Public Health
Seattle & King County

Indicators of well-being among households with and without children before and after the 2021 Child Tax Credit, Seattle-Tacoma-Bellevue Metropolitan Statistical Area, August 2020-February 2022

Report Date: September 30, 2022

KEY POINTS

- Income-eligible households with children received monthly child tax credit (CTC) as advanced payments between July and December 2021.
- Inability to afford basic needs, housing insecurity, and food insufficiency were more common among households with versus without children. This occurred both before and after CTC implementation. Nearly 1 in 3 respondents in households with children reported difficulty affording basic needs, 1 in 7 reported being behind on housing payments, and 1 in 12 reported food insufficiency. This highlights the need for adequate economic supports for households with children in the King-Pierce-Snohomish three-county region.
- CTC impacts differed by household financial means. Respondents in households <200% Federal Poverty Level (FPL) had a 12.7 percentage point (pp) decrease in reporting housing insecurity (90% Confidence Interval [CI]: 6.9, 18.5) and a 6.9 pp decrease in reporting food insufficiency (90% CI: 1.4, 12.3).
- Respondents in households 200-399% FPL tended to experience statistically significant increases in all outcomes except food insufficiency. This unexpected finding may be due to the fact that middle income households with children were more affected by job loss and income disruptions than households of higher income, but also earned too much to qualify for key safety-net programs.
- Overall, CTC was related to a 1.7 percentage point decrease in reporting food insufficiency among respondents in households with children. Unexpectedly, CTC was related to significant increases in reported anxiety, depression and inability to afford basic needs, and no relationships were found for housing insecurity for respondents overall. These mixed findings require further investigation.
- Our findings suggest that the CTC worked as intended as an anti-poverty program by addressing immediate issues of food insecurity and housing insecurity, especially for people at greatest risk for those outcomes due to low household financial resources.

Background

Growing evidence suggests that households with children may have been disproportionately impacted by the social and economic consequences of the COVID-19 pandemic.[1,2] These consequences include disruptions and hardships such as school and childcare closures, social isolation, family financial hardship, as well as direct and indirect mental health and physical health effects of COVID-19.

Between July and December 2021, income-eligible households with children received child tax credit (CTC) as advanced monthly payments.[3] Monthly payments were approximately $250-$300 dollars per child, depending on age and household income.[4] Unlike prior programs, very low-income households were eligible to receive full benefits, even if they had low or no earnings that year,[5] and payments occurred on a monthly basis.[6] Overall, the CTC is estimated to have reduced child poverty in the United States by around 30%.[7] Given research on the role of anti-poverty programs and health outcomes, it is expected that the CTC may have affected several indicators of well-being, through pathways related to reduced stress and/or increased economic security.[5]

In this brief, we examined whether the CTC was associated with the following indicators of well-being among residents in the King-Pierce-Snohomish three county region: mental health (anxiety and depression symptoms); difficulty affording basic needs; housing insecurity; and food insufficiency. We also looked at whether the impact of the CTC differed by household poverty level.

We used data from the US Census Bureau's Household Pulse, a cross-sectional survey designed to quickly and efficiently examine social and economic impacts of the COVID-19 pandemic. We considered reporting at least one child under 18 living in the household as a proxy for CTC receipt. About 60% of adults living with a child under age 18 reported receiving CTC payments.[8] Analyses used a difference in difference (DiD) approach to examine the impacts of the CTC in the Seattle-Tacoma-Bellevue Metropolitan Statistical Area (MSA). This MSA includes residents of King, Pierce, and Snohomish counties.

See Technical Notes at the end of this brief report for more information on the data source, inclusion/exclusion criteria, data definitions, and the analysis approaches.

Compared to Respondents in Households Without Children, Respondents With Children Were Younger, Female, Non-White, and Employed

Respondents in households with children differed from respondents in households without children in demographic and economic characteristics (Table 1). A higher proportion of respondents in households with children were female, non-White, had higher household incomes, and were employed. Respondents in households with children also tended to be younger than respondents in households without children.

There were few substantial differences in characteristics within groups before and after the CTC. In general, characteristics of respondents in households with and without children were similar within each group before and after the CTC implementation. When adjusting household income for household size, a higher proportion of respondents in households without children had household incomes ≥400% of the Federal Poverty Level (58% before and after the CTC) compared to respondents from households with children (53% before and 51% after the CTC).

