Labor Supply Responses to Inflation Relief Checks

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Abstract

How effective are government cash transfers? Over the past two decades, government cash transfers in 2001, 2008, and 2020 have been an ever-increasingly popular and standard response to economic hardship. Following the COVID-19 recession, the highest inflation rate since the Great Inflation saw many states in 2022 implement an inflation relief check and send cash to the public to help ease the burden of inflation. Using state borders as the basis for a regression-discontinuity research design, I find that while these inflation relief checks were successful in decreasing the unemployment rate, the checks also caused a decrease in labor force participation. An inflation relief check equal in size to 1% of a state's median household income decreases the unemployment rate by about 1 percentage point, yet also decreases labor force participation by about 2 percentage points. I estimate that the cost per job saved in response to the 2022 inflation relief checks was $77,125 which is in the middle of the range of other estimates given in the literature.

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1 Introduction

In the aftermath of the COVID-19 Recession, the United States has seen persistent inflation at its highest level since the Great Inflation. Consumers, because of this inflation, have experienced lower real wages[1] and the lowest level of consumer sentiment ever recorded[2], as measured by the Survey of Consumers from the University of Michigan. Furthermore, the same survey shows that consumers, who previously had inflation expectations anchored at 3%, have unanchored their one-year-ahead inflation expectations[3].

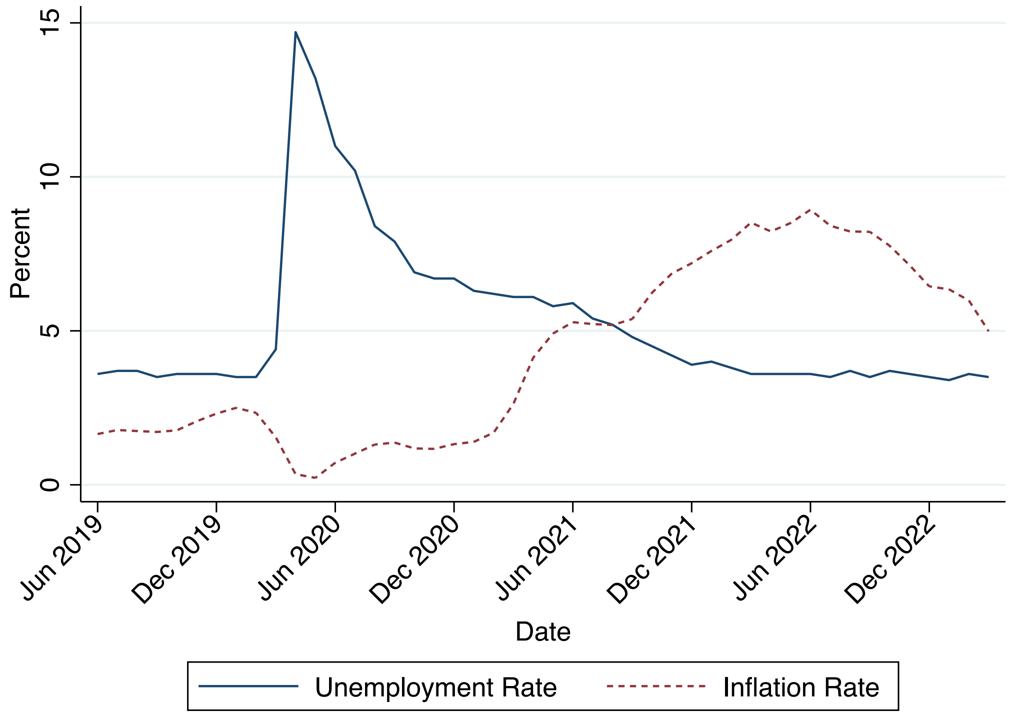
During this economic hardship, in 2022 many states decided to send out one-time cash transfers, which officially were often called tax rebates, but colloquially became known as "inflation relief checks" to help relieve some financial stress stemming from inflation. Interestingly, the purpose of these government transfers are similar to the purpose of stimulus payments given by the federal government in the aftermath of the COVID-19 Recession which were sent out to help individuals during a period of extremely high unemployment. In this paper, I analyze the unique use of a government cash transfer, not generally intended to stimulate the economy, but instead to help consumers with higher costs, in an already high-inflation environment. Figure 1 plots the inflation rate and the unemployment rate in the United States from June 2019 to March 2023.

In 2022, nineteen states sent out some form of inflation relief check[4]. In this paper, I use a regression discontinuity approach which pairs treatment counties that are on the border of states that sent out an inflation relief check with control counties that are directly on the other side of the border of states that did not send out a check. In particular, treatment counties are paired with control counties if and only if they share a land border. With this approach, I compare four labor supply outcome variables including the unemployment rate, unemployed per capita, employed per capita, and labor force per capita across treatment and control counties to establish the causal effect of sending out an inflation relief check on labor supply outcomes.

I find strong effects of inflation relief checks on labor supply outcomes. Soon after the announcement of an inflation relief check, I find that an inflation relief check equal to 1% of the median household income decreases the unemployment rate by approximately 1 percentage

[1] https://fred.stlouisfed.org/series/LES1252881600Q
[2] http://www.sca.isr.umich.edu/files/chicsh.pdf
[3] http://www.sca.isr.umich.edu/files/chpx1r.pdf
[4] https://www.forbes.com/advisor/personal-finance/states-gas-stimulus-checks/

Figure 1: Inflation Rate & Unemployment Rate



Notes: This graph shows the 12 month change in the CPI index and the unemployment rate from June 2019 to March 2022 in the United States at the national level.

point. Contrary to what may be expected ex-ante, I also find that a check equal to 1% of median household income decreases the employment to population ratio and the labor force to population ratio by approximately 1 and 2 percentage points, respectively. These results suggest that while the inflation relief checks did help to reduce the unemployment rate, the checks had significant negative effects on labor force participation.

These results suggest that there is a cost associated with decreasing the unemployment rate, namely that labor force participation may decrease as an unintended consequence. Given that the unemployment rate and labor force participation are both signals of the economy's ability to produce economic output, this associated cost suggests that sending out government cash transfers may not be as simple and as much as a one-size-fits-all solution to economic headwinds as some may believe. Instead, it is important for policymakers to be fully aware of the possible negative and positive effects of government cash transfers to make a fully informed decision on fiscal policy.

Previous stimulus checks in 2001, 2008, and 2020 have allowed for a large literature examining the effects of stimulus checks both at the microeconomic and macroeconomic level. Looking at the income tax rebates of 2001, Johnson et al. (2006) find that households spend 20 - 40 percent of their tax rebates the first three months after they received their rebate followed by another third in the next three months. In the aggregate, they find that the rebates increase total personal consumption expenditures by 1.4 percent in the subsequent two quarters after receiving the tax rebate. Using a sample of consumers, Shapiro and Slemrod (2003) find that only 22 percent of households receiving a tax rebate would spend it. Instead, the rest of the respondents said they would save the rebate or use it to pay off debt.

Stimulus checks in 2008 were intended to fight off The Great Recession. Parker et al. (2013) find that households spend between 12 and 30 percent of their stimulus payments on non-durable consumption goods and services three months after receiving their stimulus payment. Including durable goods and other spending, the authors conclude that between 50 to 90 percent of the payment is spent within three months.

Switching gears toward the aggregate impact of government cash transfers, Sahm et al. (2009) find that the 2008 stimulus payment decreased the saving rate by 3/4 of a percentage point in the few months after payments were sent out. Furthermore, the authors use model simulations to establish a counterfactual and find that the 2008 payments increased personal consumption expenditures by 2.2 percent in Q2 of 2008, yet decreased personal consumption expenditures by 4 percent and 0.7 percent in Q3 and Q4 of 2008, respectively. The authors also find that ratio of revolving credit to personal consumption expenditure decreases compared to the counterfactual by approximately 4 percent. Further looking at the macroeconomy, Broda and Parker (2014) find partial-equilibrium increases in aggregate demand by 1.3 percent of consumption in the quarter following the issuance of stimulus payments and 0.6 percent of consumption in the following quarter.

The main question of my paper, however, is not only the macroeconomic impacts of government cash transfers but also the labor supply effects. Part of the goal of the COVID-19 stimulus checks was to help individuals fulfill their financial needs without having to work and risk spreading the virus. A large question surrounding the COVID-19 stimulus checks is whether or not they encouraged individuals to stop working and therefore had negative labor supply effects on the economy. Using survey data, Coibion et al. (2020) find that 90 percent of those who received a COVID-19 stimulus check claimed it had no effect on their labor supply decisions on both the intensive and extensive margin. This number holds the same for individuals who were not in the labor force to begin with: 90 percent of respondents said that receiving a stimulus payment did not stop them from starting or stopping searching for work nor did it change the intensity with which they were searching.

Unemployment Insurance (UI) benefits during the COVID-19 Recession, similar to the stimulus checks, brought up questions of if the generosity of UI benefits would reduce the willingness of workers to return to work. Using data from a private firm that provides time clock services to small businesses, Bartik et al. (2020) find no evidence that high UI benefits increased job losses or slowed rehiring. On the other hand, Fang et al. (2022) calibrate a quantitative model and discover that the UI benefits provided in the CARES Act increases average unemployment by 1.61 percentage points. For an in-depth literature review regarding the impact of increased UI benefits and Stimulus Checks from the COVID-19 recession, see Falcettoni and Nygaard (2021).

My paper adds to the literature in several ways. First, I add to the literature by expanding the discussion of the effect of government transfers on more recent events. Papers studying the 2001, 2008, and COVID-19 stimulus checks can be joined by new literature evaluating the effects of the 2022 inflation relief checks. Second, I utilize a unique approach of evaluating fiscal policy by comparing counties in different states that share land borders as a way to establish a control group. In theory, counties that are directly next to each other should be relatively similar before and after one of the states sends out an inflation relief check; any difference in outcomes in the post-treatment period can be attributed to the inflation relief check. Finally, while my paper confirms previous results about fiscal stimulus reducing the unemployment rate, my paper also brings up new questions about the wealth effects of government cash transfers and if government checks can have a negative effect on labor force participation.

