# Child Tax Credit Spending and Effects Analysis

From the Survey of Household Economic Decisions

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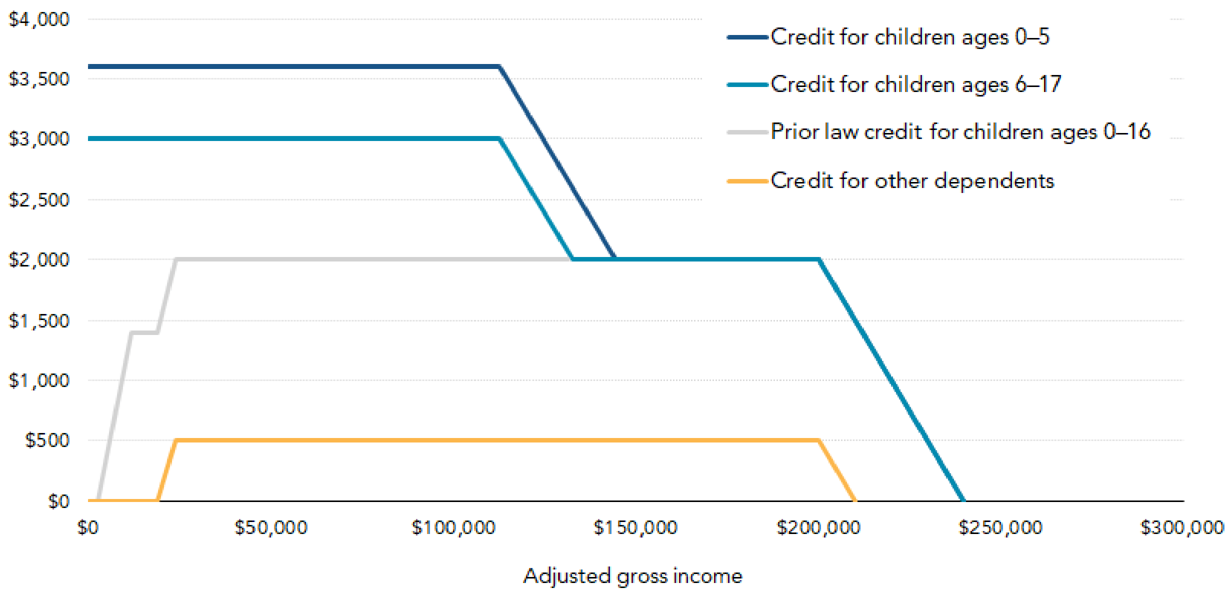
**The Expanded Child Tax Credit**

In 2021, the Biden administration along with the 117th Congress passed the American Rescue Plan Act (ARPA) in response to the ongoing Covid-19 Pandemic. The goal of this stimulus package was to reinvigorate the economy and prevent a recession by encouraging consumer spending through fiscal stimulus. One key policy that passed from this was the expansion of the Child Tax Credit, which most importantly consisted of an increase of the tax credit going from $2000 per child up to $3000 per child and the removal of the minimum income requirement. Alongside this, the Child Tax Credit phaseout now begins at an income of $112,500 (shown below in Figure 1 from the Tax Policy Center) and has the ability to be paid out in monthly checks of $300 per child.

**Figure 1: Child Tax Credit, Single Parent, For One Child, 2021**




**Source**: Urban-Brookings Tax Policy Center calculations.
**Notes**: Assumes all income comes from earnings, and child meets all tests to be a CTC-qualifying dependent. $3,000 and $3,600 credits are fully refundable; prior law limited refunds to $1,400 out of the maximum $2,000 credit. Credit for married parents first phases out at $150,000 of income until credit reaches pre-2021 level; begins second phase out at $400,000 of income. Only citizen children qualify for the $3,000 and $3,600 credits for children under 18. Noncitizens under age 18 who meet the dependency tests of eligibility can qualify other dependent credit.

