a result, a family could go multiple months with no earnings or government income support, only to subsequently receive a large level of income transfers in a single month. From an annual accounting perspective, the income transfers might lift this family above the annual poverty line. Viewed from a monthly perspective, however, it is likely that the family lacked the current resources to meet their monthly expenses absent an influx of income support. Some of these families, of course, might have had savings, social networks, or other means of support to keep such a drop in income from causing immediate hardship. However, many families do not have such means, and many rely on their current resources and incomes to make ends meet.

We are not the first to grapple with the most appropriate accounting period in measuring poverty. As Atkinson (2019:63-64) writes, choosing between a monthly or annual estimate of poverty depends on "the assumptions made about the effect of short-term fluctuations on the economic wellbeing of individuals and households." If transitory declines in income tend to contribute to higher rates of hardship or lower levels of wellbeing, then an accounting period of less than a year may be warranted.[1] A 1976 report on "The Measure of Poverty" from the U.S. Department of Health, Education, and Welfare's Poverty Studies Task Force makes a similar point, noting that whether poverty is measured over "a week, month, year or lifetime, depends on the particular purpose the definition of poverty is meant to serve… [f]or designing programs which deal with emergencies or temporary low income, like temporary unemployment, a shorter accounting period is more appropriate."

[1] Likewise, a monthly poverty measure, if it more closely tracks fluctuations in hardship and wellbeing relative to an annual measure, might also better fit Peter Townsend's (1979) conceptualization of relative deprivation ("the lack the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary").

In the COVID-19 pandemic and its associated economic crisis, we argue that a shorter accounting period is indeed warranted. Thus, rather than measuring poverty based on annual resources, we create a monthly poverty measure based on each family's monthly resources. As detailed in the *Methodological Appendix*, this framework only accounts for income that is received during the given month; thus, the Earned Income Tax Credit (EITC), for example, is counted as income only in a single month (typically March or April), as it is distributed to recipients in a single payment. Similarly, benefits from the CARES Act (stimulus checks and unemployment benefits) are only assigned in the month during which they are actually received. We provide full details on how we convert each income component to its monthly value in the *Methodological Appendix*.

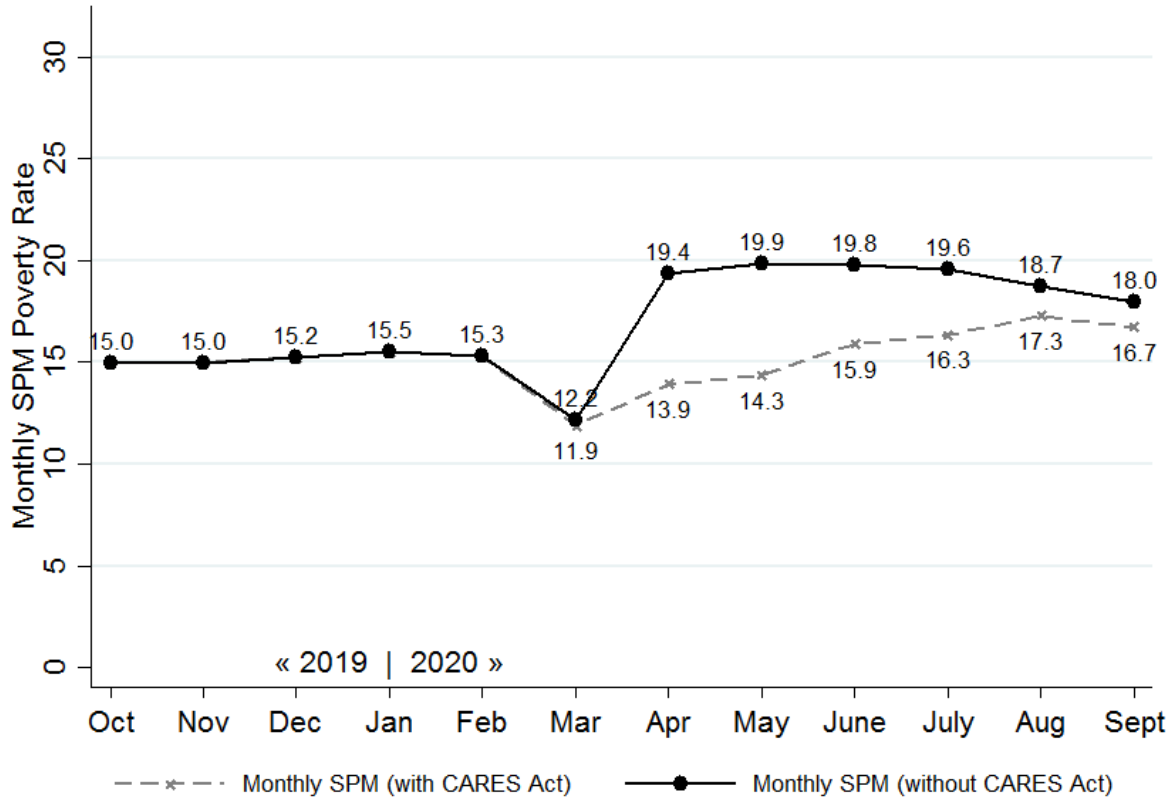
We do not propose that a monthly poverty rate should serve as a replacement for its annual counterparts; rather, the monthly measure should be viewed as a complement that can more appropriately track intra-year volatility in poverty rates relative to annual measures. As discussed, the relative usefulness of the monthly measure is likely dependent on economic context and conditional on the questions being asked. Inquiries related to long-term consumption capabilities or intergenerational transmission of poverty, for example, may gain little from a monthly poverty measure.

We describe our methodological approach in detail in Appendix I. Here, we summarize the primary steps. To produce monthly updates of the monthly SPM, we create a measure of monthly income in the U.S. Current Population Survey's Annual Social and Economic Supplement (CPS ASEC). We convert the annual value of an income component to its estimated monthly value depending on the individual's current employment status, duration of unemployment, state policy rules, and other information. We then combine the annual ASEC and each Basic Monthly CPS file (the latest of which is September 2020); both samples include a large selection of identical demographic and employment indicators, but only the ASEC has detailed information on income and poverty status. We then apply combined sample multiple imputation to export the predicted probability of poverty from the ASEC sample to our Basic Monthly sample. See Appendix I for more details.

MONTHLY POVERTY THROUGHOUT THE CRISIS

Figure 1 presents monthly poverty trends from October 2019 through September 2020. In October 2019, we estimate that the poverty rate was around 15 percent. This is higher than *annual* estimates of poverty in recent years (11.7 percent in 2019), as expected given that the monthly measure only includes income received in the given month. The 15 percent monthly poverty rate remained relatively stable through February 2020. In March, as the COVID-19 crisis began to unfold in the U.S., unemployment rates increased from 3.5 to 4.5 percent; at the same time, a large share of families received their Earned Income Tax Credit (EITC) transfers, contributing to a lower poverty level of around 12 percent in March. In April, however, unemployment climbed to above 15 percent. Absent the increased income support provided by the CARES Act, poverty would have jumped to 19.4 percent. Put differently, the CARE Act's income transfers directly lifted around 18 million individuals out of poverty in April. Absent the EITC payments that were distributed to some families in April, poverty would have been even higher, at 21.4 percent (not shown). With the CARES Act's stimulus checks and expanded unemployment benefits, however, the poverty rate only increased by about 2 percentage points from March to April (to 13.9 percent) – still well-below pre-crisis levels.