My paper is structured as follows: Section 2 discusses the size and eligibility of inflation relief checks, my labor supply variables, and my methodology. Section 3 discusses my econometric specification along with certain threats to identification. Section 4 includes my results and discussion. Section 5 concludes.

2 Data and Methodology

2.1 Inflation Relief Checks

Nineteen separate states sent out an inflation relief check in 2022. Of these nineteen states, two, Alaska and Hawaii, do not border any other state in the United States and therefore cannot be used in my analysis. Of the remaining seventeen states, two, Minnesota and Florida, provided checks for only a very small subset of the population and thus would not be valuable for my analysis (see footnote 4). As a result, my paper will focus on the remaining fifteen states that sent out an inflation relief check in 2022.

To understand the effect of inflation relief checks, I create a measure of the average inflation relief check size for each state. I establish my own dataset including the average size and eligibility requirements of the inflation relief checks and the month in which the check was announced for each of the fifteen states by examining various government press releases, legislative texts, and state tax agency websites.

Table 1: Inflation Relief Check Timing and Size

State (1)	Announcement Month (2)	Average Check Size (ACS) (3)	Median Household Income (4)	ACS Normalized by Income (5)
CA	June	492.63	$81,575	0.604%
CO	May	850.05	$84,954	1.000%
DE	April	227.66	$68,687	0.331%
GA	March	159.34	$61,497	0.259%
ID	September	378.69	$76,918	0.492%
IL	April	123.23	$79,253	0.155%
IN	August	224.26	$70,190	0.319%
MA	September	308.05	$86,566	0.356%
ME	April	612.33	$71,139	0.860%
NJ	June	51.8	$88,559	0.058%
NM	April	551.9	$53,463	1.032%
OR	March	41.81	$81,855	0.051%
RI	August	150.12	$74,982	0.200%
SC	June	197.01	$62,542	0.315%
VA	August	128.45	$80,268	0.160%

Notes: This table shows the announcement month and year for each state along with average check size. Average check size is estimated using tax and income statistics from the 2022 Current Population Survey and the Annual Social and Economic Supplement along with the inflation relief check eligibility requirements for each state. Column (5) reports Average Check Size normalized by median household income for each state.

To understand the effect of the size of the inflation relief check, I create a measure to understand what the average person received in each state that sent out an inflation relief check. To create this measure, I use the check size and eligibility requirements along with data from the

2022 Current Population Survey (CPS) and Annual Social and Economic Supplement (ASEC) to use income and tax survey data to estimate the average check size across each state. Furthermore, I normalize the average check size by each state's respective median household income, obtained by the US Census Bureau. Table 1 reports the timing and size of each treatment state's inflation relief check. Furthermore, Table 2 reports the eligibility requirements and subsequent check size for each state along with the percent of the state's total population that was eligible for an inflation relief check. I estimate eligibility based on the 2022 CPS and ASEC.

One feature of the data is the lack of variance with which each state announced its inflation relief check. Every state announced its check in 2022, and all states announced its check in spring or summer. Here, I define "announcement" as the month in which the governor of the state made an online press announcement. If the governor did not make a public online press announcement that was easily able to be found, I define the announcement month to be the month that the Governor signed the legislation authorizing the inflation relief check. Furthermore, I do not round the announcement month so that, for example, a check announced on May 30 is counted as being announced in May, not June. Furthermore, the size of the inflation relief checks, except for a couple of states, are rather large and economically significant. Compared to the 2001 tax rebates and 2008 stimulus checks, the inflation relief checks of 2022 were of similar size. While smaller than the first and third wave of COVID-19 stimulus checks, the sizes of inflation relief checks are somewhat comparable in size to the second wave of COVID-19 stimulus checks. In short, the size of these inflation relief checks are generally comparable in size to previous stimulus checks.

Table 2 shows that most states, except California, had a fairly simple method of establishing eligibility for check size. Most states gave more money to households filing jointly and to families that had dependents or children. In general, the percentage of the population that was eligible in these states was fairly high. With the exception of a few states, the majority of states had more than a third of their population eligible for a check, and about half of the states had an eligibility rate of more than two-thirds.

Table 2: Inflation Relief Check Eligibility

State (1)	Eligibility Requirements & Size (2)	% Eligibile (3)
CA	• Married/Filing Jointly & CA AGI ≤ 150,000: $1,050 with dependent, $700 without dependent • Married/Filing Jointly & CA AGI > 150,000 & ≤ 250,000 : $750 with dependent, $500 without dependent • Married/Filing Jointly & CA AGI > 250,000 & ≤ 500,000 : $600 with dependent, $400 without dependent • Head of Household & CA AGI ≤ 150,000: $700 with dependent, $350 without dependent • Head of Household & CA AGI > 150,000 & ≤ 250,000 : $500 with dependent, $250 without dependent • Head of Household & CA AGI > 250,000 & ≤ 500,000 : $400 with dependent, $200 without dependent • Single & CA AGI ≤ 150,000: $700 with dependent, $350 without dependent • Single & CA AGI > 150,000 & ≤ 250,000 : $500 with dependent, $250 without dependent • Single & CA AGI > 250,000 & ≤ 500,000 : $400 with dependent, $200 without dependent	72.4%
CO	• $750 for individual filers; $1,500 for joint filers	72.3%
DE	• $300 no matter filing status	75.9%
GA	• Whichever is smaller: The size of tax liability or $250 for single filers, $375 if head of household, or $500 for joint filers	41.6%
ID	• Whichever is greater: %10 of tax liability or $300 for single filers or $600 for joint filers	69.5%
IL	• Joint & IL AGI ≤ 400,000: $100 and $100 per dependent up to 3 dependents • Single & IL AGI ≤ 200,000: $50 and $100 per dependent up to 3 dependents	70.3%
IN	• $200 for individual filers; $400 for joint filers	71.3%
MA	• 14.0312% of your income tax liability	37.7%
ME	• $850 regardless of filing stats if ME AGI < $100,000 if filing single, < 150,000 if filing head of household, < 200,000 if filing joint	72%
NJ	• 100% of tax liability up to $500 and must have at least one child and NJ AGI < 150,000 if filing joint, < 75,000 if filing single	12.7%
NM	• $1,000 if filing joint; $500 otherwise	73.8%
OR	• $600 only if you qualify for the earned income tax credit	7%
RI	• $250 per child up to 3 children if RI AGI < 200,000 if filing joint, < 100,000 if filing single	34.1 %
SC	• 100% of tax liability up to $800	26.7%
VA	• Whichever is smaller: The size of tax liability or $250 for single filers, $500 for joint filers	35.7%

Notes: This table reports eligibility requirements and subsequent inflation relief check sizes by state. Using Current Population Survey (CPS) data, I estimate what percent of the state population is eligible for a check of any size. While some states such as Maine offer an inflation relief check regardless of filing status, in reality, none of these states send out inflation relief checks to dependents, so no state has 100% eligibility.

2.2 Staggered Treatment Timing

Not every state announced the inflation relief check during the same month. In order to properly evaluate the effect of the announcement of an inflation relief check, I create a new variable, τ, which is a modified measure of time that counts the number of months before or after a state announces an inflation relief check. Specifically, $\tau_{s,t} \equiv t - \bar{T}_s$, where $\bar{T}_s$ equals the corresponding month in which state s announces their inflation relief check.

With my measures of τ, I construct a panel data set indexed by counties and τ containing my outcome variables from $\tau = -12$ to the value of τ that corresponds to November 2022, the latest data available. As Table 1 implies, each state will have a different maximum value for τ since states have different values for $\bar{T}_s$. One consequence of evaluating the effect of a recent event is the lack of data far into the post-treatment period. For example, the maximum value for τ is $\tau = 8$, meaning that I can only observe data eight months after the announcement of the inflation relief check. As τ increases, fewer states continue to be in the sample which means that statistical power for results looking at high values of τ is decreased.

2.3 Outcome Variables

In this paper, I examine four main outcome variables: the unemployment rate, the number of unemployed individuals, the number of employed individuals, and the number of individuals in the labor force. I normalize the number of unemployed, employed, and labor force individuals by the population of the county and create three new variables: unemployed per capita, employed per capita, and labor force per capita. I obtain labor supply data from the Bureau of Labor Statistics, in particular from Local Area Unemployment Statistics (LAUS) and I obtain county population values from the US Census Bureau. LAUS provides county-level data at a monthly frequency. As discussed above, essentially all the inflation relief checks were announced around the middle of 2022 with very small variance. Since the timing of these checks occurred just a few months ago, it is vital that I use high-frequency data at the monthly level. Data at the quarterly frequency would not allow me to have enough data in the post-treatment period to evaluate the effect of the check. For this reason, I cannot use the Quarterly Census of Employment and Wages (QCEW), which is impractical for my analysis, but would have provided useful information about wages that I can not obtain using LAUS.

One major drawback of the need for monthly-frequency data is that the breadth of labor supply data available to me is severely limited. In fact, to the best of my knowledge, LAUS provides the only relevant data at the monthly frequency and county level. As more data comes in, future improvements to this paper could be made by examining employment data at the quarterly frequency broken down by industry which will give more insight into potential heterogeneous treatment effects across industries. Using QCEW data in the future will allow for an analysis looking at any responses of wages to inflation relief checks.

One downside of using the county-level LAUS data is that the data is not seasonally adjusted. To capture the true causal treatment effects of the inflation relief checks, I use the seasonal package in R to apply the X-13ARIMA-SEATS method of adjusting for seasonality effects. To ensure that a proper seasonal adjustment is performed, for each county in the United States, from the LAUS database, I run the seasonal adjustment using data of the outcome variables described above from January 1990 to November 2022.