With ARPA being one of the largest economic rescue plans in U.S. history, costing an estimated 1.9 trillion dollars, many organizations put out claims and predictions on how this would help lower and middle income American families and affect the economy. The Institute on Taxation and Economic Policy claimed that ARPA would “provide a 33% boost to the pre-tax incomes of the poorest 20% of Americans” (Pichii), and the Center on Poverty and Social Policy and Columbia University stated that ARPA would cut child poverty by more than half (Parolin). On the other hand there were also claims that this fiscal stimulus could and would also contribute to increasing inflation, which had the potential to reduce the anti-poverty effects of the ARPA. The Federal Reserve Bank of San Francisco detailed that ARPA along with the CARES act of 2020  may have raised core inflation by 3 percentage points (San Francisco Fed…)**.**

**The Survey of Household Economic Decisions and Methodology**

With so much buzz around ARPA and the expanded CTC, it serves as a good test case for the effects of universal welfare programs and how effective large fiscal stimulus was at preventing recessions while balancing inflation. Being that it has been over a year since the end of the expanded CTC, data is now beginning to roll out which can then be used to analyze these policies and see who's predictions panned out correctly. This report here uses the 2021 and 2022 Survey of Household Economic Decisions to analyze how the expanded CTC was spent and its effects.

The Survey of Household Economics Decisions, or more commonly referred to as SHED, is an annual survey done by the Federal Reserve Board of Governors. The online survey collects responses from nearly twelve thousand participants each year and asks questions ranging from credit cards to inflation etc. all to measure the economic well being of US households. On top of this, SHED is weighted post-survey to be accurate across the lines of race, gender, income, religion etc so that it is representative of all 18+ individuals in America.

The important part about SHED is that each participant is assigned an ID for that year, and if they are selected to be surveyed again in a future year, you can use this ID to match them to their previous responses. This is important because in 2021, one of the SHED questions was "Have you received any monthly Child Tax Credit payments this year?" meaning I could filter for who received CTC and who didn't in the 2022 SHED.

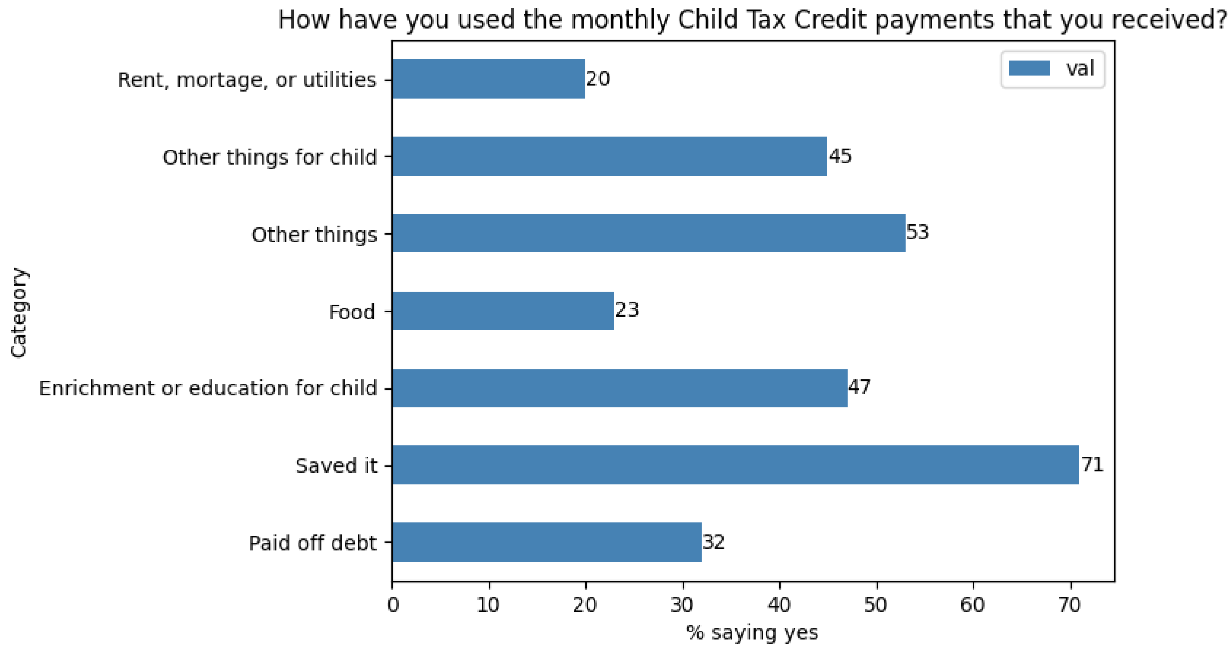
To do any meaningful analysis on the expanded CTC, A/B testing was the method chosen to see if there were any statistically significant differences between the two. To control for income, it was decided that only people eligible for the full child tax credit should be in the dataset, so all individuals with an income greater than 150k were removed. After controlling for income, this left a sample size of 517 individuals that had responded to both the 2021 and 2022 surveys. Next I split this into two groups, one which had received CTC and one which had not. Our first group, which had received the CTC, will serve as our treatment group and had a sample size of 417. The second group which hadn't received CTC, will serve as the control group, with a sample size of 140.