Figure 1: Trends in monthly poverty rates before and after CARES Act transfers

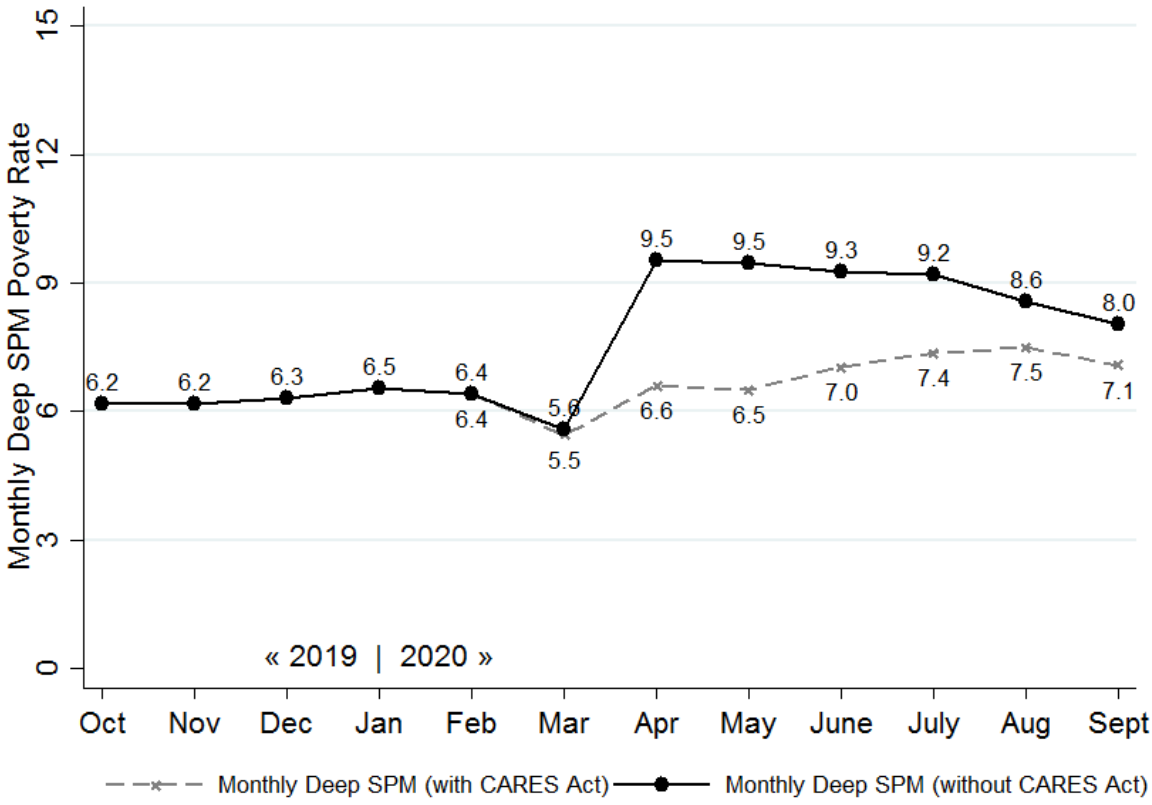


Note: The monthly SPM rate accounts for income received in the given month. The large distribution of EITC benefits in March largely accounts for the observed drop in that month. Prior to accounting for the EITC, the pre-CARES monthly SPM rate was 16.1 percent in March and 21.4 percent in April.

Similarly, the CARES Act's transfers reduced monthly poverty rates from 19.9 percent to 14.3 percent in May. In June and July, however, the post-CARES Act poverty rates began to rise despite the pre-CARES rates declining slightly. The reduced poverty reduction effect of the CARES Act from mid-summer on is largely attributable to the fact that the majority of stimulus checks had already been distributed by this time (see Figure 3, below). As such, the June and July poverty rates climbed to around 16 percent, higher than pre-crisis levels, even when taking the CARES Act's $600 per week unemployment supplement into account.

At the end of July, the $600 per week unemployment supplement expired. Rising employment rates contributed to a decline in the pre-CARES poverty rate from July to September, but the post-CARES poverty rate nonetheless increased to 16.7 percent. In September, the CARES Act contributed only to a 1.3 percentage point reduction in poverty rates, primarily through the CARES Act's expansion of unemployment benefits to individuals who might not have qualified in the past (i.e., the Pandemic Unemployment Assistance program, which expires at the end of 2020). Put differently, the CARES Act only lifted around 4.3 million individuals out of poverty in September, down from 18 million in April. Thus, while the combination of the stimulus checks and $600 per week unemployment supplements appear to have blunted the rise in poverty in April and May, their expiration subsequently contributed to a rise in poverty throughout the summer.

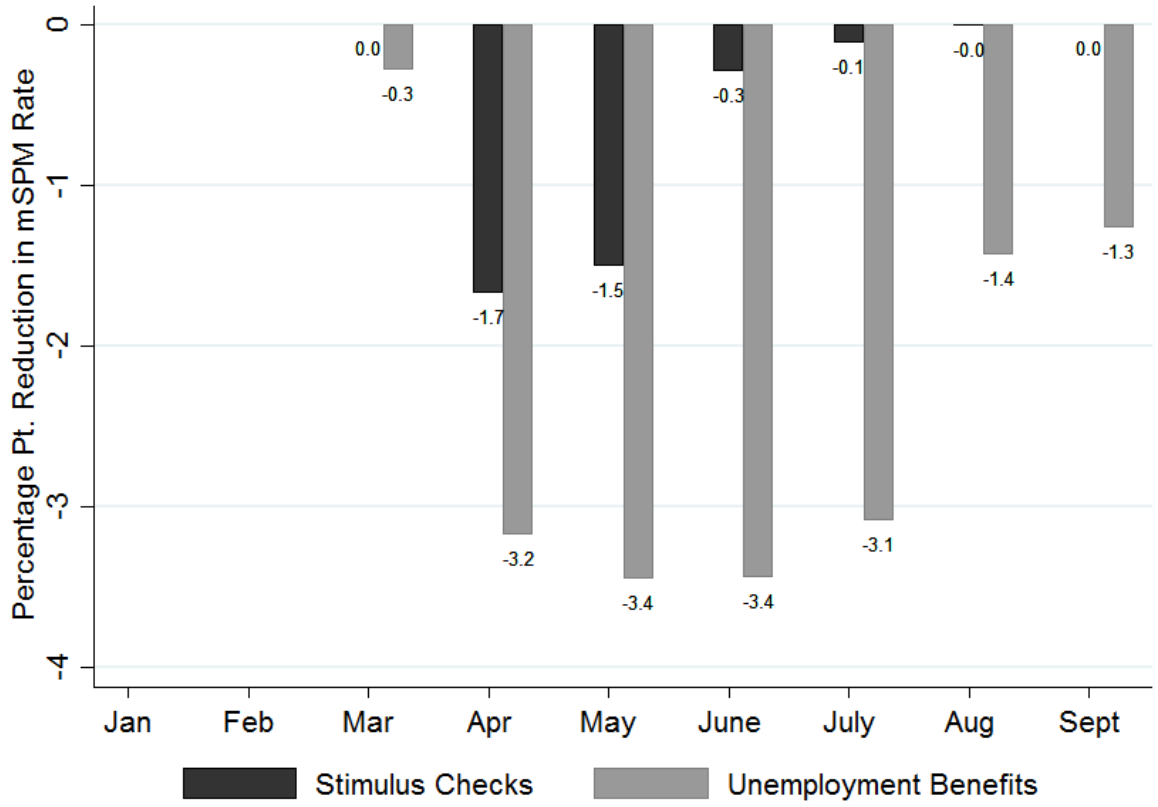
Figure 2: Trends in monthly deep poverty before and after CARES Act transfers



Note: Deep poverty is measured as having resources less than 50 percent of poverty threshold. The monthly deep SPM poverty rate accounts for income received in the given month. The large distribution of EITC benefits in March largely accounts for the observed drop in that month. Prior to accounting for the EITC, the pre-CARES monthly deep poverty rate was 6.7 percent in March and 13.2 percent in April.

Figure 2 presents trends in deep poverty, defined as having monthly resources that fall below half of the monthly poverty threshold. Though trends in deep poverty are broadly similar to trends in total poverty, one notable difference stands out: even in April, when many stimulus checks and unemployment supplements were distributed, the rate of deep poverty was higher than in pre-crisis levels. Thus, while the CARES Act succeeded in blunting the rise in total poverty, our estimates suggest that it was not as successful in reducing levels of *deep* poverty. This may in large part be due to the imperfect coverage rates of CARES Act income transfers: many low-income families, in particular, report that they did not receive stimulus checks, while many of the millions who lost their jobs after the crisis did not receive unemployment benefits (Curran and Collyer 2020, Parolin, Curran and Wimer 2020). As a result, deep poverty appears to have steadily increased, climbing to around 7.1 percent in September (relative to a pre-crisis level of around 6 percent).