Table 2 provides summary statistics on the unemployment rate, unemployed per capita, employed per capita, and labor force per capita for both the treatment and control counties and their differences.

These summary statistics cover the time period from October 2020 to November 2022. Summary statistics are given in percent. I distinguish between a "Whole Sample" and a "Filtered Sample". Note how in the "Whole Sample", the maximum values taken by control counties for employed per capita and labor force per capita are extremely large and greater than 100. The source of this unusual statistic, which effectively says there are more people in the labor force and employed than the population, is a result of a small number of extremely low-population counties that are involved in the oil industry where many individuals work, yet do not live, in those counties. In response to this fact, I create a "Filtered Sample", where I remove observations that take on a value of employed per capita and labor force per capita smaller than the 1st percentile and larger than the 99th percentile. I remove these outliers in my analysis and use the "Filtered Sample" in the rest of this paper.

Figure 2: Summary Statistics

	Mean	St.Dev.	Min	Max	P1	P99
	(1)	(2)	(3)	(4)	(5)	(6)
Whole Sample						
Treatment County Unemployment Rate	3.89	1.62	1.06	18.67	1.61	9.31
Control County Unemployment Rate	4.01	1.39	1.00	10.91	1.51	8.47
Δ Treatment/Control County Unemployment Rate	-0.12	1.53	-4.38	9.42	-3.07	4.61
Treatment County Unemployed per Capita	1.79	0.64	0.51	7.31	0.86	3.83
Control County Unemployed per Capita	1.82	0.56	0.64	5.88	0.86	3.54
Δ Treatment/Control County Unemployed per Capita	-0.03	0.58	-1.87	2.79	-1.31	1.76
Treatment County Employed per Capita	45.58	7.65	19.95	81.00	27.29	65.41
Control County Employed per Capita	46.76	21.24	25.58	365.73	26.14	67.33
Δ Treatment/Control County Employed per Capita	-1.18	21.58	-315.73	43.64	-23.72	18.61
Treatment County Labor Force per Capita	47.36	7.61	20.87	84.25	29.70	67.54
Control County Labor Force per Capita	48.58	21.37	27.47	371.20	28.35	69.05
Δ Treatment/Control County Labor Force per Capita	-1.22	21.63	-319.58	45.11	-24.22	18.90
Observations	4567	4567	4567	4567	4567	4567
Filtered Sample						
Treatment County Unemployment Rate	3.87	1.62	1.06	18.67	1.61	9.18
Control County Unemployment Rate	4.01	1.39	1.00	10.91	1.51	8.49
Δ Treatment/Control County Unemployment Rate	-0.14	1.53	-4.38	9.42	-3.08	4.61
Treatment County Unemployed per Capita	1.78	0.63	0.51	7.31	0.86	3.70
Control County Unemployed per Capita	1.82	0.56	0.64	5.88	0.86	3.55
Δ Treatment/Control County Unemployed per Capita	-0.04	0.58	-1.87	2.79	-1.31	1.76
Treatment County Employed per Capita	45.57	6.92	26.54	70.63	29.18	63.53
Control County Employed per Capita	44.99	6.59	25.58	68.93	26.14	61.56
Δ Treatment/Control County Employed per Capita	0.58	6.41	-18.84	18.04	-14.11	15.57
Treatment County Labor Force per Capita	47.35	6.83	28.72	73.42	31.28	65.07
Control County Labor Force per Capita	46.81	6.53	27.47	70.56	28.35	62.64
Δ Treatment/Control County Labor Force per Capita	0.54	6.26	-18.34	18.96	-14.16	15.42
Observations	4415	4415	4415	4415	4415	4415

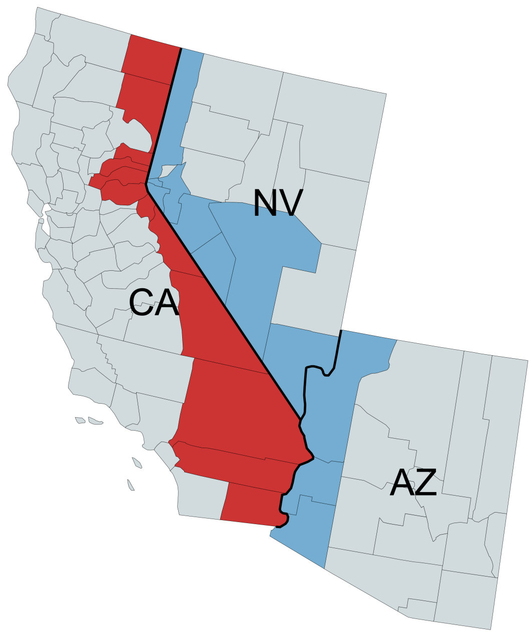
Notes: This table reports summary statistics for both the "Whole Sample" and "Filtered Sample" from $\tau = -12$ to $\bar{T}_s$. Column (1), (2), (3), (4), (5), (6) report Mean, Standard Deviation, Minimum, Maximum, 1st Percentile, and 99th Percentile, respectively. The filtered sample is the same as the whole sample except for removing observations that obtain values for employed per capita and labor force per capita less than the 1st percentile or greater than the 99th percentile.

2.4 Pairing Treatment and Control Counties

Throughout the fifteen states that sent out an inflation relief check in 2022, treatment counties are defined as counties that border a county in a different state that did not send out an inflation relief check.

To illustrate my identification approach, Figure 3 shows California, Nevada, and Arizona. Colored in red are all the counties in California that border a different state. Notice, however, from Table 1 that since Oregon also implemented an inflation relief check, I exclude the treatment counties that only border Oregon. Colored in blue are all counties in Nevada and Arizona that border treatment counties in California. Together, these red and blue counties form the treatment and control counties for California, respectively.

Figure 3: Treatment vs. Control Counties



Notes: Red signifies California treatment counties, while blue signifies California control counties. Map courtesy of mapchart.net.

In many cases, a treatment county may have more than one county that qualifies as a control county since many counties border more than just one county in the bordering state. To ensure that each treatment county has just one control county, I take the average of my outcome variables across all control counties that a treatment county borders. In particular, I use the equation:

$$Y_{i,t}^{Control} = \frac{1}{N}\sum_{j=1}^{N} Y_{j,t}^{Bordering}, \tag{1}$$

where N is the total number of counties that treatment county i shares a land border with in a state that did not send out an inflation relief check and where $Y_{j,t}^{Bordering}$ is the outcome variable for each county, j, that shares a land border with treatment county i. In other words, each treatment county can be matched to a control county through a one-to-many mapping.

3 Econometric Specification

3.1 Regression Equation

To estimate the effect of the announcement of an inflation relief check, I utilize a modified version of the traditional multiple time period Difference-in-Differences regression equation:

$$Y_{i,t}^{Treat} - Y_{i,t}^{Control} = \sum_{\tau=-12}^{-2} \beta_\tau * \mathbb{1}(t=\tau) + \sum_{\tau=0}^{\bar{\tau_s}} \beta_\tau * \mathbb{1}(t=\tau) + \lambda_i + \epsilon_{i,t}, \tag{2}$$

where $Y_{i,t}^{Treat} - Y_{i,t}^{Control}$ is the difference in the labor supply outcome variables between the treatment county and the control county, $\mathbb{1}(t=\tau)$ is an indicator function equal to 1 only when $t=\tau$, $\bar{\tau_s}$ is the maximum value of τ in the state that each county resides, and λ_i is a treatment county fixed effect. Keeping in line with the literature, I omit the coefficient for $\beta_{\tau=-1}$ to serve as the time period of comparison. Each coefficient β_τ describes the difference between the treatment and control group at each value of τ. Standard errors are clustered by the treatment county's state.

Regression (2) above identifies any treatment effect of announcing an inflation relief check, however, it's also important to understand if the size of an inflation relief check has important labor supply impacts. To estimate this effect, I utilize a similar modification of the traditional multiple time period Difference-in-Differences regression equation:

$$Y_{i,t}^{Treat} - Y_{i,t}^{Control} = \sum_{\tau=-12}^{-2} \beta_\tau * \mathbb{1}(t=\tau) + \sum_{\tau=0}^{\bar{\tau_s}} \beta_\tau * \mathbb{1}(t=\tau) * Check_s + \lambda_i + \epsilon_{i,t}, \tag{3}$$

where this regression equation is the same as regression (2) except that it includes the interaction term, $\mathbb{1}(t=\tau) * Check_s$, where $Check_s$ is the size of state s' inflation relief check normalized by state s' median household income. In this model, each β_τ coefficient in the post-treatment period represents the effect of an inflation relief check that is the same size as 1% of median household income on my four labor supply outcome variables. Standard errors are clustered by the treatment county's state[5].

Note that this model implies that the coefficients in the pre-treatment period (where $\tau \leq$

[5]In principle, it is desirable to also include calendar time (date) fixed effects. However, in my case, there is a high degree of correlation between τ and date fixed effects. In the rest of this paper, I only present the results for regression excluding date fixed effects. Tables in Appendix A include the results for when date fixed effects are included.

-2) and the coefficients in the post-treatment period (where $\tau \geq 0$) are not directly comparable since they have different units. Pre-treatment coefficients measure the average difference in the outcome variables between the treatment and control groups for each time period, τ. Post-treatment coefficients measure the average difference in the outcome variables between the treatment and control groups in response to an inflation relief check equal in size to 1% of a state's median household income for each time period, τ. Because of this difference in the interpretation of coefficients, in my results section below, I only display the results for coefficients in the post-treatment period. Full results can be seen in Table 4 of Appendix A).

Because this model takes into account the continuous size of the inflation relief check, I call regression (3) the continuous treatment model, whereas I call regression (2) the binary treatment model.

3.2 Threats to Identification

First, one threat to identification is that people are able to anticipate which states will send out an inflation relief check and, as a result, decide to move to those states. If this is the case, then my results may be less credible. Consider Figure 1 and, in particular, the speed with which inflation rose. This fast increase in the rate of inflation, coupled with the relative lack of inflation over the past forty years makes it seem unlikely people can anticipate which particular states would send out an inflation relief check.