**Section 1: How the Child Tax Credit was Spent**

As described before, the 2021 SHED questionnaire asked its participants whether they received the Child Tax Credit or not, alongside this they also asked several questions about how they used this money. With the goal of this fiscal stimulus being to help revive the gutted economy at the time, looking at how this tax credit was spent can help policy makers shape their decisions in the future.

Figure two shown below shows how each of the child tax credit recipients opted to use their monthly payments. We can clearly see the category of “Saved it” being ahead of the pack with 71% percent of recipients saving a portion of their monthly checks. It is important to note that the goal of these payments was to stimulate the economy, so a majority of participants saving these payments should be a message to policymakers that something needs to be altered. When this money being sent out isn’t being put back into the economy, but is instead being saved, the child tax credit loses its purpose as we risk increasing inflation without increasing consumer spending.

### Figure 2: How the monthly CTC was spent in 2021

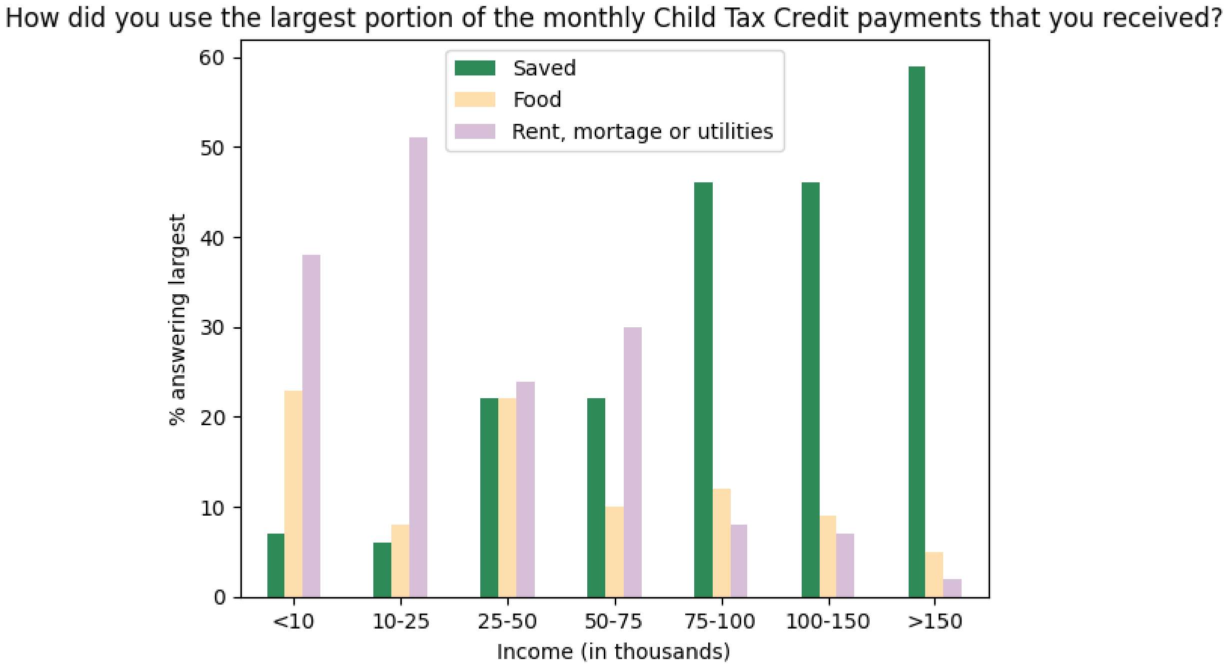



n = 584

With the issue of a significant portion of people putting their Child Tax Credit towards their savings becoming apparent, looking at which category they put the largest portion of their Child Tax Credit would give us the necessary insight. On top of this it was decided to look at how the largest portion of CTC spending changed with income, to look at who exactly was saving the Child Tax Credit. Figure 3 shows this visualization of how many people saved the CTC across incomes along with the categories of Food and Rent/Mortgage/Utilities which also showed strong trends. We can clearly see three trendlines from this visualization, A: as income increases, recipients tended to put most of their CTC into savings, B: as income decreases, recipients tended to put less of their CTC into food, C: as income decreases, recipients tended to put less of their CTC into rent, mortgage or other utilities.

