

Impacts of COVID-19 Lockdowns and Stimulus Payments on Low-income Population's Spending in the United States

Kangli Li¹, Natasha Zhang Foutz^{2*}, Yuxin Cai³, Yunlei Liang³, Song Gao^{3*}

November 14, 2020

1. Department of Agricultural and Applied Economics, University of Wisconsin-Madison, WI, USA; 2. School of Commerce, University of Virginia, VA, USA; 3. Geospatial Data Science Lab, Department of Geography, University of Wisconsin-Madison, WI, USA.

*Corresponding authors: Natasha Zhang Foutz (nfoutz@virginia.edu) and Song Gao (song.gao@wisc.edu)

Abstract

The COVID-19 pandemic has profoundly impacted the economy and human lives worldwide, particularly the vulnerable low-income population. We employ a large panel data of 5.6 million daily transactions from 2.6 million debit cards owned by the low-income population in the U.S. to quantify the joint impacts of the state lockdowns and stimulus payments on this population's spending along the inter-temporal, geo-spatial, and cross-category dimensions. Leveraging difference-in-differences and spatial association analyses at the per card and zip code levels, we uncover three key findings. (1) Inter-temporally, the state lockdowns diminished the daily average spending relative to the same period in 2019 by \$3.9 per card and \$2,214 per zip code, whereas the stimulus payments elevated the daily average spending by \$15.7 per card and \$3,307 per zip code. (2) Spatial heterogeneity prevailed: Democratic zip codes displayed much more volatile dynamics, with an initial decline three times that of Republican zip codes followed by a higher rebound and a net gain after the stimulus payments; Southwest exhibited the highest initial decline whereas Southeast largest net gain after the stimulus payments. (3) Across 26 categories, the stimulus payments promoted spending in those categories that enhanced public health and charitable donations, reduced food insecurity and digital divide, while having also stimulated non-essential and even undesirable categories, such as cigar and liquor. Overall, these analyses reveal the imperative need for more geo- and category-targeted stimulus programs to protect and promote the well-being of the low-income population amid the public health and economic crises.

Introduction

The novel coronavirus disease 2019 (COVID-19) pandemic, one of the most devastating public health crises in the modern human history, has profoundly impacted the economy and human lives. By November 9, 2020, the world has reached a grim milestone of 50.7 million confirmed cases and 1.26 million deaths, including over 10.1 million confirmed cases and 238,000 deaths in the U.S. alone, according to the Johns Hopkins University COVID-19 dashboard [29]. The U.S. real gross domestic product (GDP) decreased 5% during the first quarter of 2020 and 31.7% during the second quarter (according to the Bureau of Economic Analysis [1]); and the unemployment rate reached 8.4% in August (according to the U.S. Bureau of Labor Statistics [2]). While the latest research has focused on the impact of human mobility restrictions on the virus spread and the environmental and macroeconomic consequences under the COVID-19 lockdowns [22, 34, 32, 17, 16, 37, 43, 36], our research focuses on the dynamics of micro-level consumer spending during the pandemic that is of vital importance to the economic recovery. Most importantly, although the pandemic has greatly impacted the entire U.S. population's income, wealth, and spending [26], the low-income population, defined in our context as having an annual personal income below the 2019 U.S. real median of \$35,977 (<https://www.census.gov/topics/income-poverty/income.html>), was hit the hardest by job and income loss during the pandemic, especially after the state lockdowns starting from California on March 19, 2020 [3]. Income, along with race, has also become a major predictor of COVID-19 infections [4, 57]. To mitigate the economic fallout and aid the low-income population, \$300 billion one-time stimulus payments were distributed starting from April 11, 2020, as part of a \$2 trillion economic stimulus bill (CARES Act), the largest economic stimulus package in the U.S. history [5]. Eligible individuals were given \$1,200 per person (with adjusted annual gross income < \$75,000) or \$2,400 per married couple (< \$150,000), and \$500 per child.

All the above indicates that the state lockdowns and stimulus payments, two of the most essential non-pharmaceutical mitigation measures of COVID-19 in the U.S., have disproportionately impacted the most vulnerable low-income population in the U.S. [19]. Our research thus examines

this population, in a different social context than what has been historically studied, such as social inequality and political polarization [60]. Our focus on this vulnerable yet under-studied low-income population also differentiates from the recent studies that either under-represent or exclude this population [27, 33]. Specifically, our research aims to address the following key research questions (RQ):

RQ1: What are the inter-temporal and joint impacts of the state lockdowns and stimulus payments on the low-income population's spending during the COVID-19 pandemic?