Table 1.
Survey-weighted Demographic Characteristics of Respondents in Households Before and After Child Tax Credit (CTC) Roll-Out, Seattle-Tacoma-Bellevue Metropolitan Area (MSA) [a,b,c]

	Respondents in Households With Children		**Respondents in Households Without Children**	
Characteristics	**Before CTC (N= 16,243)**	**After CTC (N=3,905)**	**Before CTC (N= 31,744)**	**After CTC (N=8,621)**
Age				
Mean (Standard Deviation)	42.8 (0.3)	42.3 (0.3)	48.6 (0.3)	47.1 (0.3)
Sex at Birth				
Male	7019 (48.1%)	1700 (49.8%)	14773 (52.6%)	4043 (53.3%)
Female	9224 (51.9%)	2205 (50.2%)	16971 (47.4%)	4578 (46.7%)
Race/Ethnicity				
Asian Alone	2155 (13.9%)	560 (15.6%)	2853 (11.4%)	745 (11.2%)
Black Alone	591 (6.1%)	133 (5.9%)	776 (4.2%)	234 (4.0%)
Hispanic/Latinx	1136 (13.3%)	298 (12.6%)	1649 (8.3%)	437 (8.1%)
White alone	11451 (59.3%)	2675 (57.2%)	24851 (68.9%)	6836 (70.3%)
Multiple/Another Race	910 (7.4%)	239 (8.7%)	1615 (7.2%)	369 (6.5%)

Table 1. Survey-weighted Demographic Characteristics of Respondents in Households Before and After Child Tax Credit (CTC) Roll-Out, Seattle-Tacoma-Bellevue Metropolitan Area (MSA) [a,b,c]				
	Respondents in Households With Children		Respondents in Households Without Children	
Characteristics	Before CTC (N= 16,243)	After CTC (N=3,905)	Before CTC (N= 31,744)	After CTC (N=8,621)
Household Income				
<$25,000	684 (7.0%)	195 (7.3%)	2048 (8.4%)	664 (8.6%)
$25,000-$34,999	620 (6.1%)	147 (6.6%)	1984 (8.3%)	537 (7.0%)
$35,000-$49,999	931 (7.9%)	229 (8.2%)	2863 (9.9%)	744 (9.6%)
$50,000-$74,999	1686 (12.9%)	417 (14.0%)	4906 (15.7%)	1404 (16.1%)
$75,000-$99,999	1804 (12.5%)	437 (11.6%)	4597 (14.0%)	1204 (13.8%)
$100,000-$149,999	3543 (20.1%)	797 (18.4%)	6678 (19.6%)	1712 (18.5%)
$150,000-$199,999	2480 (12.9%)	600 (13.5%)	3789 (10.6%)	955 (11.1%)
≥$200,000	4495 (20.6%)	1083 (20.4%)	4879 (13.6%)	1401 (15.3%)
Household Size				
Mean (Standard Deviation)	4.4 (0.4)	4.5 (0.5)	2.5 (0.3)	2.5 (0.3)
Estimated % Federal Poverty Level (FPL)				
<200%	2332 (24.3%)	588 (25.0%)	3563(18.7%)	1083 (17.6%)
200-399%	2991 (22.3%)	761 (24.4%)	6609 (22.9%)	1840 (23.7%)
400% +	10920 (53.4%)	2556 (50.6%)	31744 (58.4%)	5698 (58.7%)
Educational Attainment				
Less than High school	246 (6.1%)	63 (6.2%)	294 (3.5%)	67 (3.1%)
High school graduate or GED	1214 (21.3%)	276 (22.2%)	2358 (21.0%)	631 (22.7%)
Some college/associates degree	4184 (29.6%)	988 (27.3%)	9178 (31.7%)	2455 (30.6%)
Bachelor's degree	5805 (23.0%)	1367 (23.8%)	11540 (26.0%)	3110 (24.9%)
Graduate Degree	4794 (19.9%)	1211 (20.5%)	8374 (17.8%)	2358 (18.8%)
Current Employment Status				
Employed	12073 (70.1%)	2892 (69.3%)	19552 (61.8%)	5106 (63.4%)
Not employed	4170 (29.9%)	1013 (30.7%)	12192 (38.2%)	3515 (36.6%)

[a] Percentages shown are survey-weighted and are rounded to the nearest tenth; counts represent the number of respondents.