All in all these three trend lines largely make sense. As one moves up the socioeconomic ladder, you can expect they would have their material needs easily met, so when given the stimulus of the CTC, their best choice financially is just to save it. This also explains why we see the strong negative trends for the other two groups of food and utilities, since as you move up in terms of income, you can expect that paying for food and utilities is not a financial problem for one.

### Figure 3: How largest portion of CTC was spent across incomes, 2021



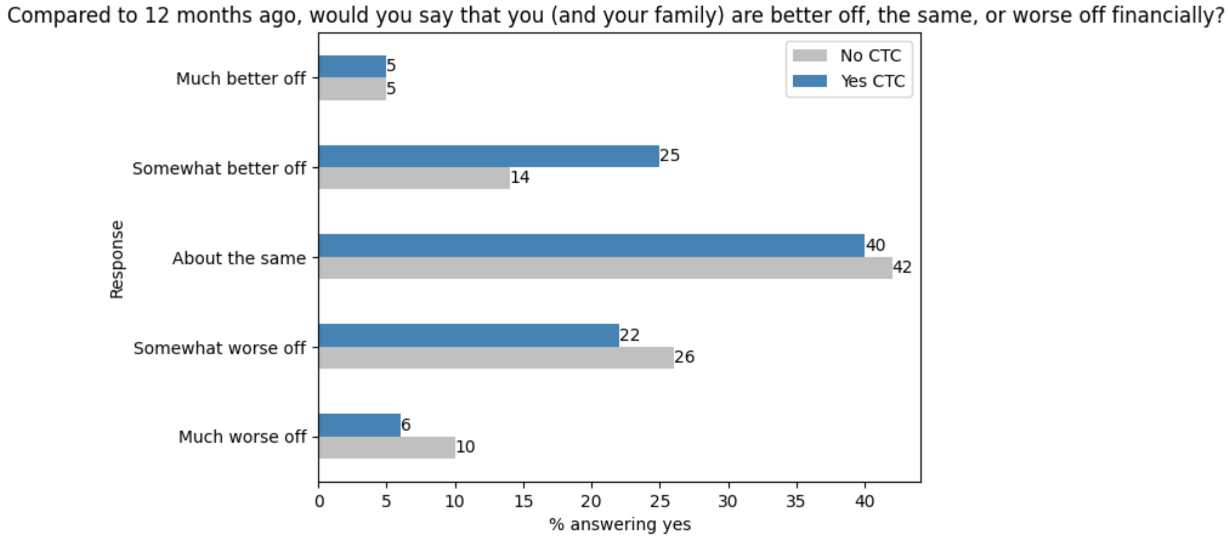

n = <10: 13, 10-25: 45, 25-50: 79, 50-75: 80, 75-100: 73, 100-150: 127, >150: 167

As discussed earlier, the goal of the CTC is to be a form of fiscal stimulus, and when recipients end up saving it, the CTC renders useless. So when looking back at figure 3, we can see that as we go up in income, the purpose of the CTC becomes less and less in effect. It is only the lower income individuals who are spending the CTC and thus helping restart the American economy. This is why the removal of the minimum income requirement for the CTC in the ARPA was so necessary. ITEP director of federal tax policy Steve Wamhoff puts this best when he explained “That's important because the lowest-earning households are more likely to spend that money quickly, providing a boost to the economy while stabilizing their own households” and “There are reasons why this is important at the micro level — helping people who need it — but also at the macro level, the best way to do that is to get money into the hands of people who will spend it” (Picchi). It’s this decision to make the child tax credit universal that both helped low income families deal with the financial struggles and unemployment of covid and importantly helped get money circulating into a pessimistic economy.