RQ2: How do these impacts vary across major economic regions, neighbouring locations, and areas of different political affiliations?

RQ3: Do some categories exhibit desirable or undesirable shifts in spending?

RQ4: Can we design better policies to protect and promote the well-being of the low-income population during public health and economic crises?

Addressing these important questions will generate crucial insights on human behavior in response to crises, unveil the state of well-being of one of the most vulnerable populations, assess the effectiveness of government mitigation measures, and shed valuable lights on the pressing issues of broad interest, such as social disparity, digital divide, and economic recovery. This research further contributes distinctive inter-temporal, geo-spatial, and cross-category angles. Inter-temporally, in contrast to the present studies that have examined the impacts of either the lockdowns alone [33, 18] or stimulus payments alone [42, 49], our research examines the joint impacts of the lockdowns and low-income focused stimulus payments, thus offering a more comprehensive portrayal of the decline-then-rebound dynamics of the low-income population's spending. Geo-spatially, our analyses at the region, county, and zip code levels reveal great geographical heterogeneity in spending shifts, strong correlations across bordering counties, and sharp contrasts between Republican and Democratic zip codes, all important and novel additions to the literature. Cross-categories, compared to the studies that examine either aggregate spending or spending over a small number of categories [33, 18, 42, 24], our research offers highly granular analyses spanning 26 categories across 10 major spending groups, thus delineating to our knowledge the most comprehensive picture of the low-income population's spending behavior during this unprecedented crisis. From a policy perspective, this research uncovers the need for more geo- and category-targeted stimulus programs in light of the strong geo- and cross-category heterogeneity in the spending dynamics, thus enriching the literature that has focused on Marginal Propensity to Consume (MPC)-oriented policy recommendations [42, 49].

To address the above research questions of interest, we leverage the state lockdowns starting from March 19, 2020 and distributions of the stimulus payments starting from April 11, 2020 as two major natural shocks in a Difference-in-Differences (DID) analysis framework. Analyzing a national panel data set of more than 5.6 million daily transactions from over 2.6 million consumer debit cards owned by the low-income consumers in the U.S., we compare the daily spending difference of the same period from 2019 to 2020, before and after the initial lockdown (and each state's lockdown as a robustness check), and before and after the stimulus payments. We continue to leverage the geo-spatial analysis to explore the potential heterogeneity of these effects across eight major economic regions, all bordering counties, and Republican versus Democratic zip codes; and employ a cross-category analysis on 26 categories from 10 major spending groups. Our analyses uncover three key findings. (1) Inter-temporally, the initial lockdown reduced the daily spending of the low-income population, as compared to the same period last year, by an average of \$3.9 per card and \$2,214 per zip code. The stimulus payments reversed the course by \$15.7 per card and \$3,307 per zip code, resulting in a net increase of \$11.8 per card and \$1,093 per zip code. (2) Geospatially, the Democratic zip codes displayed a much more volatile dynamic pattern, with an initial decline nearly three times as much as that of the Republican zip codes, followed by a higher rebound and a higher net gain after the stimulus payments. Among the eight major geographic regions in the U.S., Southwest exhibited the most pronounced initial decline in the daily average spending, whereas the Plains the least. After the stimulus payments, Southeast produced the largest net gain, whereas Far West even a net reduction. The spatial association analysis further demonstrates that many local clusters with great spending declines emerged in the COVID-19 hot-spot regions with surging COVID-19 cases in late March; whereas after the stimulus payments, most of the local clusters with strong rebound emerged in the Southeast region. (3) Across categories, the spending showed a clear transition from outdoor to indoor activities, and towards those more economical alternatives. The stimulus payments largely curbed the initial downward trends, particularly in those categories of quintessential importance to the low-income population's food security (such as grocery), physical and mental health (such as medical). They have also greatly stimulated the spending on the Internet, cable, and telecommunication, potentially reducing the country's long-standing digital divide. Nonetheless, the stimulus payments have also stimulated non-essential categories and subsidized concerning categories, such as cigar and liquor. In summary, the great geo-spatial and cross-category heterogeneity in the daily spending behavior of the low-income population

suggests the need for more geo- and category-targeted stimulus programs. We will later discuss other economic and business strategies and implications of these findings.