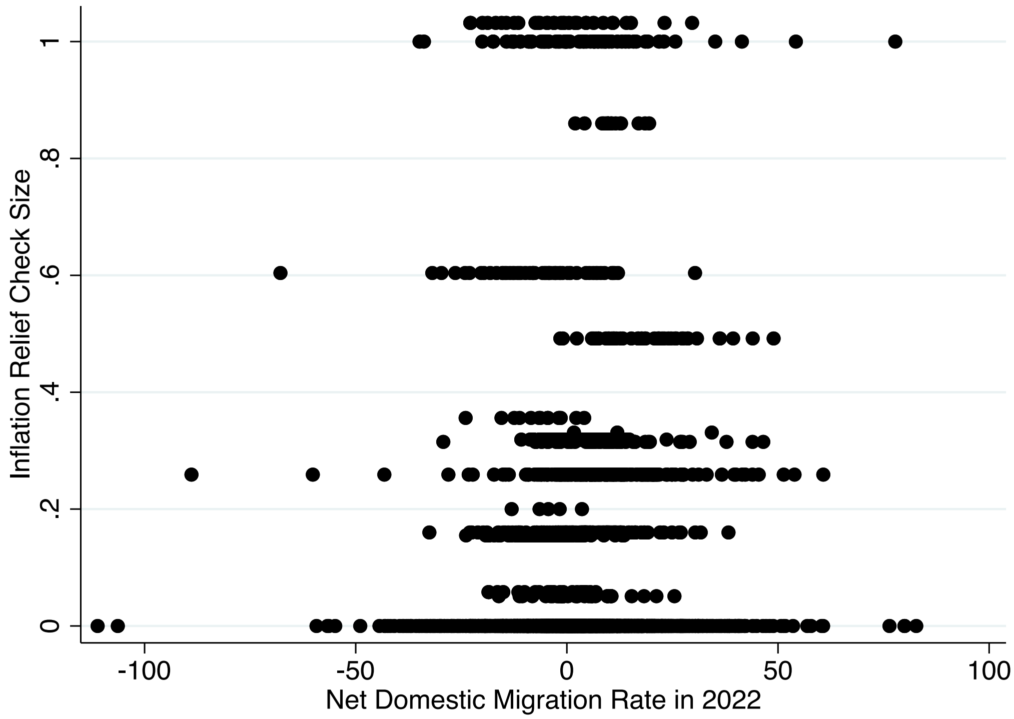
Using county-level migration data from the US Census Bureau[6], Figure 4 is a scatter plot of each county's inflation relief check size, normalized by each state's median household income, against each county's net domestic migration rate in 2022 measured as a rate per thousand people. Both by visual inspection and by calculation ($\rho = 0.0075$), there does not appear to be any correlation between each county's net domestic migration rate and the size of each state's inflation relief check. This result is consistent with the argument that domestic migration in the United States had no predictive power of the size of an inflation relief check.[7]

Second, a state's decision to send out an inflation relief check can be related to each state's

[6] https://www.census.gov/programs-surveys/popest.html

[7] In Appendix A, Table 1 quantifies this relation in two ways: 1) An OLS regression of check size on each county's net domestic migration rate. 2) A logit regression of a binary treatment status variable on each county's net domestic migration rate. Both results show that the net domestic migraton rate is not a statistically significant regressor.

Figure 4: Inflation Relief Checks and Domestic Migration



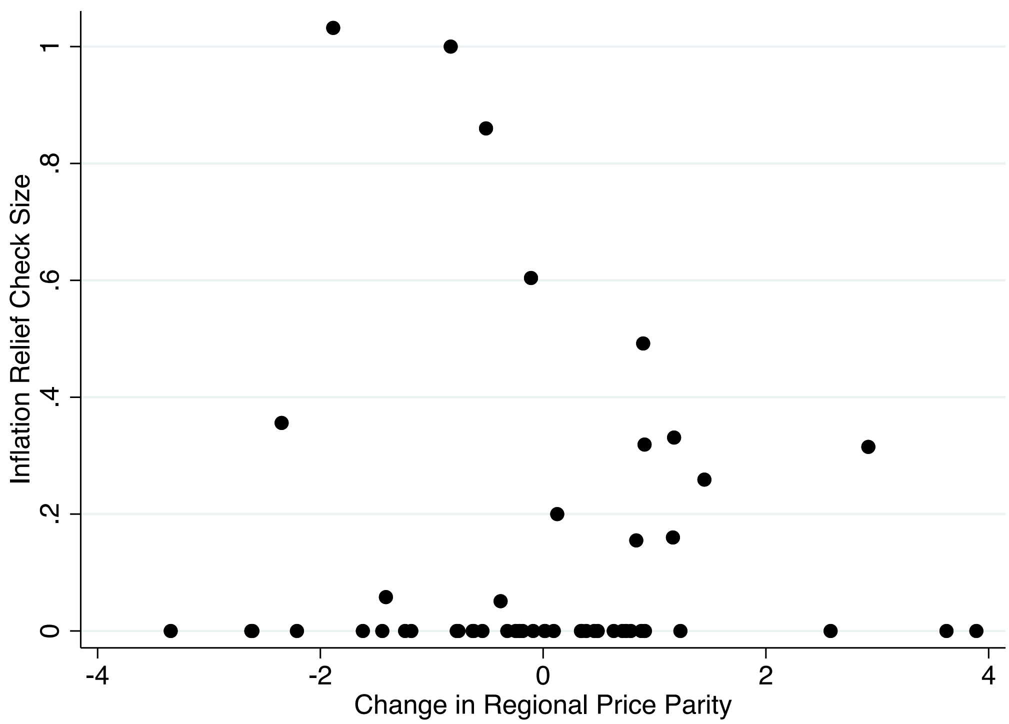
Notes: This figure is a scatter plot of each county in the United State's size of inflation relief check, normalized by each state's median household income, against each county's net domestic migration rate in 2022 measured as a rate per thousand people.

individual inflation rate. Perhaps it is the case that if a state has a high inflation rate, then they are more likely to send out an inflation relief check and that high inflation has short-run labor supply effects. Regional price parity[8] is a statistic created by the Bureau of Economic Analysis that measures differences in price levels across states given as a percent of the overall national price level. The one-year change in regional price parity gives a measure of how much higher a state's price level changed, relative to the rest of the United States. States with a higher one-year change in regional price parity experienced larger increases in their price level than the nation as a whole.

Figure 5 is a scatter plot of each state's inflation relief check size, normalized by each state's median household income, against each state's one-year change in regional price parity. Both by visual inspection and calculation ($\rho = -0.0743$) there does not appear to be any correlation between the one-year change in regional price parity and the size of a state's inflation relief check.

[8]https://www.bea.gov/data/prices-inflation/regional-price-parities-state-and-metro-area

Figure 5: Inflation Relief Checks and Regional Price Parity



Notes: This figure is a scatter plot of each state in the United State's size of inflation relief check, normalized by each state's median household income, against each state's change in regional price parity from 2020 to 2021 given as a percent.

This result is consistent with the argument that states with a higher inflation rate do not tend to send out larger inflation relief checks.[9]

4 Results

4.1 Binary Treatment

The binary treatment model, regression (2), estimates the impact of the announcement of an inflation relief check on four labor supply variables: unemployment rate, unemployed per capita, employed per capita, and labor force per capita. In this case, the term "per capita" means that I normalize each variable by the population of the county. Full regression results in table form can

[9]In Appendix A, Table 2 quantifies this relation in two ways: 1) An OLS regression of check size on each state's one-year change in regional price parity. 2) A logit regression of a binary treatment status variable on each state's one-year change in regional price parity. Both results show that the one-year change in regional price parity is not a statistically significant regressor.

be found in Appendix A Table 3. Figure 6 displays the coefficients for each time period, τ, across time for all four labor supply variables of interest excluding date fixed effects.

To extract a causal relationship between the announcement of an inflation relief check and any labor supply variable, I must establish that there is no trend in the pre-treatment period. Reassuringly, Figure 6 shows that the coefficients in the pre-treatment period are not statistically significantly different from zero, which is consistent with the assumption that there are no pre-treatment trends.