**Section 2: Effects of the Child Tax Credit**

With the release of the 2022 SHED questionnaire, we now have the opportunity to compare the financial wellbeing of those who received the CTC versus those who didn't in the form of A/B testing. Shown below in figure 4 is arguably the best visualization of the effects of receiving the CTC vs those who did not. We can immediately see an 11 percentage point difference between the CTC group and control group in terms of being somewhat better off financially compared to a year ago. And it's this 11 point gap we see being made up in the categories of somewhat worse off and much worse off that the "No CTC" group takes the lead in, showing what the absence of fiscal stimulus did.

## Figure 4: How did receiving the CTC affect one's financial situation compared to a year ago, 2022

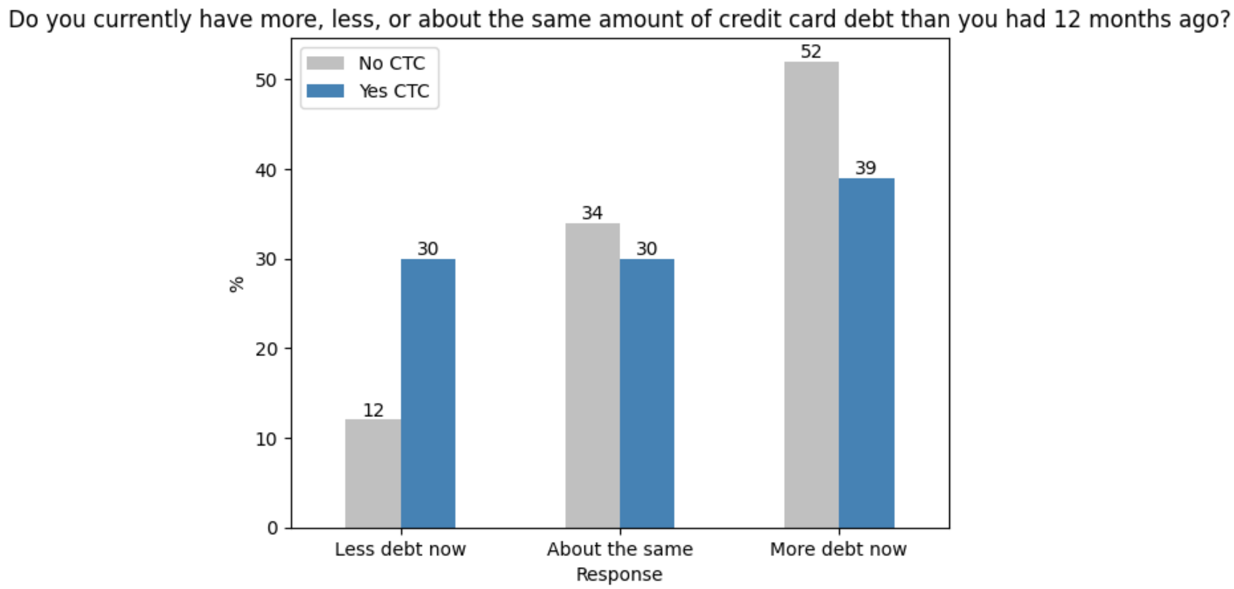



n = No CTC: 140, Yes CTC: 417

Another interesting response to look at was how receiving the CTC affected how much credit card debt a person had compared to a year ago. Figure 5 shows how receiving CTC strongly affected one's ability to pay off credit card debt as we can see an 18 percentage point gap between the two for the response "Less debt now". This also is a cause for concern for how the CTC was being spent by its recipients. Earlier it was discussed how saving the CTC goes against the purpose in terms of kickstarting the economy back up, but so is using it to pay off various forms of debt, although not nearly as bad. If given more data points to work with, looking at how responses vary to this question based on income would be the next logical step. We could see if the principle of "lower income people spend the CTC into the economy, while higher income people don't" also holds up for paying off various forms of debt.