[b] Survey Phases before child tax credit rollout: Phases 2-3.0 (August 19, 2020-March 29, 2021), 3.1 (April 14-July 5, 2021), Phases after child tax credit: Phases 3.2 (July 21- October 11, 2021), 3.3 (December 1, 2021-February 7, 2022).

[c] Population shown includes respondents who were not missing information on demographic characteristics or measures of well-being.

Compared to Households Without Children, Respondents in Households With Children Reported Twice as Much Housing Insecurity and 1.2 Times Higher Food Insufficiency

Respondents in households with children had higher rates of difficulty affording basic needs, housing insecurity, and food insufficiency (Table 2, unadjusted survey-weighted prevalence). Anxiety and depression symptoms were common among respondents in households with and without children.

Anxiety and Depression. Anxiety and depression symptoms were commonly reported by respondents living in households with and without children before and after the CTC was implemented. More than 1 in 4 respondents reported symptoms of anxiety and more than 1 in 5 respondents reported symptoms of depression.

Difficulty Affording Basic Needs. Difficulty affording basic needs was common among respondents in households with children or without children, though it was more frequently reported among respondents living in households with children. Nearly 1 in 3 respondents in households with children reported difficulty affording basic needs, compared to about 1 in 5 respondents in households without children.

Housing Insecurity. Experiences of housing insecurity was about 2 times higher among households with children than households without children both before and after the implementation of the CTC (about 14% vs about 8%); these differences were statistically significant.

Food Insufficiency. Prior to the CTC, 7.9% of respondents in households with children reported food insufficiency, compared to 5.8% of respondents in households without children. After CTC implementation food insufficiency was still slightly higher among respondents in households with children. However, the proportion decreased significantly among respondents in households with children (6.2%), but not those living in households without children (5.3%).

Table 2.
Survey-weighted Prevalence and 90% CIs of Indicators of Well-being, Before and After Child Tax Credit

	Respondents in Households With Children		**Respondents in Households Without Children**	
Well-being Indicator	**Before CTC (N= 16,243)**	**After CTC (N=3,905)**	**Before CTC (N= 31,744)**	**After CTC (N=8,621)**
	% (CI)	**% (CI)**	**% (CI)**	**% (CI)**
Anxiety	31.7% (30.0%, 33.5%)	30.9% (29.1%, 32.9%)	33.4% (32.1%, 34.7%)	27.4% (25.9%, 29.1%)
Depression	21.6% (20.1%, 23.1%)	23.0% (21.1%, 24.9%)	25.9% (24.7%, 27.1%)	23.2% (21.8%, 24.7%)
Difficulty affording basic needs	27.1% (25.2%, 29.0%)	27.2% (25.5%, 29.0%)	22.0% (20.8%, 23.3%)	17.5% (16.5%, 18.7%)
Housing Insecurity	14.1% (12.7%, 15.6%)	13.6% (12.3%, 15.1%)	8.4% (7.7%, 9.2%)	8.4% (7.7%, 9.3%)
Food Insufficiency	7.9% (7.0%, 9.0%)	6.2% (5.2%, 7.2%)	5.8% (5.1%, 6.6%)	5.3% (4.6%, 6.1%)

Overall, Receiving CTC was Related to a Decrease in Reported Food Insufficiency and an Increase in Anxiety, Depression and Inability to Meet Basic Needs

A quasi-experimental approach allows for the evaluation of a program when random assignment to receiving the program is not feasible or ethical. We compared outcomes (indicators of well-being) over time between a population who received a program (households with children) and a comparison population that did not (households without children) to estimate the effect of the CTC on reported indicators of well-being using a difference-in-difference (DiD) model.[9] The reported percentage point differences are the *percentage point changes* in an outcome, comparing time periods before and after CTC implementation. The DiD estimate is the difference in these percentage point changes, comparing households with children to households without children.