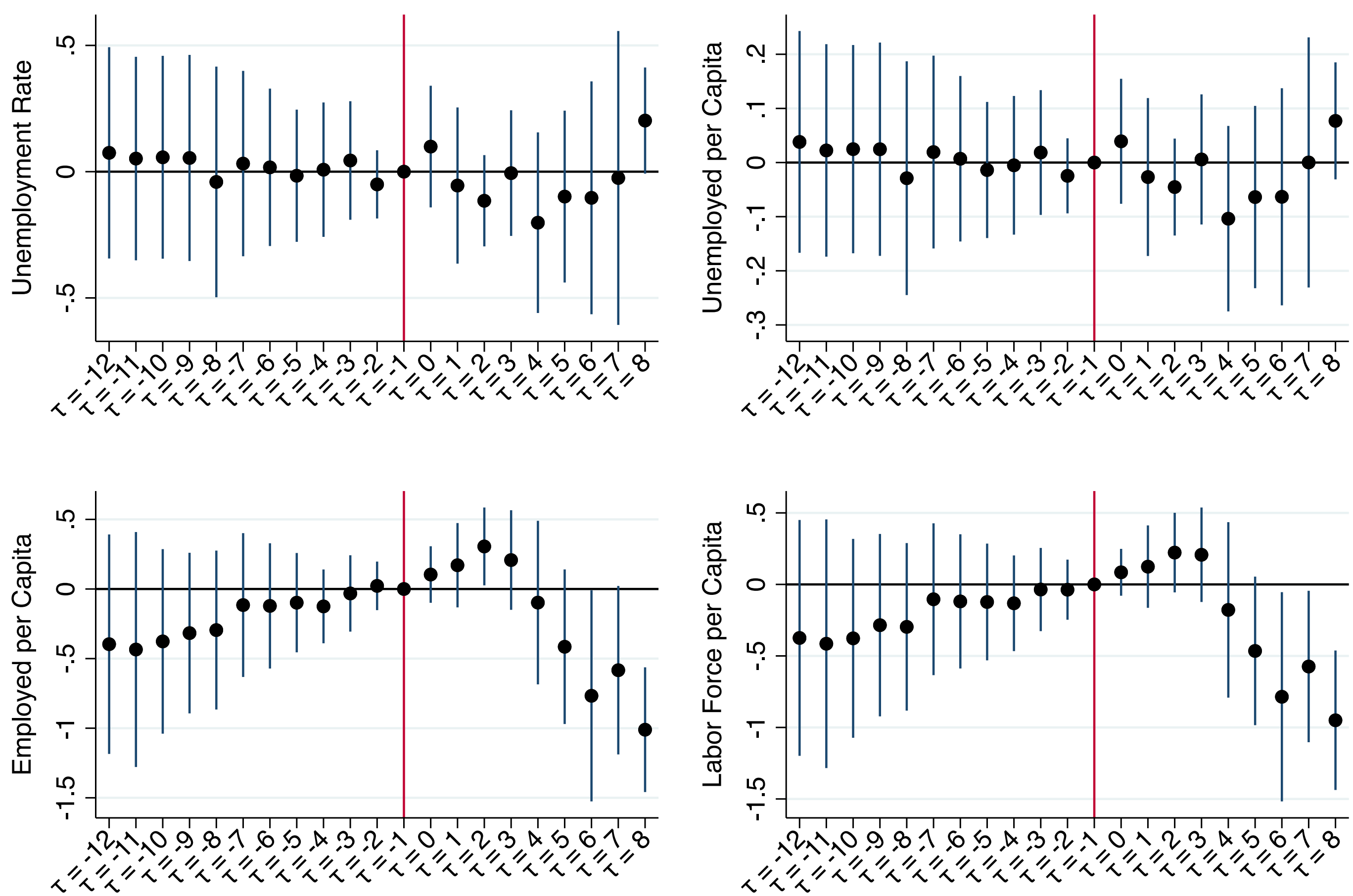
First, looking at the effect of the announcement of an inflation relief check on the unemployment rate, the results suggest that there is a small and imprecise effect in the negative direction, that is, announcing an inflation relief check decreases the unemployment rate by less than .25 percentage points. Similarly, the results for unemployed per capita show a decrease of less than .1 percentage points.

Turning towards the effect of the announcement of an inflation relief check on labor force per capita, I find a much larger and statistically significant effect. Approximately 6 months after the announcement of an inflation relief check, labor force per capita decreased by approximately .75 percentage points compared to the control group.

While the downward movement of the unemployment rate matches expectations, the large decrease in labor force per capita does not match previous expectations given by the literature. This large effect on labor force per capita suggests that implementing an inflation relief check is not as simple as is often thought. Instead, this result provides suggestive evidence that cash transfers could have large negative effects on the labor market and that there is a cost associated with decreasing the unemployment rate. The results also show that employed per capita moves in a similar direction and with similar magnitudes. While the results imply that implementing an inflation relief check causes a small drop in the unemployment rate, the effects on the number of employment per capita and labor force per capita may be harmful for output.

One downside of the binary treatment model is that it fails to estimate the effect of the intensive margin of inflation relief check size. Observe in Table 1 that there is considerable heterogeneity in the size of inflation relief checks. Next, turning to the continuous treatment model from regression (3) will help to understand how the intensive margin of inflation relief checks impacts labor supply.

Figure 6: Binary Treatment



Notes: This figure plots the coefficients from each time period, τ, in the post-treatment period using the Binary Treatment model from regression (2) on all four labor supply variables. Standard errors are clustered at the state level. Confidence intervals are at 95%. Date fixed effects are not included. Full results in table form can be found in Appendix Table 3.

4.2 Continuous Treatment

The continuous treatment model, regression (3), accounts for the size of the inflation relief check. As discussed above, note that in regression (3), the units in the pre and post-treatment periods are not comparable. Whereas in the pre-treatment period, the coefficients can be interpreted as the difference between the treatment and control group in time period τ, the coefficients in the post-treatment period are interpreted as the effect of an inflation relief check equal in size to 1% of state s' median household income in time period τ[10]. For this reason, in the following section, I will only display the coefficients for the post-treatment period. Full regression results in table form can be found in Appendix Table 4. Figure 7 displays the coefficients across each time period in the post-treatment period for all four labor supply variables of interest.

Figure 7 shows that in the post-treatment period, there is a large and statistically significant decrease in the unemployment rate after the announcement of an inflation relief check. Approximately 6 months after the announcement, the unemployment rate dropped by about 1 percentage point in response to a check equal to 1% of median household income.

From Table 1, calculate that the average check size, once normalized by median household income, across all states is .532%. Given the results from above, this suggests that on average across the United States, the announcement of an inflation relief check causes approximately a $.532 * 1\% = .53$ percentage point decrease in the unemployment rate. From Table 2, the summary statistics show that the average unemployment rate in the control counties in the sample was about 4%. A .53% decrease in the unemployment rate implies that the unemployment rate decreased by about 13%.

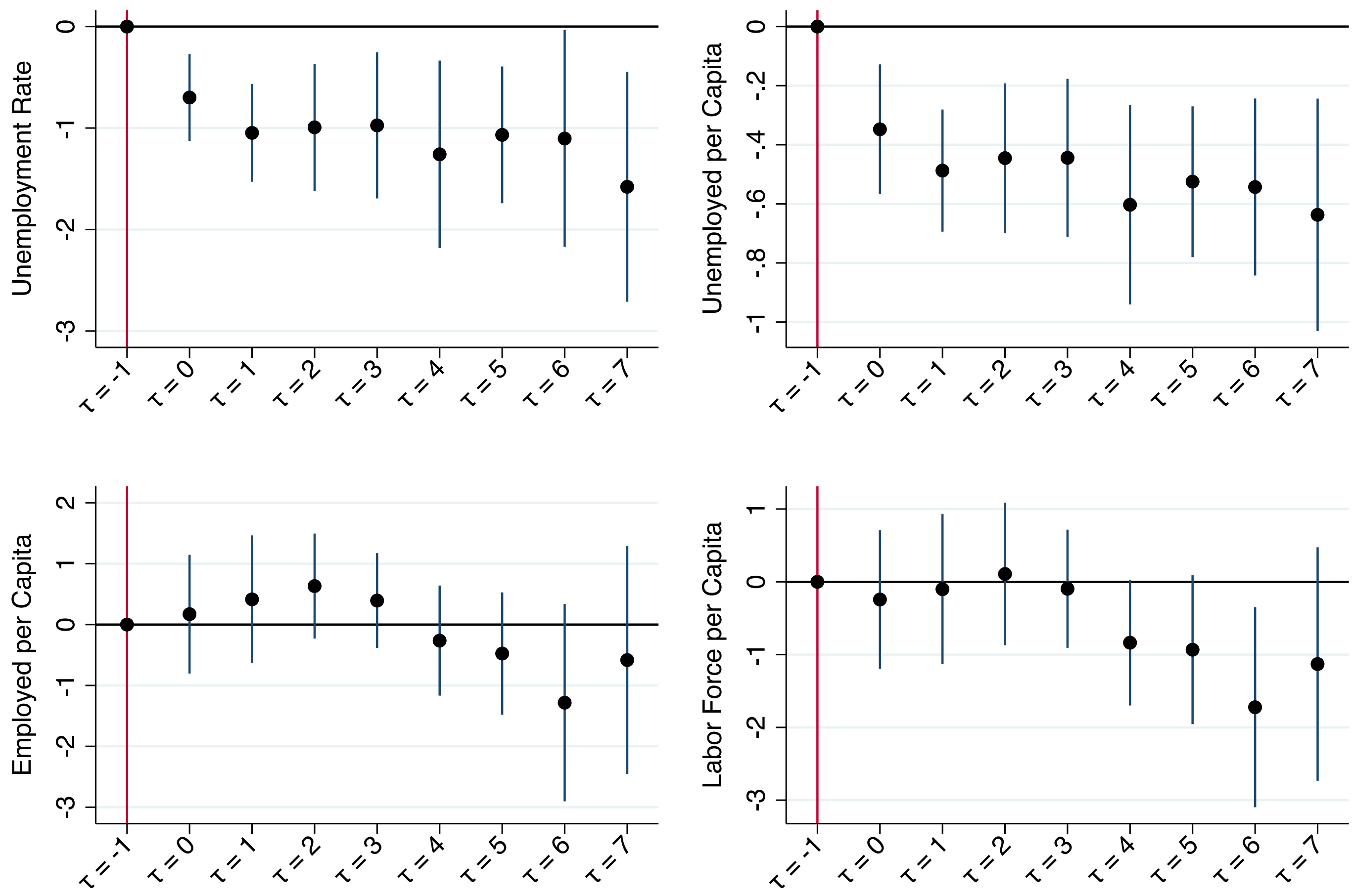
One benchmark of the effectiveness of fiscal policy is the amount of spending it takes to save one job. To create my cost per job saved measure, I use the following equation:

$$\frac{Cost}{Job} = \frac{1\% * HHinc * \%eligible * Pop}{\Delta \frac{U}{LF}^{Coef} * LF}. \tag{4}$$

First, I find the total cost of the inflation relief check program as $1\% * HHinc * \%eligible * Pop$ where $\%eligible * Pop$ represents the total number of people receiving a check and $1\% * HHinc$

[10]As a robustness check, I slightly modify regression (3) by, instead of defining $Check_s$ as the size of the inflation relief check normalized by state s' median household income, $Check_s$ is simply the size of the inflation relief check in thousands of dollars. Appendix Table 5 provides regression results in table form for this modification.