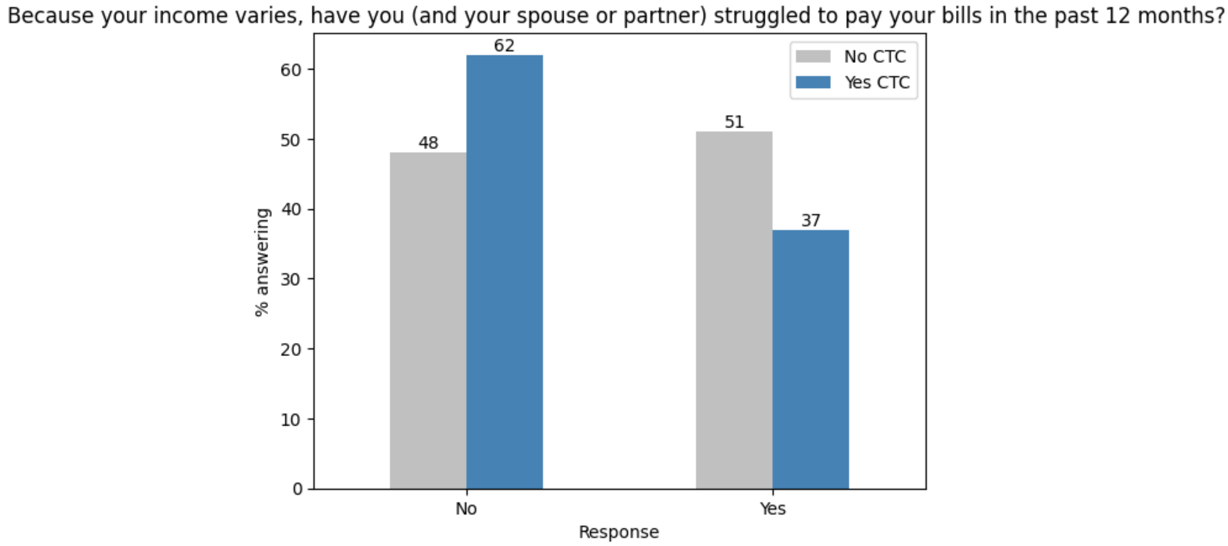
Painting a similar story to the last two visualizations is Figure 6, which shows how receiving the CTC helped households with varying month to month incomes pay off their bills. We can see a key 14 percentage point increase in those who received the CTC saying that they did not struggle paying their bills these past twelve months. This visualization here gives a great insight into how the CTC helped families manage financially through the Covid-19 pandemic when unemployment rates were skyrocketing. Without this and the rent moratorium, who is to say how many Americans would have been pushed onto the streets without some form of fiscal aid from the government.