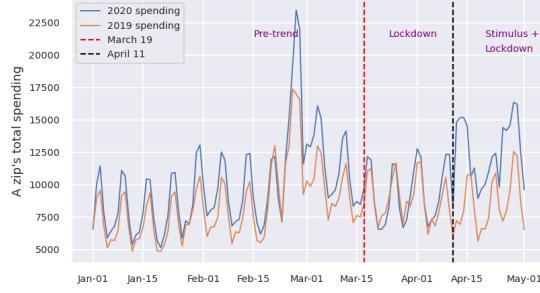
Our research is also grounded on a rich consumer behavioral literature that examines consumer well-being and spending behavior under financial or emotional constraints. Under such constraints, consumers become more concerned about lasting utilities of their purchases, hence preferring material goods over experiences [59]. Resource scarcity will guide consumers towards advancing their own welfare [56]. Budget allocations across categories will also change during economic downturns [41]. Research on mortality salience, i.e., reminder of own impending mortality, further suggests that exposure to death-related stimuli will increase purchasing and consumption, especially among low-self-esteem consumers [47]. Exposure to death-related information about others in the media will also shift consumers' focus from extrinsic to intrinsic values [40]. Moreover, behavioral theories on mental accounting state that people track their expenditures using cognitive categories or "mental accounts". An example in our context is that consumers put the stimulus payments received into a separate mental account from their other sources of income. Once a mental account is established, purchases highly congruent with the purpose of the mental account will be more preferred [55]. These behavioral theories have foretold some spending patterns that we will discover from our data, such as the initial decrease in spending, likely due to stress or resource constraints, followed by the subsequent increase in spending upon the receipt of the stimulus payments, potentially arising from mental accounting, as well as the heterogeneity in the spending shifts across categories as a result of the cross-category budget re-allocation.

Data

We leverage the U.S. Census data and Facteus financial transaction data of the low-income population sourced from over 1,000 financial institutions throughout the U.S. The data cover more than 5.6 million daily transactions from 2.6 million debit cards owned by a panel of low-income consumers with an average personal income of \$22,000 residing in 21,855 zip codes from January 1, 2019 to May 3, 2020. These debit cards encompass four types: debit cards issued by non-traditional mobile banks (i.e., challenger banks), general-purpose cards by general-purpose stores such as Walmart, payroll cards by employers, and government cards. These consumers use the cards as their primary bank accounts for deposits and spending. While including both online and offline transactions, the data do not distinguish them. Nor do the data provide individual transactions or additional demographic characteristics of the cardholders. We examine the daily spending behavior spanning a wide spectrum of categories at both the per-card and zip code levels. The spending is further classified into 26 categories from 10 major spending groups based on the Visa Merchant Category Codes (MCC) — a global standard to identify the merchant of each transaction (Table S1). In addition, we leverage the following U.S. Census data: (1) political affiliation, where a zip code is labeled as Republican (Democratic) if its corresponding county voted (did not vote) for Trump in the 2016 presidential election [6]; (2) eight economic regions as defined by the U.S. Department of Commerce Bureau of Economic Analysis [7]: New England, Mideast, Southeast, Great Lakes, Plains, Rocky Mountains, Southwest, and Far West (Figure S3). In addition, we obtain the starting dates of the state lockdowns (i.e., stay-at-home orders) from the New York Times [8].

Figure 1a depicts the temporal trends of the daily average spending at the zip code level in 2019 and 2020. A zip code in our sample sees on average \$5,000-\$20,000 daily expenditure. The trends follow a noticeable weekly cycle, with more spending on Thursday and Friday and less on other days in most weeks. The spikes in late February across both years largely arise from the federal earned income tax credit (EITC), a big financial boost to this population. We hence use the 2019 spending to control for these confounding inter-temporal factors, such as the weekly cycle, February spikes, and seasonality. Specifically, we subtract the daily average spending at the zip code level by that of the same day in 2019 (with minor adjustment to match the day of the week), producing the year-over-year (YoY) dollar change (dollar change hereafter). Figure 1b plots the temporal trend of the dollar change, showing that a zip code in 2020 typically exhibits \$2,000 increase in spending by the same panel of consumers, with an enlarged gap in late February due to the tax credit. The trend hit below the zero line following the initial lockdown, and then sharply increased to \$8,000 after the stimulus payments. Having teased out the confounding time factors, we can now estimate the effect of the lockdown by subtracting the dollar change after the initial lockdown by that before; similarly for the case of the stimulus payments. Figure 1c presents the temporal trend of the corresponding YoY percentage change (percentage change hereafter). Compared to the dollar change in Figure 1b, the percentage change is much more stable: the increase in late February is not significantly different from that in January and early February. In the following sections, we will use both the dollar change and percentage change as our dependent variables and discuss the results from both. Nonetheless, we will focus on the percentage change when comparing across categories. Figure 1(e,f,g) show similar trends in the daily average per card spending, and corresponding dollar change