For the Seattle-Tacoma-Bellevue MSA, receiving CTC was related to a statistically significant decrease in reported food insufficiency (DiD= -1.7 percentage points [pp]; 90% CI: -3.3, -0.1; Table 3). We hypothesized that CTC would be related to reductions in all adverse well-being indicators assessed; unexpectedly, CTC was associated with

significant increases in reported anxiety (5.7 pp; 90% CI: 2.6, 8.8), depression (4.2 pp; 90% CI: 1.4, 7.0) and inability to afford basic needs (3.8 pp; 90% CI: 1.4, 6.3). We did not find an association with CTC and housing insecurity.

Table 3.
Survey-Weighted Percentage Point Differences, Difference-in-Difference Estimates, and 90% CI Estimates

Well-being Indicator	Respondents in Households with Children Percentage Point Difference (CI)	Respondents in Households without Children Percentage Point Difference (CI)	Difference in Differences (DiD) Percentage Point DiD (CI)
Anxiety	-0.90 (-3.3, 1.4)	-6.7 (-8.5, -4.9)*	5.7 (2.6, 8.8)*
Depression	1.0 (-1.1, 3.1)	-3.3 (-4.9, -1.8)*	4.2 (1.4, 7.0)*
Difficulty Affording Basic Needs	-0.61 (-2.8, 1.6)	-4.4 (-5.9, -2.9)*	3.8 (1.4, 6.3)*
Housing Insecurity	-0.89 (-2.7, 0.90)	0.12(-1.0, 1.3)	-0.99 (-3.0, 1.0)
Food Insufficiency	-2.2 (-3.7, 0.80)	-0.45 (-0.15, 0.56)	-1.7 (-3.3, -0.10)*

*Statistically significant at the <0.10 level.

Notes: Difference estimates represent the percentage point difference in the prevalence of each outcome, well-being indicator, after the CTC policy among respondents living in households with and without children, separately. Differences-in-differences estimates represent how many percentage points higher or lower this difference was among respondents living in households with children, compared to those living in households without children. Survey-weighted models were adjusted for respondent age, sex, race/ethnicity, educational attainment, current employment status, household income and household size. Difference-in-difference estimates are oftentimes interpreted as causal effect estimates.

People in Households <200% FPL had Decreases in Food Insufficiency and Housing Insecurity Related to the CTC, While People in Households Between 200-399% FPL had Increases in All Outcomes Except Food Insufficiency Related to the CTC

To better understand the unexpected patterns observed in reported well-being indicators, we analyzed well-being indicators over time by levels of household income as an estimated percentage of the Federal Poverty Level (FPL; Table 4). The FPL measure accounts for both household income and size. We hypothesized that the CTC may have a greater impact on well-being indicators in households with lower financial means. The amount of the benefit varied by household size and income, and even households with relatively high incomes received partial benefits.[6]

Respondents in households <200% FPL had a 13 percentage point decrease in reporting housing insecurity (90% CI: 6.9, 19) and a 6.9 percentage point decrease in reporting food insufficiency (90% CI: 12, 1.4).[1] Respondents in households in the 200-399% FPL group tended to experience statistically significant increases in all outcomes except food insufficiency, whereas respondents in the 400%+ FPL experienced a 3.7% increase (90% CI: 0.91, 6.5) only for difficulty affording basic needs.

[1] Please note that in Table 4, decreases appear as negative numbers.