Figure 7: Continuous Treatment



Notes: This figure plots the coefficients from each time period, τ, in the post-treatment period using the Continuous Treatment model from regression (3) on all four labor supply variables. Standard errors are clustered at the state level. Confidence intervals are at 95%. Date fixed effects are not included. Full results in table form can be found in Appendix Table 4.

represents the cost of each check if you were to send a check equal in size to 1% of median household income. Next, I find the number of jobs saved as a result of that check equal to 1% of median household income. This desired estimate has the same interpretation as the β_τ estimate from regression 3. In particular, I use $\Delta \frac{U}{LF}^{Coef} = \beta_{\tau=6}$, which is estimated to be approximately 1%. I then multiply this coefficient by the size of the labor force to turn the effect on the unemployment rate into the effect on the number of unemployed individuals. Hence, equation (4) divides the total cost of the program by the number of jobs saved by the program and gives me an estimate of the total cost per job saved. I take averages across all states and use the following equation:

$$\frac{Cost}{Job} = \frac{1\% * \overline{HHinc} * \overline{\%eligible}}{\Delta \frac{U}{LF}^{Coef}} * \left(\frac{\overline{Pop}}{LF}\right), \tag{5}$$

where the equation is similar to before except that I take the average median household income, labor force to population ratio, and $\%$ eligible across states. Finally, plugging in for average median household income that can be calculated from Table 1, calculating the average percent eligible for a check across states using Table 2, using $\Delta \frac{U}{LF}^{Coef} = 1\%$, and using February 2022 state-level labor force estimates from the Bureau of Labor Statistics[11] and 2022 state-level population statistics from the US Census Bureau[12] to calculate the average population to labor force ratio, which I report in Table 3, I find that the average cost per job saved as a result of the 2022 Inflation Relief Checks was:

$$\frac{Cost}{Job} \approx \frac{1\% * 51.5\% * \$74,830}{1\%} * 2 \approx \$77,125.$$

While the goal of these inflation relief checks was not to create jobs, the effect of these checks was a decreased unemployment rate. This measure of cost per job saved has been used throughout the literature to judge the effectiveness of fiscal stimulus and its estimates have varied greatly.

Using state Medicaid aid given as a result of the 2009 American Recovery and Reinvestment Act (ARRA), Chodorow-Reich et al. (2012) find that an additional $100,000 in Medicaid

[11] https://www.bls.gov/news.release/laus.t01.htm

[12] https://www.census.gov/data/tables/time-series/demo/popest/2020s-state-total.html#v2022

Table 3: Population to Labor Force Ratio

State	Pop/LF Ratio
(1)	(2)
CA	2.02
CO	1.82
DE	2.05
GA	2.08
ID	2.02
IL	1.94
IN	2.00
ME	2.06
MA	1.87
NJ	1.93
NM	2.22
OR	1.94
RI	1.93
SC	2.22
VA	1.93

Notes: This table reports the population to labor force ratio for each treatment state. Population estimates come from the US Census Bureau's 2022 estimates and Labor Force estimates come from the February 2022 release from the Bureau of Labor Statistics.

spending resulted in creating 3.8 job-years and therefore had a cost per job per year of about $26,000. Using a "Census Shock", Suárez Serrato and Wingender (2016) exploit the variation in federal spending dollars to local governments and estimate a cost per job of about $30,000 per year. My estimate of cost per job saved is approximately twice as large as these estimates.

While the two previous papers explore cost per job by year, Feyrer and Sacerdote (2011) use state and local level variation in spending as a result of the American Recovery and Reinvestment Act (ARRA) and estimate a cost per job of about $170,000. This estimate which is in the units of cost per job, not cost per job per year, more than twice my estimate of $77,125. Also similar, Wilson (2012), once again looking at the ARRA, estimate a cost per job at about $125,000.

This puts my estimate of the cost per job saved of $77,125 in the middle of the range in the literature. As Table 1 showed, the labor market was extremely tight in the summer of 2022. Compared to the estimate of the cost per job saved of $26,000 given by Chodorow-Reich et al. (2012), the tight labor market conditions in 2022 compared to the weak labor market in 2008 makes it harder for government cash transfers to be as effective since it is harder to find workers available and searching for employment.

These positive benefits of decreasing the unemployment rate, however, may be outweighed by the effects on labor supply per capita. Figure 7 also shows that there are strong negative effects on labor force per capita that, while borderline statistically significant, become more significant over time. The results suggest that approximately 6 months after the announcement of an inflation relief check, labor force per capita decreases by approximately 2% for a check equal to 1% of median household income. Another back-of-the-envelope calculation shows that on average across the United States, the announcement of an inflation relief check causes approximately a $.532*2\% = 1.06\%$ decrease in labor force per capita.

Figure 7 also shows a statistically significant decrease in unemployed per capita and a strongly suggestive, yet imprecise, decrease in employed per capita that is large in magnitude. Unemployed per capita drops by about .5% 6 months later and employed per capita decreases by about 1% 6 months later.

Considering that the unemployment rate is the composition of unemployed within the labor force, and considering that my results show a decrease in the unemployment rate, this implies that unemployed individuals drop out of the labor force more than employed individuals when given an inflation relief check. That is, workers who did not have a job but were searching for a new job decided to no longer search for a job. When confronted with a history of frequent government cash transfers during the COVID-19 recession, workers may find less of an imperative to search for work.

These results suggest that there is a cost associated with implementing an inflation relief check; that is, my results suggest that lowering the unemployment rate comes at the cost of also decreasing the labor force. The increasing frequency with which governments see cash transfers as a one-size-fits-all solution to any economic headwinds may not be as clear-cut as that. While there may be some economic benefits for those who stay within the labor force, the checks may cause individuals to drop out of the labor force altogether. Because of this cost, it is important for policy-makers to fully understand all possible upsides and downsides of implementing a government cash transfer. Shackleton (2018) describes the important inputs into the model that the Congressional Budget Office (CBO) uses to forecast output. Critically, labor force participation is an important measure that is used to determine output in the future. If the decrease in labor force per capita that I find in my results is not a temporary effect, then a permanent drop in labor force participation could have strong negative effects on output in the future.

While the result of a decrease in the unemployment rate matches expectations with previous literature, the large decrease in labor force participation runs counter to much of the literature regarding government cash transfers. One potential explanation for why there may be negative labor force participation effects when handing out an inflation relief check is due to the COVID-19 Recession's unique increase in the personal saving rate. As people were locked down, individuals were not able to spend as much and instead saved much of their income. As lockdowns ended and people started to search for work, an additional cash transfer from the government, in the form of an inflation relief check, could especially convince those on the margin, who already had a large amount of cash saved as a result of the COVID-19 recession, to not desire to be employed. As seen in my results, this effect is especially true for those who were seeking a job, but as a result of receiving the check no longer desired a job and dropped out of the labor force. While this is a plausible argument, this is merely speculation as I don't have empirical evidence to suggest such an effect.

This result is closely related to the literature surrounding the role of wealth effects on labor supply. Cesarini et al. (2017) look at the effect of winning the Swedish lottery on the winner's labor supply. In their sample, 82% of the lottery winners won a prize of between 1,000 and 10,000 Swedish Krona (approximately 100 to 1,000 US Dollars). This size of lottery winnings is similar in range to the size of the inflation relief checks. The authors find that in response to a 1 million Swedish Krona (100,000 US Dollars) lottery win, labor force participation drops by about 2 percentage points. However, they find much stronger effects on the intensive margin. A few years after winning a 1 million Swedish Krona lottery, the authors find that workers work 1.5 hours per week less on average. Their results compared to my results suggest that the inflation relief checks of 2022 had a much stronger impact on labor supply in the extensive margin than Swedish lottery winners. Nevertheless, the author's results provide evidence that cash winnings do have an effect on labor supply in both the intensive and extensive margin.

In another study of the effect of lottery winnings, Kent and Martínez-Marquina (2021) look at the national lottery in Spain, where the lottery is set up in such a way that instead of an individual winning the lottery, a particular town wins the lottery. The authors find that after winning the lottery, towns' employment drops by 6% the next year. While uniquely different than an inflation relief check sent out to individuals, this paper provides more evidence that wealth transfers can have negative labor supply effects. In a third study of lottery winners, Imbens et al. (2001) find in their sample of about 500 lottery winners that lottery winners have a marginal propensity to earn (MPE) of about -.1, which, again, suggests that wealth transfers have the ability to reduce labor supply.

Using a survival-analysis style approach, Algan et al. (2003) find that individuals with a higher level of wealth stay in unemployment for a longer period of time. Looking at the hazard-rate of leaving unemployment, the authors find, once again, that increased wealth leads to a lower hazard rate. In particular, they find that being eligible for unemployment insurance decreases the hazard rate of leaving unemployment by 26.9%.

Nevertheless, the inflation relief checks of 2022 served as a way to give individuals more wealth. The previous literature above suggests that increasing an individual's wealth whether through lotteries, government transfers, or unemployment insurance has the potential to decrease labor supply in a variety of ways whether through the intensive margin or extensive margin. My results suggest that a similar effect is occurring as a result of the 2022 inflation relief checks. Individuals, after receiving wealth transfers, particularly coming out of time period where the savings rate was extremely high, made the decision to leave the labor force. While those who remain in the labor force may be slightly better off, since my results show unemployment dropped, a lower labor force participation rate could be bad for economic output.

5 Conclusion

Government cash transfers have increasingly been used as a way to help consumers face economic headwinds. In 2022, many states around the United States sent out inflation relief checks in order to help consumers afford the rising cost of living due to the highest inflation since the Great Inflation. Using the announcement of an inflation relief check as a random experiment, I compare labor supply outcomes between counties in treatment states that directly border a control state.