Figure 3: Percentage point reductions in monthly poverty due to CARES Act transfers



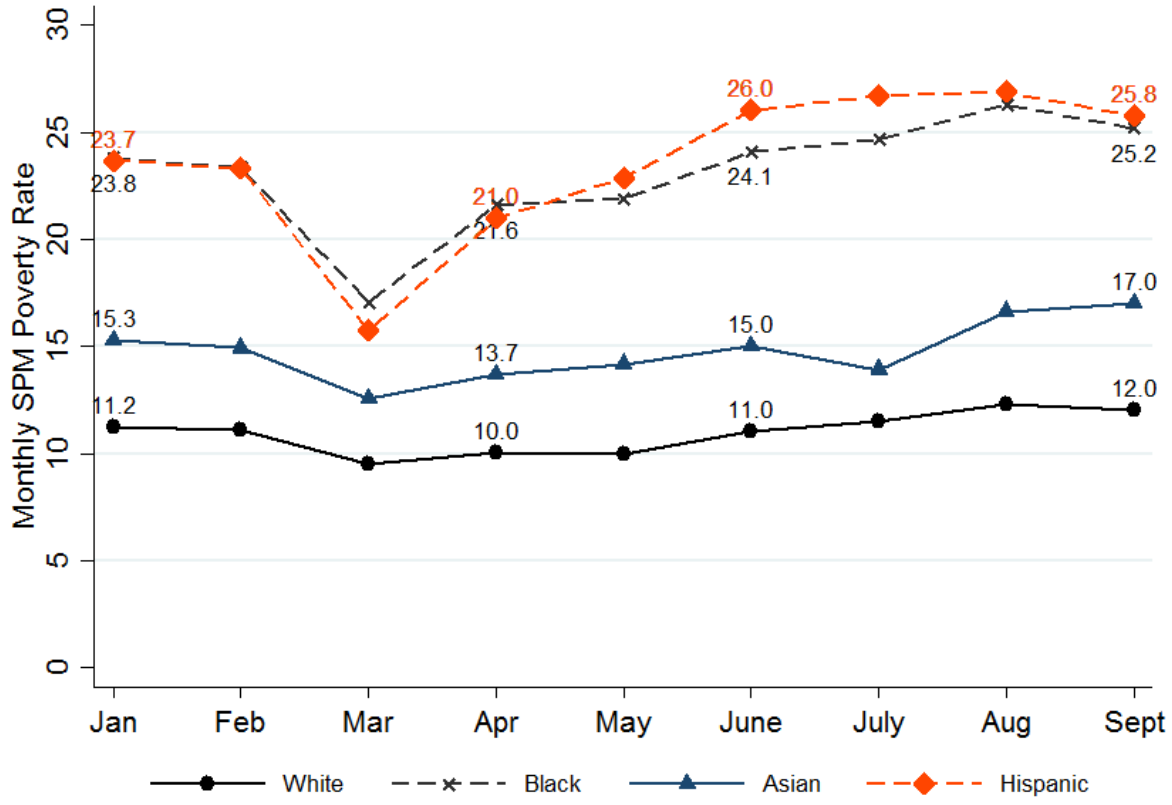
Note: Stimulus checks refers to Economic Impact Payments (or "Recovery Rebates"). Unemployment benefits refers to CARES Act's Pandemic Unemployment Compensation ($600 per week bonus, which expired after July), Pandemic Unemployment Assistance (expansion of access), and Pandemic Emergency Unemployment Compensation (extension of benefit duration).

Figure 3 narrows in on the impact of the CARES Act's two major income transfers. As detailed in the *Methodological Appendix*, the timing of stimulus check receipt (for those who did receive it) depended on whether an individual filed taxes, whether the individual provided direct deposit information, and the individual's income. Direct deposit filers were more likely to receive their payments in April, while those receiving payments by check were more likely to receive them in subsequent months. Our framework uses administrative data on benefit distribution to account for the fact that many individuals did not receive stimulus checks or CARES Act unemployment benefits despite plausibly being eligible for the benefits.

In April, the stimulus checks reduced the monthly poverty rate by 1.7 percentage points, while the CARES Act's unemployment benefits reduced the rate by around 3.2 percentage points. In June, the poverty reduction effect of the stimulus checks approaches zero (aligning with the increase in monthly poverty rates observed in Figure 1), as the majority of checks had been distributed by this time. In contrast, the unemployment benefits continue to have a strong poverty reducing effect in June and July. After the expiration of the $600 per week unemployment benefits in July, however, the poverty reduction effect of the CARES Act was cut in half (around 3.1 percentage points in July to 1.3 percentage points in September). The remaining poverty-reduction effect in September is primarily due to the expansion of *access* to unemployment benefits through the PUA, which will expire at the end of the year absent further Congressional action.

In summary, the CARES Act effectively blunted the rise in monthly poverty in April and May, and had slightly smaller effects in June and July after nearly all stimulus checks had been distributed. By September, the CARES Act's poverty reduction effect was far more muted due to the expiration of the $600 per week unemployment supplement. This helps to explain why the monthly poverty rate in August and September had risen to higher rates than those observed in the months before the onset of the crisis.

Figure 4: Trends in monthly poverty (with CARES Act transfers) by race/ethnicity (2020)

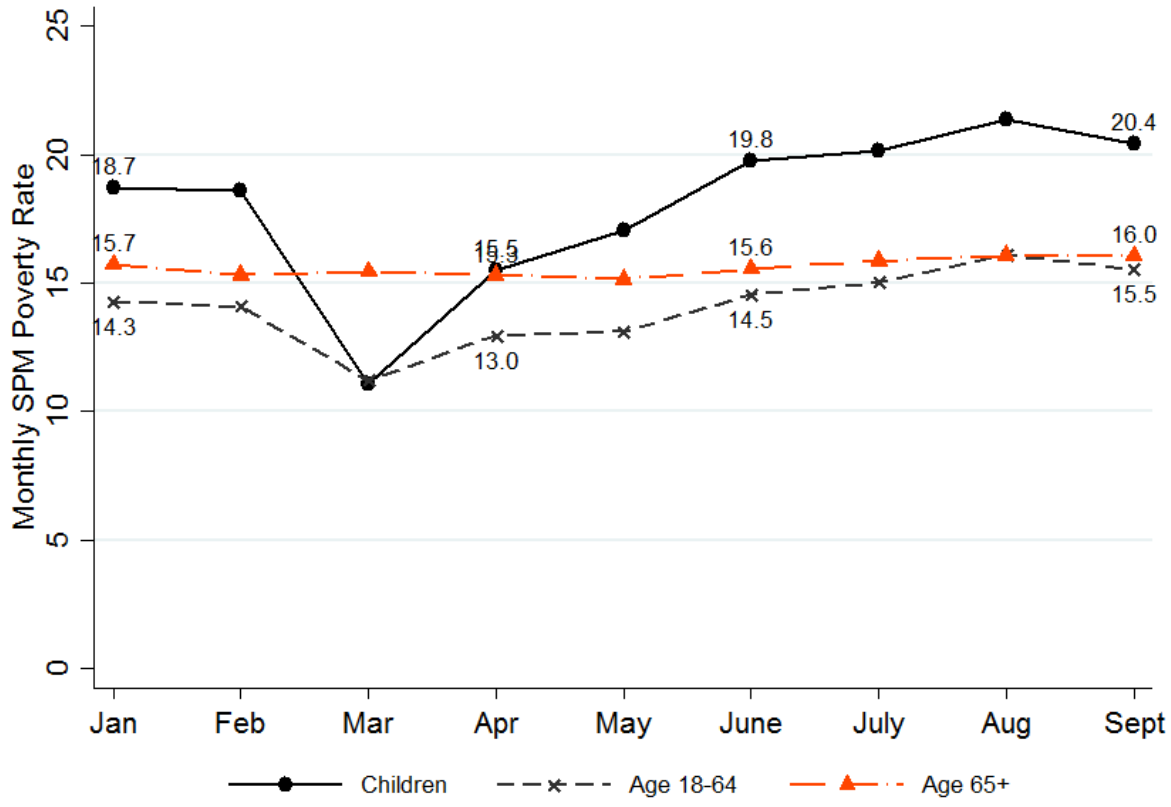


Note: The monthly SPM rate accounts for income received in the given month. The large distribution of EITC benefits in March largely accounts for the observed drop in that month.