**Figure 5: How did receiving the CTC affect one's credit card debt compared to a year ago, 2022**




n = No CTC: 140, Yes CTC: 417

**Figure 6: How did receiving the CTC affect one's ability to pay their bills compared to a year ago, 2022**

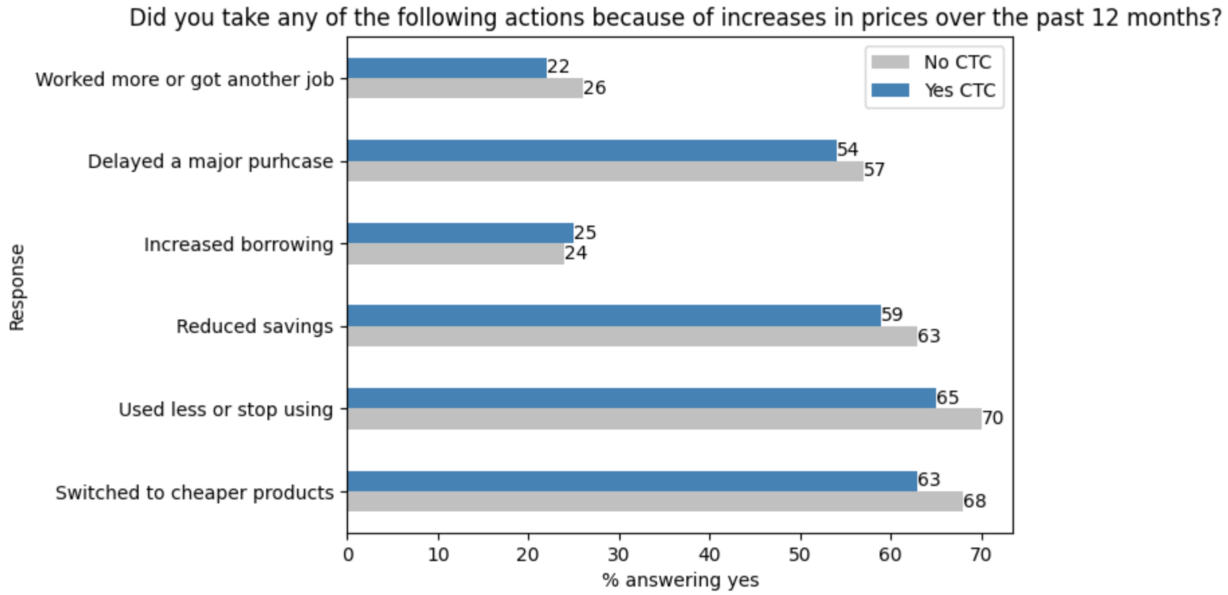



n = No CTC: 140, Yes CTC: 417

**Section 3: Responding to Inflation**

One of the main criticisms of Joe Biden's American Rescue Plan Act along with all the other fiscal relief provided during the Covid-19 Pandemic was its impact on rising inflation. During 2021 and 2022 the US inflation rates were 4.7% and 8% respectively, the highest the US had ever faced since the 1980's. While we can't measure how the CTC impacted US inflation and the consumer price index from the SHED questionnaire, it does give us the ability to look at how they responded to inflation. Shown below in Figure 7 we can see the differences in how people who did and did not receive the CTC reacted to increasing prices.

**Figure 7: How did receiving the CTC affect one's response to inflation, 2022**




n = No CTC: 140, Yes CTC: 417

Surprisingly, there is little to be found from this visualization in figure 7. None of the differences are statistically significant or are only on the cusp of being statistically significant. The slight reduction in taking counter-inflation measures for nearly every category does make sense, but the difference is not nearly strong enough to attribute this to receiving the CTC vs not receiving it.

**Conclusions:**

Based on this report, we were able to see some early analysis of how the Child Tax Credit was spent and some basic analysis on how it affected its recipients. With the goal of this tax credit mainly to be fiscal stimulus, we were clearly able to see how the removal of the "minimum income requirement" was one of the key decisions made by policymakers. We saw that it was mostly low-income individuals who actually spent the child tax credit, thus getting this money to circulate into the economy, rather than their high income peers who merely saved it.

Using A/B testing we were also to see signs that the Child Tax Credit helped individuals get through the economically harsh times of the Covid-19 pandemic, as the extra money in their pockets helped them pay their bills and have a stable living situation. All in all this gives evidence to the idea of using fiscal stimulus to help weather poor financial situations, and that the positives of these welfare programs are able to outweigh concerns about it contributing to inflation.

## Appendix A: Data Analysis and Visualizations

The data analysis and visualizations were all done and created in a python notebook linked below. The pandas library was mostly used throughout the notebook for both A/B testing and creating the graphs seen above.

[Github link]

## Appendix B: SHED Questions Used in this Report

2021:

CTC1. Have you received any monthly Child Tax Credit payments this year?

CTC2_a. Paid off debt - How have you used the monthly Child Tax Credit payments that you received?

CTC2_b. Saved it - How have you used the monthly Child Tax Credit payments that you received?

CTC2_c. Spent on food - How have you used the monthly Child Tax Credit payments that you received?

CTC2_d. Spent on enrichment or education for child - How have you used the monthly Child Tax Credit payments that you received?

CTC2_e. Spent on other things for child - How have you used the monthly Child Tax Credit payments that you received?

CTC2_f. Spent on rent, mortgage, or utilities - How have you used the monthly Child Tax Credit payments that you received?

CTC2_g. Spent on other things - How have you used the monthly Child Tax Credit payments that you received?

CTC3. How did you use the largest portion of the monthly Child Tax Credit payments that you received?

ppinc7. Household Income

2022:

B3. Compared to 12 months ago, would you say that you (and your family) are better off, the same, or worse off financially?

C3A. Do you currently have more, less, or about the same amount of credit card debt than you had 12 months ago?

I12. Because your income varies, have you (and your spouse or partner) struggled to pay your bills in the past 12 months?

INF3_a. Switched to cheaper products - Did you take any of the following actions because of increases in prices over the past 12 months?

INF3_b. Used less or stopped using - Did you take any of the following actions because of increases in prices over the past 12 months?

INF3_c. Reduced savings - Did you take any of the following actions because of increases in prices over the past 12 months?
INF3_d. Increased borrowing - Did you take any of the following actions because of increases in prices over the past 12 months?
INF3_e. Delayed a major purchase - Did you take any of the following actions because of increases in prices over the past 12 months?
INF3_f. Worked more or got another job - Did you take any of the following actions because of increases in prices over the past 12 months?

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