My analysis finds that the implementation of an inflation relief check has strong and statistically significant effects on labor supply including a drop in the unemployment rate of, on average, .53 percentage points. Contrary to most of the literature surrounding government cash transfers, I also find a drop in labor force per capita of about 1.06 percentage points. Taken together, these results suggest a cost associated with decreasing the unemployment rate, that is labor force participation may decrease.

These results have practical implications for fiscal policy. First, given my results, along with the increasing frequency with which governments have sent out cash transfers, particularly after and during the COVID-19 Recession, if permanent, the drop in labor force participation, could negatively impact output. Policymakers must be aware of all the possible negative, and positive, effects of sending out a cash transfer. In other words, the increasingly popular use of government cash transfers as a one-size-fits-all solution to economic headwinds may not be as cut and clear as once thought.

To explain why there are such negative labor force participation effects, I propose that the extremely high savings rate in the United States during the COVID-19 Recession decreased the incentive for individuals, at the margin, to enter the labor force, particularly and especially when given an inflation relief check.

Furthermore, my results are closely tied to the literature surrounding the negative labor supply effects of wealth transfers. Previous literature has shown that higher wealth leads to a longer period of unemployment and a longer time to re-entry into employment. Winning the lottery has negative effects on both the intensive and extensive labor supply margins. The inflation relief checks of 2022 served as a wealth transfer at a time when the savings rate was at an all-time high. My results agree with previous literature that wealth transfers can have negative consequences on labor supply.

The fact that the inflation relief checks have negative impacts on labor supply suggests that these checks are targeting the wrong individuals. Assuming the goal of inflation relief checks is to help those who are being particularly hurt as a result of high inflation, then we should not want to see any individual drop out of the labor force as a result of receiving a check. Much like the COVID-19 stimulus checks, the 2022 inflation relief checks were not too selective with who they were sent. Any individual who met the income requirements, which were not too restrictive, would receive a check. Once again, if the result of an inflation relief check is that there are individuals dropping out of the labor force, then the check is not targeted enough.

Future government cash transfers could try tying inflation relief checks to continued employment would encourage individuals who otherwise would have dropped out of the labor force to stay in the labor force. Tying government cash transfers, not to cash, but to other aid such as food stamps, rent vouchers, or gasoline subsidies may encourage more people to stay in the labor force.

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Appendix A Extra Results

Table 1: Domestic Migration

	Check Size	Treatment Status
	(1) OLS	(2) Logit
Net Domestic Migration Rate	0.000109	0.00141
	(0.000265)	(0.00278)
Constant	0.0953***	-1.037***
	(0.00396)	(0.0417)
Observations	3144	3144

Notes: This table shows the results of two regressions: 1) OLS regression of check size, measured as a percent of each state's median household income, on each county's net domestic migration rate. 2) Logit regression of the binary treatment status of a county on each county's net domestic migration rate. Standard errors are reported in parenthesis. * $p < 0.05$, ** $p < .01$, *** $p < .001$.

Table 2: Regional Price Parity

	Check Size	Treatment Status
	(1) OLS	(2) Logit
Change in Regional Price Parity	-0.0129	0.0950
	(0.0247)	(0.210)
Constant	0.121**	-0.878**
	(0.0360)	(0.308)
Observations	51	51

Notes: This table shows the results of two regressions: 1) OLS regression of check size, measured as a percent of each state's median household income, on each state's change in Regional Price Parity. 2) Logit regression of the binary treatment status of a state on each state's Regional Price Parity. Standard errors are reported in parenthesis. * $p < 0.05$, ** $p < .01$, *** $p < .001$.

Table 3: Binary Treatment

	Unemployment Rate		Unemployed per Capita		Employed per Capita		Labor Force per Capita	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
τ = -12	0.0745	0.397	0.0381	0.147	-0.396	-2.605*	-0.374	-2.498*
	(0.195)	(0.599)	(0.0955)	(0.281)	(0.368)	(1.008)	(0.384)	(1.043)
τ = -11	0.0519	0.289	0.0224	0.106	-0.435	-2.230*	-0.415	-2.147*
	(0.188)	(0.510)	(0.0915)	(0.241)	(0.394)	(0.932)	(0.405)	(0.978)
τ = -10	0.0569	0.278	0.0248	0.106	-0.377	-1.889*	-0.377	-1.811*
	(0.187)	(0.477)	(0.0897)	(0.227)	(0.309)	(0.790)	(0.324)	(0.833)
τ = -9	0.0543	0.238	0.0246	0.0949	-0.317	-1.586*	-0.285	-1.492
	(0.190)	(0.409)	(0.0919)	(0.200)	(0.269)	(0.662)	(0.297)	(0.704)
τ = -8	-0.0407	0.146	-0.0289	0.0494	-0.295	-1.349*	-0.297	-1.283*
	(0.213)	(0.376)	(0.101)	(0.183)	(0.266)	(0.527)	(0.273)	(0.565)
τ = -7	0.0320	0.187	0.0194	0.0920	-0.115	-0.915	-0.104	-0.834
	(0.171)	(0.281)	(0.0831)	(0.140)	(0.241)	(0.451)	(0.248)	(0.478)
τ = -6	0.0171	0.142	0.00702	0.0678	-0.121	-0.729*	-0.119	-0.669
	(0.145)	(0.204)	(0.0713)	(0.104)	(0.210)	(0.339)	(0.219)	(0.353)
τ = -5	-0.0163	0.0912	-0.0138	0.0390	-0.0982	-0.553	-0.123	-0.527
	(0.122)	(0.164)	(0.0586)	(0.0850)	(0.166)	(0.268)	(0.190)	(0.298)
τ = -4	0.00782	0.0859	-0.00507	0.0353	-0.125	-0.397*	-0.132	-0.370
	(0.124)	(0.134)	(0.0597)	(0.0673)	(0.124)	(0.182)	(0.156)	(0.208)
τ = -3	0.0442	0.107	0.0185	0.0545	-0.0320	-0.171	-0.0357	-0.149
	(0.109)	(0.119)	(0.0537)	(0.0606)	(0.128)	(0.137)	(0.136)	(0.152)
τ = -2	-0.0503	0.0159	-0.0245	0.0107	0.0226	-0.0267	-0.0370	-0.0560
	(0.0630)	(0.0736)	(0.0324)	(0.0380)	(0.0813)	(0.110)	(0.0980)	(0.118)
τ = 0	0.0993	0.103	0.0393	0.0408	0.104	0.191	0.0847	0.177*
	(0.112)	(0.107)	(0.0539)	(0.0511)	(0.0947)	(0.0897)	(0.0764)	(0.0665)
τ = 1	-0.0550	-0.0782	-0.0268	-0.0375	0.171	0.323*	0.124	0.263*
	(0.144)	(0.137)	(0.0680)	(0.0630)	(0.141)	(0.111)	(0.134)	(0.102)
τ = 2	-0.115	-0.142	-0.0453	-0.0561	0.306*	0.522***	0.223	0.427***
	(0.0842)	(0.0974)	(0.0417)	(0.0493)	(0.130)	(0.0858)	(0.130)	(0.0774)
τ = 3	-0.00585	-0.0496	0.00577	-0.0122	0.208	0.529***	0.207	0.517***
	(0.116)	(0.114)	(0.0561)	(0.0604)	(0.167)	(0.102)	(0.154)	(0.109)
τ = 4	-0.202	-0.294	-0.104	-0.147	-0.0976	0.314	-0.178	0.203
	(0.167)	(0.163)	(0.0799)	(0.0768)	(0.274)	(0.216)	(0.286)	(0.235)
τ = 5	-0.0987	-0.219	-0.0638	-0.116	-0.415	0.124	-0.465	0.0369
	(0.159)	(0.147)	(0.0785)	(0.0764)	(0.259)	(0.186)	(0.242)	(0.182)
τ = 6	-0.104	-0.250	-0.0633	-0.124	-0.767*	-0.119	-0.786*	-0.189
	(0.215)	(0.193)	(0.0935)	(0.0800)	(0.354)	(0.359)	(0.341)	(0.373)
τ = 7	-0.0250	-0.195	0.000211	-0.0686	-0.583	0.203	-0.574*	0.153
	(0.271)	(0.244)	(0.108)	(0.0947)	(0.282)	(0.188)	(0.247)	(0.167)
τ = 8	0.202	-	0.0770	-	-1.011***	-	-0.950***	-
	(0.0980)	-	(0.0504)	-	(0.209)	-	(0.227)	-
County Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date Fixed Effect	No	Yes	No	Yes	No	Yes	No	Yes
Observations	4415	4415	4415	4415	4415	4415	4415	4415

Notes: This table shows the result of the Binary Treatment model from regression (2) on four labor supply variables: unemployment rate, unemployed per capita, employed per capita, and labor force per capita. County fixed effects are always included. Both regression results including and excluding date fixed effects are shown. * p < 0.05, ** p < .01, *** p < .001.