Figure 4 presents trends in monthly poverty in 2020 (with CARES Act transfers included) by race/ethnicity. At the start of the year, 11 percent of white individuals were in monthly poverty. In the same month, 15 percent of Asian individuals, and 24 percent of both Black and Hispanic individuals were in poverty. By March, when many low-income families received their EITC payments, monthly rates briefly dipped for all groups, but subsequently increased as the crisis unfolded. By June, after the distribution of the stimulus checks, the monthly poverty rate climbed to 26 percent for Hispanic individuals and 24.1 percent for Black individuals, both higher than their pre-crisis levels. This is despite the $600 per week unemployment supplement being available for individuals who had lost their job after the crisis. For Asian and white individuals in June, however, monthly rates had not yet eclipsed pre-crisis levels. By September, after the expiration of the $600 per week unemployment supplement, monthly poverty rates increased for all groups. The September rate climbed to nearly 26 percent for Black and Hispanic individuals, compared to 17 percent for Asian individuals and 12 percent for white individuals. Overall, the Black/white and Hispanic/white poverty gaps in September

were about 1-2 percentage points larger in magnitude than they were at the beginning of the year.

Figure 5: Trends in monthly poverty (with CARES Act transfers) by age group (2020)



Note: Monthly SPM rate accounts for income received in the given month. The large distribution of EITC benefits in March largely accounts for the observed dip in that month.

Figure 5 presents similar trends, but by age. Children (age 17 and under) had the highest monthly poverty rate in January 2020 at 18.7 percent. This rate dips in March due to the large distribution of EITC benefits, but rises throughout the subsequent months. By September, the monthly rate for children reaches 20.4 percent, an increase of 1.7 percentage points from January. Working-age adults (ages 18-64) see more modest increases in poverty: the monthly rate increases from 14.3 percent to 15.5 percent from January to September, an increase of 1.2 percentage points. Older adults (age 65+), in contrast, see very little change throughout the year, in large part because this group is less likely to be employed and, in turn, less likely to have lost a job during the year. The monthly poverty rate for older adults rises from 15.7 percent in January to 16 percent in September.

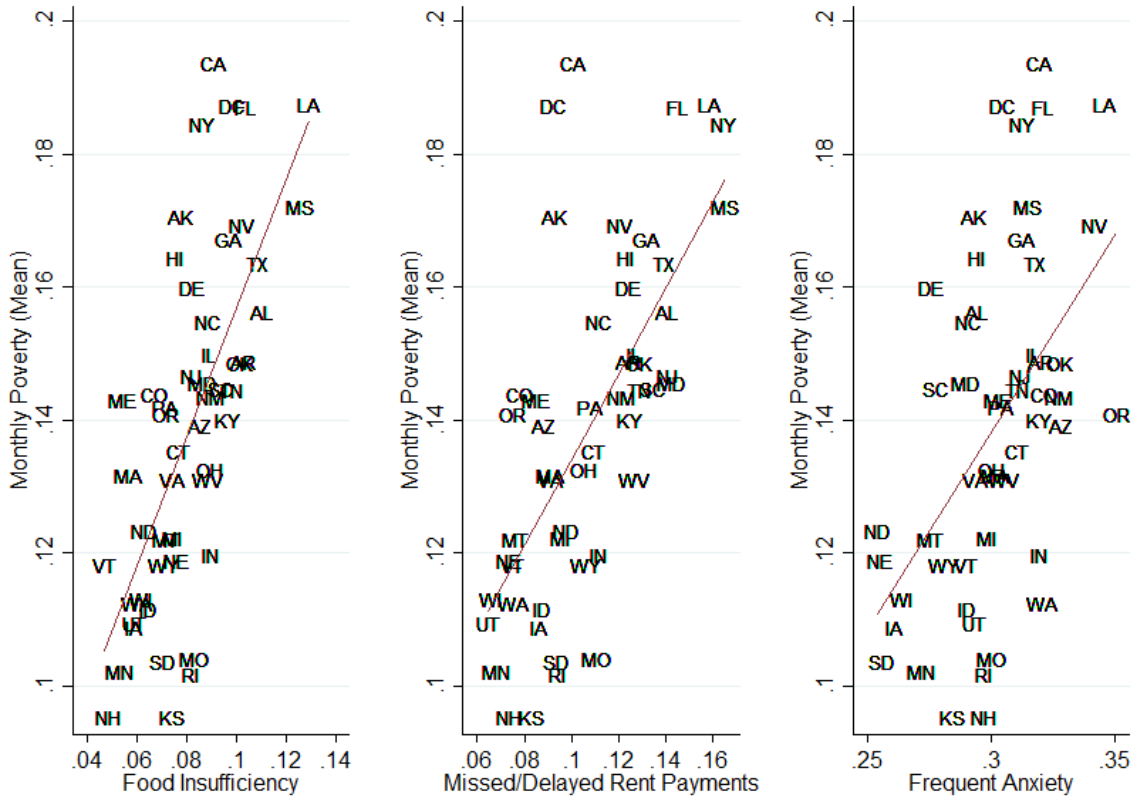
MONTHLY POVERTY AND EXPERIENCES OF HARDSHIP AND WELLBEING

As discussed earlier, one might not be concerned with increases in monthly poverty rates if families are able to smooth their consumption and thus avoid hardship or declines in wellbeing. This section examines whether our estimates of monthly poverty during the COVID-19 crisis align with levels of hardship and well-being. To do this, we compare our monthly poverty estimates with estimates of food insufficiency, missed/delayed rent payments, and frequent

anxiety from the U.S. Census Household Pulse Survey, a post-COVID series of surveys conducted among a nationally-representative sample from April to September 2020

Figure 6 compares our monthly poverty projections to three measures of hardship and wellbeing from the Pulse Survey (food insufficiency, missed/delayed rent payments, and frequent anxiety). We compare these measures across states and months to assess their level of association. A positive association would indicate that higher levels of monthly poverty are associated with higher levels of hardship or anxiety.

Figure 6: Correlation of mean state-level poverty rate (April-September) and mean state-levels of food insufficiency, missed/delayed rent payments, frequent anxiety, and job loss (April-September)



The results demonstrate that our monthly estimates align closely with each of these indicators. In states with higher projected monthly poverty rates we also see higher observed rates of food insufficiency (r=0.7), missed rental payments (r=0.7), and frequent anxiety (r=0.5). In Appendix II, we also present evidence that within-state variation in monthly poverty rates is positively associated with within-state variation in hardship, and that trends in national monthly poverty rates more closely track national trends in food insufficiency relative to the annual SPM. These findings provide some confidence that our projected monthly poverty rates reflect families' actual experiences of hardship and insecurity throughout the crisis.

CONCLUSION

This report presents our initial estimates of monthly poverty in the United States, based on projections of families' monthly resources. Though our estimates should not be understood as a replacement for annual measures of poverty, the monthly accounting period may have advantages over an annual framework in times of rapid economic change, such as the months following the onset of the COVID-19 pandemic.

Our findings suggest that rates of monthly poverty increased from around 15 percent in February 2020 to 16.7 percent in September 2020, even after taking the CARES Act's transfers into account. In April 2020, the peak of the crisis so far, the CARES Act effectively blunted a rise in poverty rates, contributing to a decline in poverty of 5.5 percentage points relative to what would have occurred in the absence of those benefits. However, the expiration of the CARES Act's core benefits – the stimulus checks and $600 per week unemployment supplement – contributed to monthly poverty rates above pre-crisis levels by September 2020. Our projections suggest, however, that the CARES Act's income supports were not successful in fully blunting the rise in *deep* poverty, defined as having resources below half the poverty threshold.