Table 4. Survey-Weighted Percentage Point Difference-in-Difference Estimates and 90% CI Estimates, Stratified by Estimated Household Income as Percentage of Federal Poverty Level (FPL)			
Percent Federal Poverty Level (FPL)	**Respondents in Households with Children Difference**	**Respondents in Households without Children Difference**	**Difference in Differences**
	Diff (CI)	**Diff (CI)**	**Diff (CI)**
Anxiety			
<200%	0.68 (-5.5, 6.4)	-7.4(-12, -2.6)*	8.2 (-0.29, 17)
200-399%	2.4 (-26, 7.4)	-9.1 (-13, -5.4)*	11 (5.4, 17)*
400%+	-3.5 (-6.2, -0.77)*	-5.8 (-8.0, -3.5)*	2.1 (-1.8, 6.0)
Depression			
<200%	1.9 (-4.9, 8.7)	-5.2 (-10, -0.0091)*	7.3 (-1.7, 16)
200-399%	7.5 (2.8, 12.3)*	-2.4 (-5.6, 0.85)	9.8 (4.2, 15)*
400%+	-2.4 (-4.7, -0.0017)*	-2.9 (-5.0, -0.82)*	0.39 (-28, 3.6)
Difficulty Affording Basic Needs			
<200%	-1.6 (-7.8, 4.6)	-2.5 (-7.9, 3.0)	1.1 (-6.4, 8.5)
200-399%	-1.4 (-6.4, 3.6)	-8.5 (-12, -5.2)*	7.8 (1.9, 14)*
400%+	-0.039 (-2.1, 2.1)	-3.9 (-5.6, -2.2)*	3.7(0.91, 6.5)*
Housing Insecurity			
<200%	-6.7 (-12, -2.0)*	5.9 (-1.9, 10)*	-13 (-19, -6.9)*
200-399%	5.4 (0.99, 9.8)*	-1.9 (-4.9, 1.2)	7.5 (1.7, 13)*
400%+	-1.4 (-2.6, -0.12)*	-1.2 (-22, -0.20)*	-0.30 (-1.9, 1.3)
Food Insufficiency			
<200%	-7.3 (-12.5, -26)*	-0.26 (-4.3, 3.8)	-6.9 (-12, -1.4)*
200-399%	-0.24 (-2.2, 1.7)	-1.6 (-3.8, 0.72)	1.3 (-2.0, 4.7)
400%+	-0.64(-1.3, 0.19)	-0.33 (-0.92, 0.25)	-0.35 (-12, 0.512)

*Statistically significant at the <0.10 level.

Notes: Difference estimates represent the percentage point difference in the prevalence of each outcome after the CTC policy among respondents living in households with and without children, separately. Differences-in-differences estimates represent how many percentage points higher or lower this difference was among respondents living in households with children, compared to those living in households without children. Survey-weighted difference-in-difference models were adjusted for respondent age, sex, race/ethnicity, educational attainment, and current employment status. Difference-in-difference estimates are oftentimes interpreted as causal effect estimates.

IMPLICATIONS AND DATA LIMITATIONS

Findings suggest that experiences of hardship may have been more common among households with children throughout the COVID-19 pandemic than households without children, even with the context of multiple investments specific to relieving financial and social burdens on households with children.

CTC Related to Decreases in Food Insufficiency Overall, and Decreases in Food Insufficiency and Housing Insecurity for Households with Least Financial Means (<200% Federal Poverty Level)

Overall, we identified that CTC was related to a 1.7 percentage point decrease in food insufficiency among households with children – a finding aligned with a national study on this topic.[2] For households with the least financial means (<200% FPL), CTC was related to a 6.9 percentage point decrease in food insufficiency and 12.7 percentage point decrease in housing insecurity. These findings suggest that the CTC worked as intended as an

anti-poverty program by addressing immediate issues of food insecurity and housing insecurity, especially for people at greatest risk for those outcomes due to low household financial resources.

CTC Unexpectedly Related to Some Well-being Indicators, Overall and for Respondents in Households 200-300% of the Federal Poverty Level

Contrary to expectations, CTC was associated with increases in adverse mental health outcomes, difficulty affording basic needs, and housing insecurity for respondents in households with children whose earnings were between 200% to 399% of the federal poverty level. This equates to roughly a household income of $52,000 – $104,000 for a family of four in 2020 (Table 4). This unexpected relationship was also found for difficulty affording basic needs for respondents in households whose earnings were 400%+ of the federal poverty level. Specifically, we observed that anxiety and depression decreased for households without children after the CTC, whereas it didn't for households with children (Table 2). Decreases may be related to measurement changes in these questions (see Technical Notes) that could have led to measurement error, or potential factors outside of the CTC that occurred at a similar time period (e.g., changes in COVID-19 policies and attitudes, vaccination age-related eligibility) that could have affected mental health differently by household type. Additionally, the patterning of these unexpected findings among households between 200-399% FPL, and the relationship found for basic needs among households with 400%+ of the federal poverty level, suggest the role of inflation-related stressors at the end of 2021 and into early 2022 that occurred simultaneous to CTC implementation. Inflation concerns could have adversely affected mental health and ability to afford basic needs particularly among middle-income households with children,[10] who were more affected by job loss and income disruptions[11] than households of higher income, but also earned too much to qualify for key safety-net housing and food assistance programs. Interviews conducted by Public Health – Seattle & King County staff with community service providers and advocates in early May 2020 revealed financial hardships during the COVID-19 pandemic may have left people who had never before needed assistance unsure of where to safely turn for food assistance.[12] Additional research is needed to disentangle the role of the CTC from other simultaneous factors and improve our understanding of mixed findings and differences in outcomes observed across household FPL.