Table 4: Continuous Treatment

	Unemployment Rate		Unemployed per Capita		Employed per Capita		Labor Force per Capita	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
τ = -12	-0.191	0.583	-0.0848	0.224	-0.379	-2.506*	-0.472	-2.244
	(0.178)	(0.461)	(0.0890)	(0.213)	(0.458)	(1.147)	(0.464)	(1.123)
τ = -11	-0.214	0.471	-0.101	0.182	-0.418	-2.153	-0.512	-1.921
	(0.190)	(0.398)	(0.0958)	(0.181)	(0.482)	(1.070)	(0.488)	(1.057)
τ = -10	-0.209	0.437	-0.0982	0.172	-0.359	-1.830	-0.474	-1.619
	(0.175)	(0.353)	(0.0864)	(0.166)	(0.401)	(0.899)	(0.404)	(0.891)
τ = -9	-0.211	0.363	-0.0983	0.145	-0.300	-1.549	-0.382	-1.343
	(0.173)	(0.317)	(0.0851)	(0.151)	(0.364)	(0.754)	(0.377)	(0.750)
τ = -8	-0.306	0.236	-0.152	0.0844	-0.278	-1.333	-0.394	-1.176
	(0.187)	(0.314)	(0.0892)	(0.148)	(0.366)	(0.632)	(0.358)	(0.625)
τ = -7	-0.233	0.246	-0.103	0.113	-0.0980	-0.916	-0.200	-0.765
	(0.172)	(0.252)	(0.0829)	(0.119)	(0.337)	(0.531)	(0.325)	(0.511)
τ = -6	-0.248	0.179	-0.116	0.0795	-0.104	-0.744	-0.215	-0.628
	(0.167)	(0.194)	(0.0830)	(0.0903)	(0.310)	(0.411)	(0.311)	(0.386)
τ = -5	-0.281	0.0919	-0.136	0.0347	-0.0805	-0.595	-0.219	-0.532
	(0.144)	(0.153)	(0.0704)	(0.0707)	(0.275)	(0.336)	(0.279)	(0.328)
τ = -4	-0.256	0.0505	-0.127	0.0143	-0.107	-0.468	-0.228	-0.427
	(0.155)	(0.179)	(0.0775)	(0.0829)	(0.231)	(0.240)	(0.241)	(0.228)
τ = -3	-0.221	0.0314	-0.104	0.0148	-0.0145	-0.271	-0.133	-0.260
	(0.136)	(0.153)	(0.0662)	(0.0730)	(0.235)	(0.224)	(0.226)	(0.199)
τ = -2	-0.315**	-0.0963	-0.147**	-0.0450	0.0404	-0.148	-0.133	-0.212
	(0.0994)	(0.0974)	(0.0473)	(0.0477)	(0.179)	(0.185)	(0.186)	(0.179)
τ = 0	-0.694**	-0.554*	-0.345**	-0.282*	0.171	0.0554	-0.240	-0.288
	(0.201)	(0.224)	(0.103)	(0.113)	(0.452)	(0.481)	(0.441)	(0.442)
τ = 1	-1.042***	-0.970**	-0.484***	-0.453***	0.415	0.330	-0.0971	-0.165
	(0.225)	(0.247)	(0.0971)	(0.109)	(0.487)	(0.482)	(0.478)	(0.480)
τ = 2	-0.986**	-1.009**	-0.442**	-0.455**	0.631	0.564	0.110	0.0158
	(0.292)	(0.295)	(0.118)	(0.117)	(0.400)	(0.380)	(0.454)	(0.430)
τ = 3	-0.967*	-1.106**	-0.440**	-0.506**	0.392	0.461	-0.0945	-0.0997
	(0.336)	(0.351)	(0.126)	(0.128)	(0.361)	(0.348)	(0.376)	(0.384)
τ = 4	-1.255*	-1.442**	-0.601**	-0.688**	-0.267	-0.0935	-0.838	-0.761
	(0.430)	(0.471)	(0.157)	(0.173)	(0.420)	(0.464)	(0.401)	(0.430)
τ = 5	-1.063**	-1.350**	-0.522***	-0.652***	-0.479	-0.235	-0.934	-0.834
	(0.314)	(0.397)	(0.119)	(0.146)	(0.468)	(0.524)	(0.476)	(0.513)
τ = 6	-1.100*	-1.467*	-0.541**	-0.704***	-1.284	-0.942	-1.722*	-1.562
	(0.497)	(0.546)	(0.140)	(0.148)	(0.755)	(0.890)	(0.640)	(0.763)
τ = 7	-1.575**	-2.165***	-0.635**	-0.892***	-0.584	0.0560	-1.128	-0.772
	(0.529)	(0.491)	(0.184)	(0.154)	(0.872)	(0.879)	(0.747)	(0.792)
τ = 8	0.0143	-1.715*	-0.125	-0.860**	-4.342***	-2.144	-4.550***	-3.143*
	(0.397)	(0.644)	(0.196)	(0.254)	(0.931)	(1.401)	(0.904)	(1.269)
County Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date Fixed Effect	No	Yes	No	Yes	No	Yes	No	Yes
Observations	4415	4415	4415	4415	4415	4415	4415	4415

Notes: This table shows the result of the Continuous Treatment model from regression (3) on four labor supply variables: unemployment rate, unemployed per capita, employed per capita, and labor force per capita. County fixed effects are always included. Both regression results including and excluding date fixed effects are shown. Check size is normalized by each state's median household income. * $p < 0.05$, ** $p < .01$, *** $p < .001$.

Table 5: Continuous Treatment - Check Not-Normalized

	Unemployment Rate		Unemployed per Capita		Employed per Capita		Labor Force per Capita	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
τ = -12	-0.167	0.411	-0.0793	0.161	-0.354	-2.324	-0.440	-2.136
	(0.181)	(0.442)	(0.0902)	(0.206)	(0.459)	(1.130)	(0.466)	(1.119)
τ = -11	-0.190	0.314	-0.0951	0.125	-0.392	-1.984	-0.481	-1.820
	(0.193)	(0.380)	(0.0967)	(0.176)	(0.482)	(1.057)	(0.488)	(1.057)
τ = -10	-0.185	0.296	-0.0927	0.121	-0.334	-1.675	-0.443	-1.524
	(0.174)	(0.353)	(0.0862)	(0.166)	(0.401)	(0.884)	(0.406)	(0.886)
τ = -9	-0.187	0.238	-0.0928	0.100	-0.274	-1.407	-0.351	-1.254
	(0.173)	(0.310)	(0.0850)	(0.150)	(0.365)	(0.740)	(0.380)	(0.745)
τ = -8	-0.282	0.127	-0.146	0.0445	-0.252	-1.204	-0.363	-1.094
	(0.188)	(0.304)	(0.0890)	(0.146)	(0.368)	(0.618)	(0.362)	(0.619)
τ = -7	-0.209	0.152	-0.0977	0.0787	-0.0725	-0.801	-0.169	-0.690
	(0.170)	(0.238)	(0.0820)	(0.115)	(0.338)	(0.512)	(0.331)	(0.498)
τ = -6	-0.224	0.100	-0.110	0.0508	-0.0784	-0.645	-0.184	-0.563
	(0.167)	(0.175)	(0.0822)	(0.0852)	(0.311)	(0.398)	(0.316)	(0.378)
τ = -5	-0.256	0.0295	-0.130	0.0119	-0.0548	-0.507	-0.187	-0.472
	(0.144)	(0.136)	(0.0699)	(0.0658)	(0.277)	(0.322)	(0.287)	(0.318)
τ = -4	-0.232	0.00464	-0.122	-0.00257	-0.0815	-0.390	-0.197	-0.370
	(0.152)	(0.163)	(0.0756)	(0.0773)	(0.235)	(0.232)	(0.250)	(0.222)
τ = -3	-0.196	-0.00121	-0.0985	0.00196	0.0110	-0.204	-0.101	-0.209
	(0.131)	(0.145)	(0.0642)	(0.0697)	(0.237)	(0.217)	(0.234)	(0.193)
τ = -2	-0.290**	-0.114	-0.141**	-0.0528	0.0661	-0.0930	-0.102	-0.167
	(0.0953)	(0.0928)	(0.0464)	(0.0455)	(0.182)	(0.177)	(0.194)	(0.173)
τ = 0	-0.932**	-0.776*	-0.478**	-0.404*	0.450	0.281	-0.125	-0.220
	(0.298)	(0.291)	(0.141)	(0.142)	(0.546)	(0.589)	(0.581)	(0.583)
τ = 1	-1.335**	-1.239**	-0.641**	-0.601**	0.799	0.629	0.111	-0.0390
	(0.379)	(0.391)	(0.157)	(0.168)	(0.579)	(0.605)	(0.616)	(0.656)
τ = 2	-1.243*	-1.269*	-0.578*	-0.601**	1.027	0.834	0.346	0.115
	(0.477)	(0.499)	(0.197)	(0.202)	(0.491)	(0.483)	(0.600)	(0.608)
τ = 3	-1.192*	-1.345*	-0.570*	-0.653**	0.664	0.644	0.0397	-0.0685
	(0.496)	(0.555)	(0.194)	(0.216)	(0.451)	(0.435)	(0.504)	(0.550)
τ = 4	-1.566*	-1.755*	-0.788*	-0.886*	-0.332	-0.203	-1.067*	-1.048*
	(0.720)	(0.798)	(0.281)	(0.316)	(0.477)	(0.467)	(0.476)	(0.454)
τ = 5	-1.333*	-1.644*	-0.688**	-0.843**	-0.601	-0.426	-1.189	-1.185
	(0.523)	(0.692)	(0.210)	(0.276)	(0.523)	(0.515)	(0.583)	(0.558)
τ = 6	-1.266	-1.696	-0.674*	-0.880**	-1.885*	-1.601	-2.415***	-2.356**
	(0.704)	(0.855)	(0.232)	(0.288)	(0.678)	(0.809)	(0.548)	(0.624)
τ = 7	-2.326*	-3.266**	-0.950*	-1.392**	-1.137	-0.301	-1.935	-1.570
	(1.048)	(1.095)	(0.380)	(0.376)	(1.418)	(1.375)	(1.155)	(1.160)
τ = 8	0.249	-2.284	-0.121	-1.273*	-6.949***	-4.181	-7.197***	-5.626*
	(0.647)	(1.201)	(0.325)	(0.510)	(1.520)	(2.043)	(1.478)	(1.923)
County Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Date Fixed Effect	No	Yes	No	Yes	No	Yes	No	Yes
Observations	4415	4415	4415	4415	4415	4415	4415	4415

Notes: This table shows the result of the Continuous Treatment model from regression (3) except that $Check_s$ is given by the size of state s' inflation relief check in thousands of dollars on four labor supply variables: unemployment rate, unemployed per capita, employed per capita, and labor force per capita. County fixed effects are always included. Both regression results including and excluding date fixed effects are shown. * p < 0.05, ** p < .01, *** p < .001.