Black and Hispanic individuals faced high rates of monthly poverty relative to white individuals before the crisis, but these differences have been magnified after the crisis and after the expiration of the $600 per week unemployment supplements, in particular. By September, the monthly poverty rate for Black and Hispanic individuals was 25.2 percent and 25.8 percent, respectively, compared to 12 percent for white individuals.

Similarly, children face an elevated risk of poverty in the crisis. From January to September of 2020, the monthly poverty rate among children increased from 18.7 percent to 20.4 percent. This September rate represents both the highest level of and largest increase in poverty relative to working-age or retirement-age adults.

The CARES Act, despite its shortcomings, was initially successful at mitigating what would have been large increases in poverty. The expiration of its two major income support provisions has reversed that progress. In September 2020, monthly poverty rates eclipsed pre-crisis levels of poverty, as well as levels observed in April and May. Given projections that high unemployment rates may persist throughout the next year, additional income transfers are likely necessary to blunt further increases in poverty.

APPENDIX I: Data & Measurement

We construct our monthly measure of poverty using the Supplemental Poverty Measure framework. The official poverty measure (OPM) has existed since the 1960s, but the official measure is widely considered to be flawed. The improvements that the SPM makes over the official measure are numerous, but can be summarized as: (1) the SPM includes a more comprehensive measure of resources, including after-tax income, in-kind or near cash benefits, and a subtraction of non-discretionary expenses like those for medical, work, and child care expenses. (2) The SPM uses a broader definition of the "family" than the official measure. Cohabiting couples are treated identically to married couples and are assumed to share resources. Foster children and other youth in the household are assumed to share resources with the primary family in the household. (3) The SPM poverty line is based on families' expenditures on a core basket of necessities: food, clothing, shelter, and utilities, plus a little extra. The official poverty lines are based solely on food costs that prevailed in the 1950s and 1960s. (4) The SPM poverty line is adjusted for cost of living across metro areas, whereas the official poverty line is virtually uniform across the country. For more details on the SPM and its measurement, see Fox (2019).

Following a framework applied in Parolin, Curran, and Wimer (2020), we construct our measure of monthly poverty in the Annual Social and Economic Supplement of the U.S. Current Population Survey (CPS ASEC). However, we use the CPS Basic Monthly files, which feature more timely information on demographic characteristics and employment rates, to provide monthly updates of poverty.

Different from Parolin, Curran, and Wimer (2020), we create a poverty measure based on projections of a family unit's *monthly* (rather than annual) resources. Among public and nationally-representative income surveys, the Survey of Income and Program Participation (SIPP) is among the few to provide monthly and annual indicators of income and poverty for the same family units over multiple years. As such, it may seem an obvious starting point for projecting poverty rates based on monthly income. However, the SIPP data are not updated regularly (the latest data are from 2018) and do not provide the same breadth of information on sources of income, or geographic location data, as the Current Population Survey (CPS). Thus, we build the monthly SPM within the CPS files, which provide more timely and comprehensive information on income.

To construct the monthly poverty measure, we use all the same components as in the annual SPM framework, but we convert each annual value into an estimated monthly. Our assumptions regarding the annual-to-monthly conversions of income components in the ASEC are specified as follows for six different groups of variables:

Group 1: Income components that can generally be divided by 12 to move from annual to monthly values:

- Social Security, income from retirement, SSI, worker's compensation, veteran's benefits, survivor's benefits, income from disability, income from dividends, child support, alimony, income from other sources, WIC, heating assistance, housing assistance, Medical Out-Of-Pocket Expenses, state and federal taxes (excluding tax refunds)

Group 2: Income components that should be adjusted if members of SPM unit are not employed in the given month, but were employed in prior months:

- Income from wages, business, and farm work
    - Income components are converted to zero for an individual who is unemployed for five or more weeks. For individuals unemployed for 1-4 weeks, we pro-rate the earnings to estimate a monthly value based on average hourly earnings and number of the weeks in the month employed.
- Work-related expenses and FICA taxes: We follow the same approach as above.
- Standard (non-CARES Act) unemployment insurance benefits: We convert unemployment insurance benefits to zero if the individual is currently employed. If the individual is currently jobless and reports receiving unemployment benefits in the prior year, we pro-rate the benefits to match the weeks of unemployment in month (individual UI benefits / weeks of unemployment * max[weeks of unemployment, 4.3]).

Group 3: Income components that are only distributed in a single month:

- EITC, CTC, refundable tax credits
    - We project the month of tax filing based on IRS data and allocate the refundable tax credits accordingly in the given month. In practice, this leads to the largest share of EITC benefits being distributed in March, with the remaining benefits being concentrated in April.

Group 4: Means-tested transfer benefits that are not typically dispersed throughout the year.

- SNAP, TANF
    - Among all SPM units who report receipt of the benefit in the ASEC:
        - We calculate the benefit value that family is eligible for in a given month based on state policy rules, family size, monthly earnings. If the projected benefit value is greater than one-twelfth the annual value of SNAP but less than the reported annual SNAP value, we set the unit's monthly SNAP value as the projected benefit value.
        - If the projected monthly benefit value is greater than the reported annual SNAP value, we assign the reported annual SNAP value as the monthly benefit (by definition, this will be less than the maximum monthly benefit value).
    - If unit reports no annual benefits: we give no monthly benefits, even if they appear to be eligible.

Group 5: School lunches and income from education:

- These income components are divided by nine and applied to non-summer months to account for the fact that they are typically distributed throughout the school year.

Group 6: CARES Act Transfers

- Economic Impact Payments
    - We follow Dept. of Treasury's distribution schedule and their assumptions on the share of tax units receiving payments through direct deposit (earlier receipt of payments) versus receipt of check by mail (payments over several months depending on tax unit income). As detailed below, this approach leads to the majority of EIP payments being distributed in April and May. We follow estimates from the Urban Institute that participate rates among the eligible

were around 70 percent. In our assignment of the benefits within the CPS ASEC, we meet the 70 percent participation target (among those eligible) by assuming that lower-income individuals are less likely to receive the benefits than higher-income individuals. This reflects the fact that lower-income individuals are, on average, less likely to have filed taxes and to have provided direct deposit information to the IRS.

- Expanded Unemployment Benefits (PUC, PUA)
    - We follow Bitler, Hoynes and Schanzenbach (2020) in measuring the share of recently-unemployed individuals who receive unemployment benefits by taking the cumulative number of initial UI payments over the cumulative number of individuals who lost jobs from March 1 onward. We produce this participation rate by state and month using state-month data on cumulative initial UI claims and cumulative job loss.
    - We assign the benefits in our CPS ASEC data using state-level data on the race/ethnicity and sex composition of the unemployed individuals receiving the benefits. This information comes from The Century Foundation's Unemployment Insurance Data Dashboard.
    - For states with a participation rate of greater than 100% (generally interstate claims), we replace their value with the mean value of all other states. This accurately reflects the fact that no state is likely to have perfect (100%) participation in CARES unemployment benefits and provides a more conservative estimate of benefit distribution.

Projecting Monthly Poverty Rates in Monthly CPS Files: Our strategy for exporting estimates of monthly poverty from the annual ASEC files to the monthly files follows the procedure introduced in Parolin, Wimer, and Curran (2020). We summarize that procedure here.

To produce new estimates of poverty on a monthly basis, we combine up-to-date data on demographic, employment, and household characteristics from the *Basic Monthly CPS files* with information from the latest *annual ASEC files* on the association of those observed characteristics with monthly poverty. Specifically, we develop a model that estimates the association of monthly poverty and a large set of observed characteristics in the CPS ASEC. We then treat the lack of poverty indicators in the monthly files as a missing data problem and resolve it accordingly. Specifically, we export the conditional likelihoods of poverty from our model in the ASEC to the monthly files. To do so, we apply combined-sample multiple imputation (CSMI). We run 10 iterations of our CSMI model and take the mean of 10 imputations to compute a likelihood of poverty for each SPM unit and, in turn, an average poverty rate for the country as a whole. In short, we are exporting the association of observable characteristics and poverty rates *from* the ASEC *to* the monthly files.