Limitations of Difference-in-Difference Analysis

Important limitations of the difference-in-difference analyses should be kept in mind. First, not all households with children received the tax credit within the given time period we analyzed, due to potential administrative burdens for families, especially those who are low-income and/or non-White. This 'misclassification' of respondents to CTC group could bias findings. Second, it is possible that despite applying sampling and non-response weights to this analysis, the Household Pulse results may not be fully representative of the population of interest. Third, it is possible that respondents in households with children versus no children may be systematically different in ways that could not be adequately addressed through adjustment for a wide range of social and demographic characteristics. Measurement of well-being (all self-reported) could pose a threat to the validity of findings. For instance, anxiety and depression symptoms were based on the 4-question Patient Health Questionnaire (PHQ-4) and the reference time frame changed during the study period (see Technical Notes). Additionally, for other outcomes, it is unclear if the measure (often based on a single item) is holistically capturing concepts underlying the well-being measures like inability to meet basic needs and housing insecurity. Finally, social factors such as the changing COVID-19 landscape, growing inflation concerns, sociopolitical climate, and city or local policies (e.g., Washington State eviction moratorium that ended October 31, 2021) could have decreased our ability to isolate the effects of CTC on well-being outcomes.

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For more information visit: https://kingcounty.gov/covid/data/impacts and www.publichealthinsider.com. For questions please contact: COVIDEvaluation@kingcounty.gov.

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TECHNICAL NOTES

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Data Source: Census Household Pulse Data for the Seattle/Bellevue/Tacoma Metropolitan Statistical Area (MSA). *Census Household Pulse Survey data presented here includes adults aged 18 and older in the Seattle-Tacoma-Bellevue metropolitan statistical area (MSA) encompassing the tri-county area of Snohomish, King and Pierce Counties for the following time periods:*

- Survey Phases before CTC: Phases 2-3.0 (August 19, 2020-March 29, 2021), 3.1 (April 14-July 5, 2021)
- Survey Phases during/after CTC: Phases 3.2 (July 21- October 11, 2021), 3.3 (December 1, 2021-February 7, 2022)

Data Definitions:

Outcome: Well-being Indicators	**U.S. Census Bureau Household Pulse Question**	**Definitions/Notes**
Reported symptoms of anxiety* (binary)	How often have you been bothered by: a) Feeling nervous, anxious, or on edge? b) Not being able to stop or control worrying?	Responses (score): Not at all (0), several days (1), more than half the days (2), nearly every day (3); Anxiety symptoms if a+b score >=3; Depression symptoms if c+d score >=3 *In Phases 2-3.1, respondents were asked to report symptoms in past 7 days; In Phase 3.2, respondents were asked to report symptoms in the past 2 weeks.
Reported symptoms of depression (binary)	How often have you been bothered by: c) Having little interest or pleasure in doing things? d) Feeling down, depressed, or hopeless?	
Difficulty paying for usual household expenses in the past 7 days (binary)	In the last 7 days, how difficult has it been for your household to pay for usual household expenses, including but not limited to food, rent or mortgage, car payments, medical expenses, student loans, and so on? Select only one answer. • Not at all difficult • A little difficult • Somewhat difficult • Very difficult	Created a binary version of this variable; grouped those who reported "somewhat difficult" or "very difficult" and "not at all difficult" or "a little difficult."

Housing Insecurity (binary)	How confident are you that the household will be able to pay the next rent or mortgage payment on time? Select only one answer. • Not at all confident • Slightly confident • Moderately confident • Highly confident • Payment is/will be deferred	Respondent considered housing insecure if they reported "no confidence," "slight confidence" in ability to pay next mortgage/rental payment or that “payment is/will be deferred.” This question was asked to respondents who have housing payments; respondents with no housing payments classified in high confidence/moderate confidence category. This includes respondents who reported that their house or apartment was “owned by you or someone in this household free and clear,” or “occupied without payment of rent.”
Food Insufficiency (binary)	In the last 7 days, which of these statements best describes the food eaten in your household? Select only one answer. • Enough of the kinds of food (I/we) wanted to eat • Enough, but not always the kinds of food (I/we) wanted to eat • Sometimes not enough to eat • Often not enough to eat	Respondent facing food insufficiency if they reported “sometimes not enough to eat” or “often not enough to eat.”