We include a large selection of covariates into our ASEC models predicting poverty, including details on age, sex, education, race/ethnicity, citizenship/birthplace, household structure, marital status, employment indicators, observed duration of unemployment, disability status, and place of residence. Importantly, we also include a large selection of interaction effects among these indicators improve the fit of the model and enhance our estimates of the conditional likelihood of poverty for each SPM unit.

Limitations: There are several limitations to our simulation procedure that should be considered when interpreting our findings. The analysis does not include unemployment benefits that may be received through the Lost Wages Assistance (LWA) program, part of the Presidential

Memoranda (Memorandum on Authorizing the Other Needs Assistance Program for Major Disaster Declarations Related to Coronavirus Disease 2019) issued in August 2020 that directed the Federal Emergency Management Agency (FEMA) to provide disaster relief funds for a temporary COVID-19-related lost wages payment fund. LWA provides up to $400 weeks in supplemental unemployment benefits. In practice, individuals in states that have taken up the program are likely to receive a $300 per week supplemental payment for a maximum of six weeks (less if state funding is exhausted earlier). Only individuals who would receive at least $100 per week in regular unemployment benefits and, in many states, those who can certify that their claim is due to COVID-19 disruption are able to access LWA funds. State take-up of the LWA program has not been uniform across the country; the timing of LWA approval, processing, and disbursement of payments has varied across August, September, and October.

As a more general limitation, we are estimating a family unit's resources based on the procedures outlined above, rather than taking monthly resources as observed. Though we compare our estimates to other surveys, such as the SIPP and Census Household Pulse Survey, to validate our findings (see Appendix II, below), they should nonetheless be understood as simulations that, by nature, contain some amount of measurement error. In future work, we plan to continue to evaluate the utility of the monthly SPM measure.

Table A1: Estimated poverty rates and policy characteristics by month in 2020

Month (2020)	SPM Pov, Monthly	SPM Pov, Monthly, Pre-CARES/EITC	% Recent Unemployed w/ CARES UI	Share of Population Receiving EITC	Share of Population Receiving Stimulus
1	15.5%	15.5%	0.0%	0.0%	0.0%
2	15.3%	15.3%	0.0%	0.0%	0.0%
3	11.9%	16.1%	38.9%	12.9%	0.0%
4	13.9%	21.4%	62.1%	7.3%	33.3%
5	14.3%	19.9%	66.5%	0.0%	18.0%
6	15.9%	19.8%	66.6%	0.0%	7.4%
7	16.3%	19.6%	65.9%	0.0%	5.0%
8	17.3%	18.7%	65.8%	0.0%	1.4%
9	16.7%	18.0%	65.1%	0.0%	0.0%

Note: Unemployment rate adjusted for potential misclassification. Data from CPS ASEC and basic monthly CPS files.

Reading Note: Table A1 presents data on monthly poverty rates, as well the distribution of CARES unemployment benefits, stimulus checks, and EITC benefits by month.

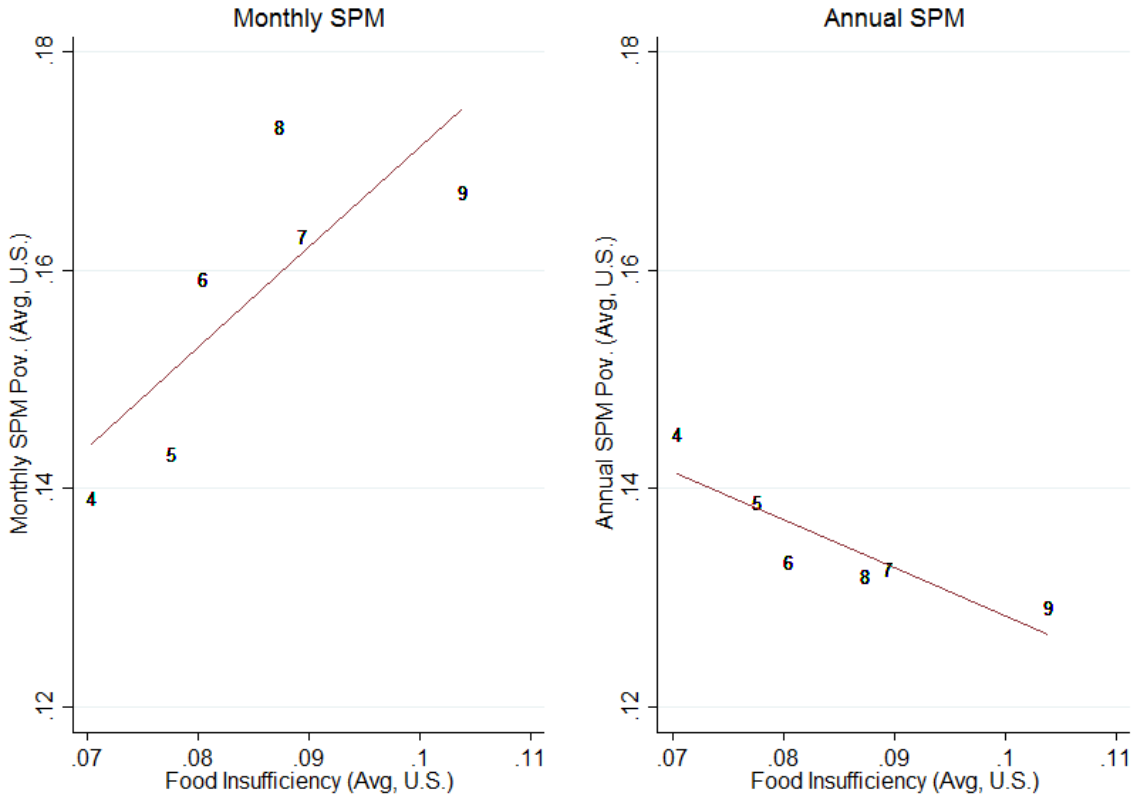
APPENDIX II: Validation checks of the usefulness of the Monthly Supplemental Poverty Measure

Figure A1: Bivariate relationship between monthly, national-level food insufficiency in 2020 versus monthly SPM (left) and annual SPM (right)

Note: Within-state variation (demeaned levels) in monthly poverty rates (X-axis) and monthly levels of food insufficiency (Y-axis) over April to September 2020. Food insufficiency data from Census Household Pulse Survey.

Reading Note: Figure A1 shows that within-state variation in monthly poverty is positively associated within within-state variation in food insufficiency (r=0.41). Put differently, increases in monthly poverty within a state tend to go hand-in-hand with increases in food insufficiency within the state. Recall from Figure 6 that variation in monthly poverty *among* states is also positively associated with cross-state variation in food insufficiency.

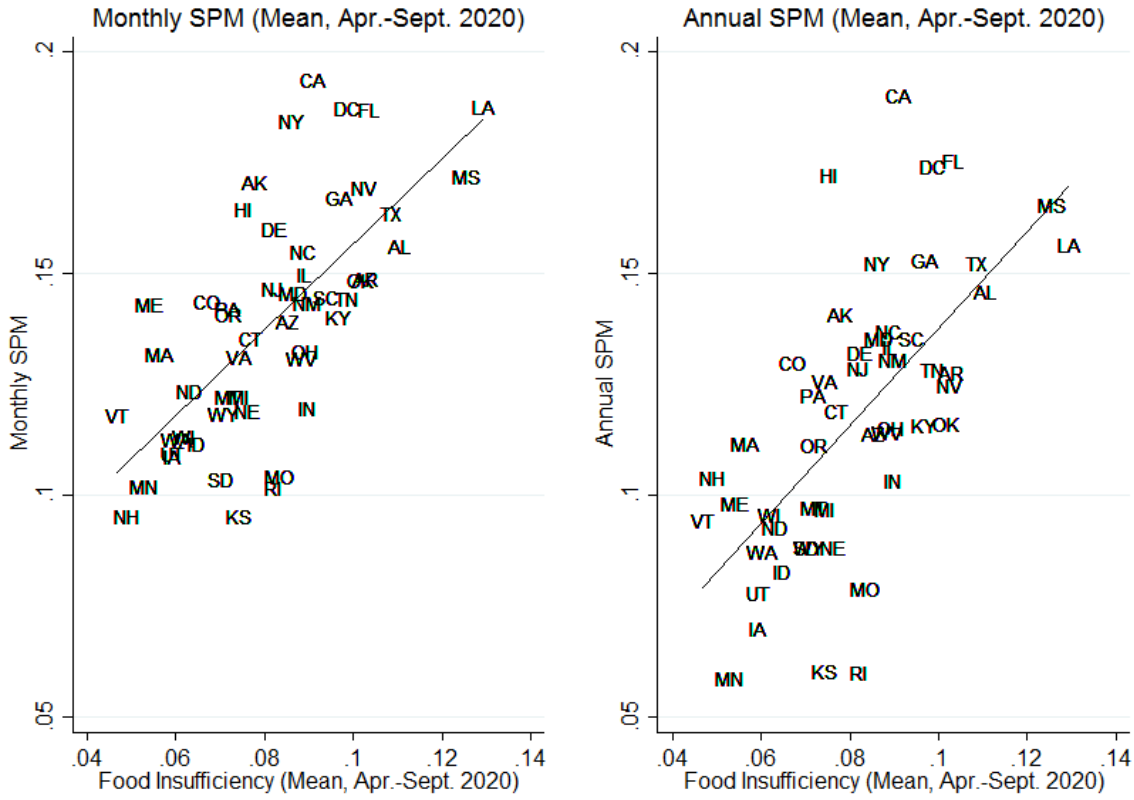
Figure A2: Bivariate relationship between monthly, national-level food insufficiency in 2020 versus monthly SPM (left) and annual SPM (right)



Note: Labels within figure represent given month in 2020 (ex: 4 = April). Monthly and annual SPM projections from CPS ASEC with all transfers, including CARES Act, included. Food insufficiency data (X-axis) from Census Household Pulse Survey. August and September Pulse data reweighted to adjust for biases in item non-response.

Reading Note: Figure A2 shows that from April through September 2020, levels of monthly poverty by month (left panel) more closely align with levels of food insufficiency compared to the annual SPM (right panel). Changes in monthly levels of the annual SPM are actually negatively associated with changes in monthly levels of food insufficiency over the five months examined.

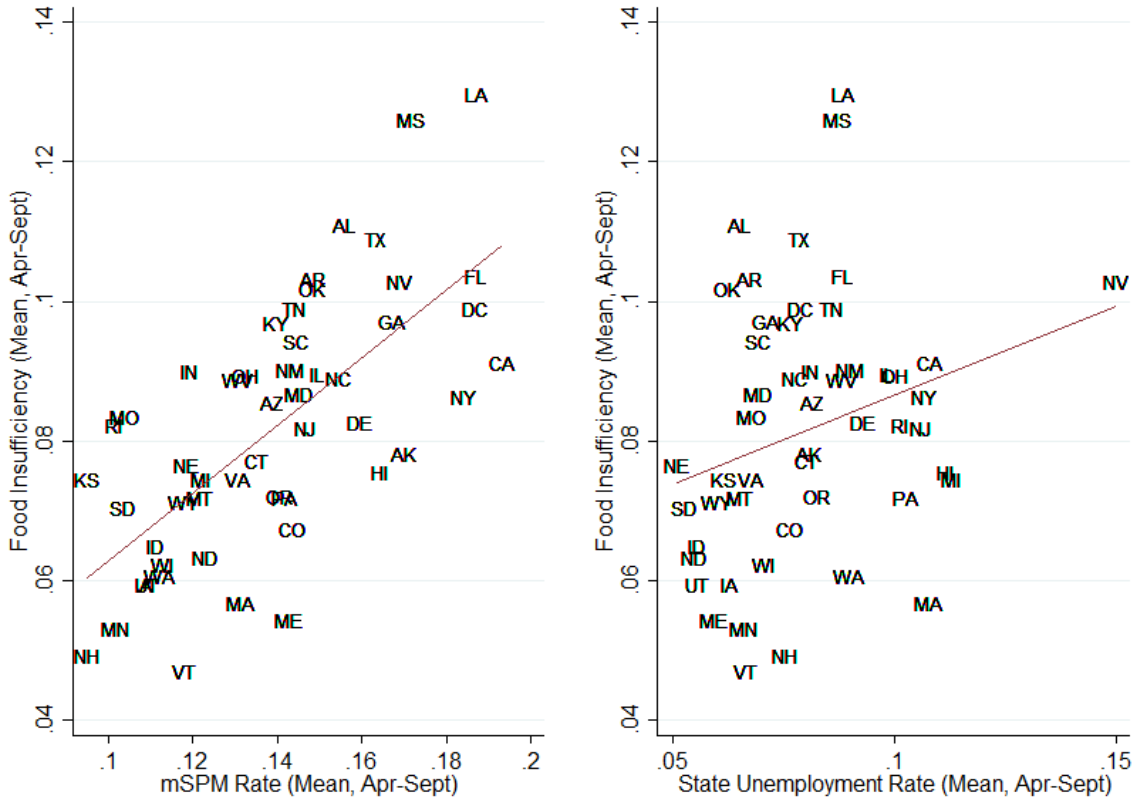
Figure A3: Bivariate relationship between state-level food insufficiency (mean, 2020) versus monthly SPM (left) and annual SPM (right)



Note: Monthly and annual SPM projections from CPS ASEC. Food insufficiency data (X-axis) from Census Household Pulse Survey. Mean values from April to September 2020.

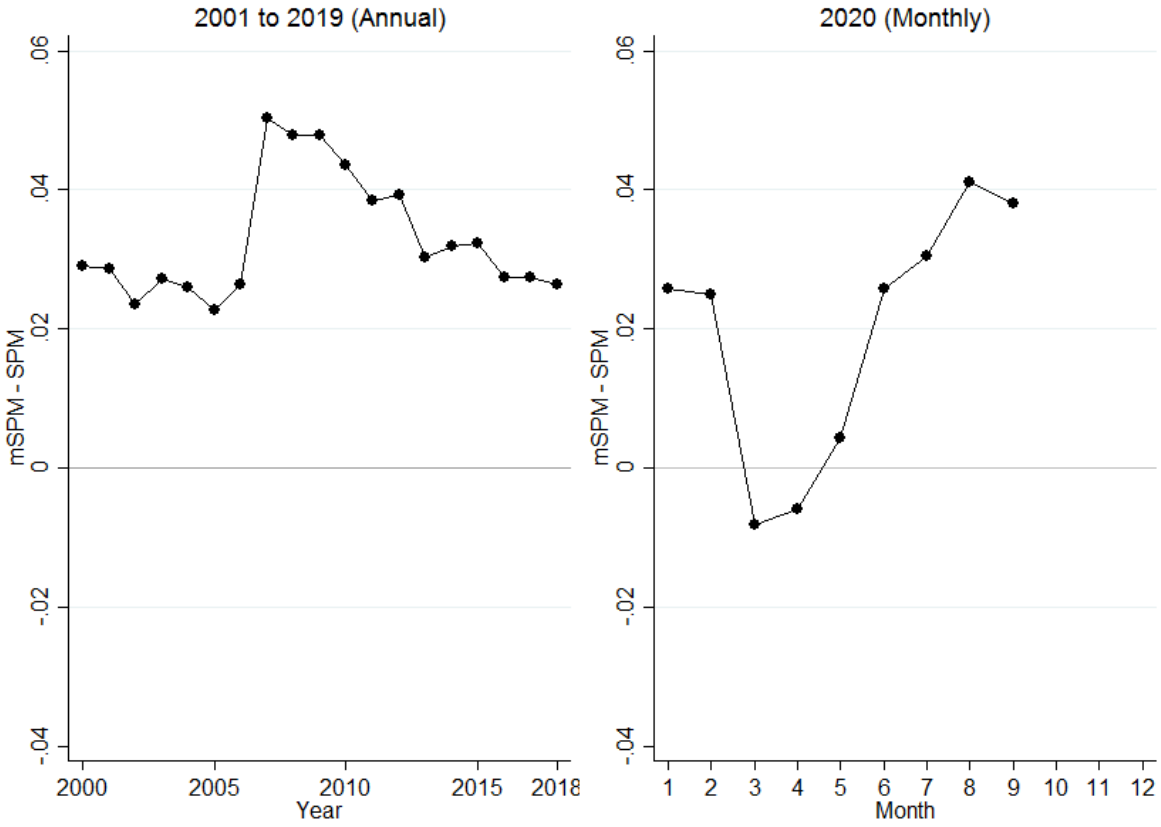
Reading Note: *Annual* SPM projections by state (right panel) also align closely with state-level variation in food insufficiency. Thus, from the perspective of monthly variation in food insufficiency, the monthly poverty measure is not a huge improvement over the annual SPM (unlike the *national trends* perspective from the prior figure), but it also performs no worse.