Notes: Questions on anxiety and depression symptoms were based on the modified 4-item Patient Health Questionnaire (PHQ-4) which asks how often during the past 7 days, respondents had been bothered by 1) feeling nervous, anxious, or on edge; 2) not being able to stop or control worrying; 3) feeling down, depressed, or hopeless; and 4) having little interest or pleasure in doing things. The four questions can be used to construct composite scores on symptoms of an anxiety disorder, symptoms of a depressive disorder, or symptoms of anxiety and/or depression disorders combined. For the combined composite, the score can be used to further define the severity of the symptoms. For further details see MMWR article: https://www.cdc.gov/mmwr/volumes/70/wr/mm7013e2.htm

Data Analysis: The analytic data set was first created without excluding variables (involved merging multiple phases together), applying pooled weights (all weights over all survey periods, divided by number of weeks). Then, we limited the sample to the MSA and developed outcome variables and limited to final data set with no missing covariate or outcome data. Descriptively, we examined survey-weighted characteristics of the population (pre and post for each of the two comparison groups) and the survey-weighted prevalence of the outcomes (Table 1, Table 2). We then fit adjusted difference-in-difference models (explained elsewhere) examining each outcome (well-being indicators) and performed a sensitivity analysis where findings were stratified by Federal Poverty Level (see Table 3 and Table 4); prior, we performed analyses to visually examine parallel trends in outcomes in the pre-period based on covariate adjusted models; absence of parallel trends will limit causal interpretation of findings.

Confidence Interval (90% CI): The probability that after accounting for random variation for counts or sampling error for survey data, the reported count or estimated rate (percent) will be within the interval 90% of the time.

Covariates for Multivariable Analysis:

Variable	Categories
Age	18-24, 25-39, 40-54, 55-64, 65+
Sex at birth	Male, Female
Race/ethnicity*	Asian alone, Black alone, Hispanic/Latinx, White alone, Multiple/[An]Other race (categories provided by the Census Bureau and cannot be further disaggregated)
Household income	<$25,000, $25,000-$34,999, $35,000-$49,999, $50,000-$74,999, $75,000-$99,999, $100,000-$149,999, $150,000-$199,999, ≥$200,000
Household size	Number of children and adults reported living in household
Educational Attainment	Less than high school, High school graduate or GED, Associates degree and some college, College or professional degree
Current Employment Status	Employed in the last 7 days – yes/no

*Hispanic reported as ethnicity and can be in any or the race categories listed. Respondents who identify as American Indian/Alaskan Native or Native Hawaiian/Pacific Islander are included in the multiple or another race group. The U.S. Census Bureau reports multiple or another race group category as an aggregate and it cannot be further divided."

Federal Poverty Level (FPL) is a measure issued yearly by the Department of Health and Human Services to determine eligibility for state, federal, and local programs and services. FPL is based on household income and household size. View current and past guidelines here: https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines. FPL was approximated since we did not have exact annual household income. Annual household income of respondents was estimated by taking the midpoint of the reported annual income range as the income and the reported number of persons living in the household as the household size.[13] Those who reported incomes in the <$25,000 range were assigned an estimated income of $25,000, and those who reported incomes in the $200,000+ range were assigned an estimated income of $200,000. Households with 10+ household members were recorded as having 10 members. This data cleaning step was done prior to public release of the Census Pulse data, and ensured respondent anonymity. In survey phases 2-3.0 (August 19, 2020-March 29, 2021) and 3.1 (April 14-July 5, 2021), respondents were asked about 2019 income, and thus the 2019 poverty guidelines were used. In survey phases 3.2 (July 21- October 11, 2021) and 3.3 (December 1, 2021-February 7, 2022), respondents were asked about 2020 income, and thus the 2020 poverty guidelines were used.

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