Figure A4: Bivariate relationship between state-level food insufficiency (mean, 2020) versus monthly SPM (left) and state-level unemployment rates (right)



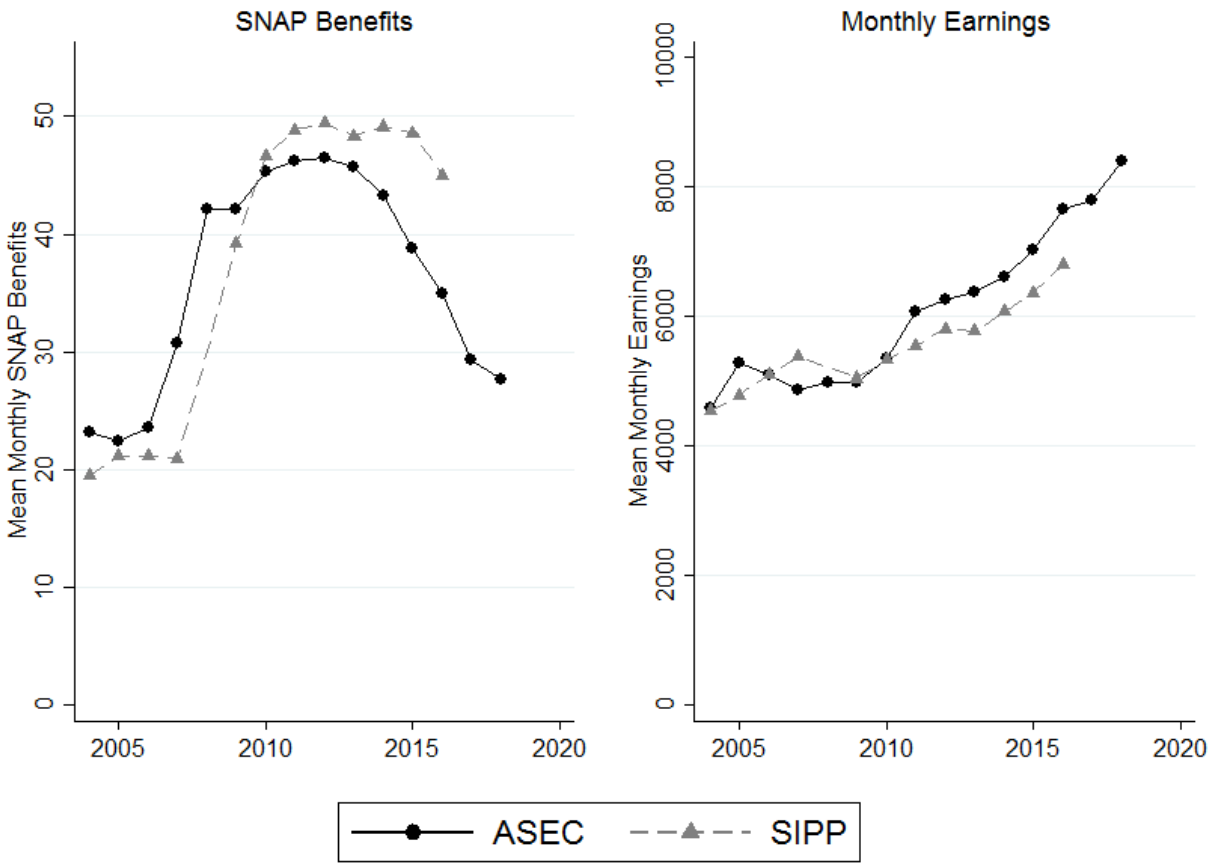
Reading Note: Mean, state-level poverty projections (left panel) are more strongly associated with state-level means in food insufficiency from April to September than state-level unemployment rates (right panel).

Figure A5: Projected monthly SPM minus annual SPM by year (left panel) and month in 2020 (right panel)



Reading Note: Figure A3 plots the percentage point difference of monthly poverty relative to the annual SPM from the ASEC files from 2000 to 2018 (left panel) and the 2020 monthly files (right panel). As expected, the monthly poverty rate is more responsive during economic downturns (see Great Recession in left panel, for example). Findings are similar if looking at relative rather than absolute differences. In 2020, we see that January and February start where the prior years left off. The monthly poverty rate in March and April dives below the annual SPM thanks to a combination of stimulus checks, EITC, and unemployment benefits, but subsequent months rise to comparatively high levels.

Figure A6: Average monthly SNAP benefits (left panel) and earnings (right panel) in ASEC vs. SIPP, 2004-2018



Note: SPM-unit means. Nominal values. Monthly earnings top-coded at $50,000 per month in both samples. Negative values bottom-coded at zero. SIPP panel ends in 2016.

Reading Note: Figure A4 compares our projected average, monthly SNAP benefits (left) and earnings (right) in the ASEC relative to the observed means in the SIPP. Recall that we compute the monthly values of each in the ASEC, but in the SIPP, the values are actually observed over 12 months. Our projections closely track the observed SIPP trends.

REFERENCES

Atkinson, Anthony B. 2019. *Measuring Poverty around the World*. Princeton, NJ: Princeton University Press.

Bitler, Marianne, Hilary W. Hoynes and Diane Whitmore Schanzenbach. 2020. "The Social Safety Net in the Wake of COVID-19." *National Bureau of Economic Research Working Paper Series* No. 27796. doi: 10.3386/w27796.

Curran, Megan and Sophie Collyer. 2020. "Teenage and Young Adult Dependents Left out of Cash Payments in the COVID-19 Crisis." *Poverty & Social Policy Brief* 4(7).

Eurostat. 2020, "Income Poverty Statistics". Retrieved October 9, 2020, (https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Income_poverty_statistics&oldid=440992#:~:text=The%20at%2Drisk%2Dof%2D,population%20above%20the%20poverty%20threshold.).

Fox, Liana. 2019. "The Supplemental Poverty Measure: 2018." *U.S. Census Bureau Current Population Reports*.

Francis-Devine, Brigid. 2020. "Poverty in the Uk: Statistics." *House of Commons Library* 7096.

Parliament of Australia. 2004, "Defining and Measuring Poverty". Retrieved October 9, 2020, (https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/Completed_inquiries/2002-04/poverty/report/c02).

Parolin, Zachary, Megan Curran and Christopher Wimer. 2020. "The Cares Act and Poverty in the COVID-19 Crisis: Promises and Pitfalls of the Recovery Rebates and Expanded Unemployment Benefits." *Poverty and Social Policy Brief. Center on Poverty and Social Policy, Columbia University* 4(8).

Statistics Canada. 2020, "Dimensions of Poverty Hub". Retrieved October 9, 2020, (https://www.statcan.gc.ca/eng/topics-start/poverty).

The Canberra Group. 2001. *Expert Group in Household Income Statistics: Final Report and Recommendations*. Ottawa.

Townsend, Peter. 1979. *Poverty in the United Kingdom : A Survey of Household Resources and Standards of Living*. Berkeley: University of California Press.

ACKNOWLEDGMENTS

This brief is made possible with the support of the Bill and Melinda Gates Foundation and the Annie E. Casey Foundation. We thank Nicolas Acevedo for research support and Sonia Huq for her assistance with preparing this brief. All errors and assertions in this brief, however, are our own.

SUGGESTED CITATION

Parolin, Zachary, Megan A. Curran, Jordan Matsudaira, Jane Waldfogel and Christopher Wimer. 2020. "Monthly Poverty Rates in the United States during the COVID-19 Pandemic." *Poverty and Social Policy Discussion Paper.* New York, NY: Center on Poverty and Social Policy.

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