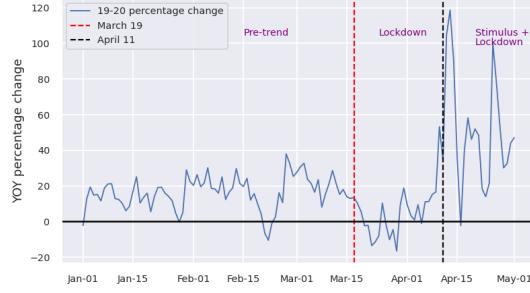
and percentage change over the same period, respectively. Figures 1d and 1h present the trends of the daily average spending at the zip code and per card levels, respectively, by the residing county's Census income quintiles. All zip codes exhibited a similar temporal pattern in the daily average per card spending (1h), confirming that the data cover similar kinds of low-income consumers regardless of whether they reside in higher- or lower-income areas.



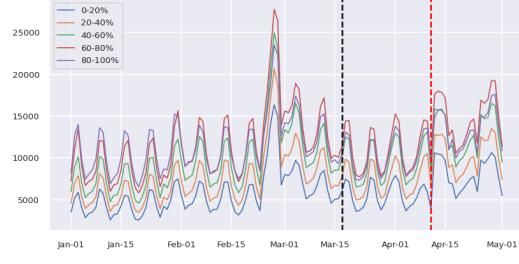
(a) Trend of daily average zip code level spending



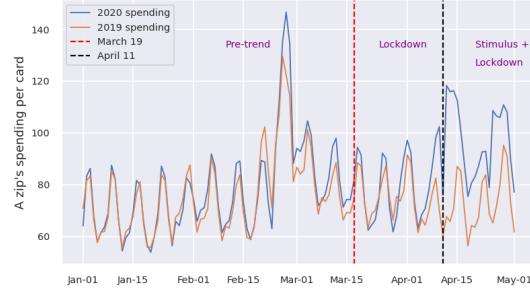
(b) Trend of YoY dollar change in daily average zip code level spending



(c) Trend of YoY percentage change in daily average zip code level spending



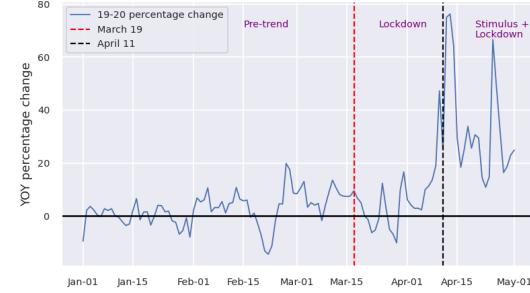
(d) Trend of daily zip code level spending by income quintiles



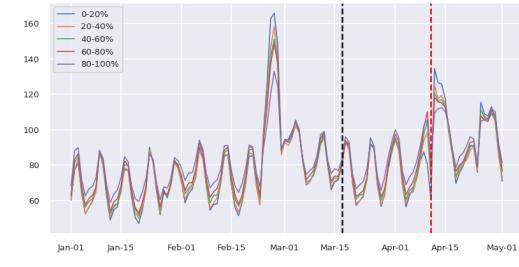
(e) Trend of daily average per card spending



(f) Trend of YoY dollar change in daily average per card spending



(g) Trend of YoY percentage change in daily average per card spending



(h) Trend of daily zip code level average per card spending by income quintiles

Figure 1: Trends of daily average zip code level spending and daily average per card spending over Jan 1 to May 3 of 2019 and 2020. The dates were adjusted to match the day of the same week in these two years.

Methods

Difference-in-Differences (DID) Statistical Analysis

We implement a difference-in-differences (DID) model to estimate the effects of the lockdowns and stimulus payments on spending. As described earlier, the dependent variable is either the dollar change or percentage change. The model then captures the shift of the dependent variable before versus after the initial lockdown on March 19, 2020 (first treatment), and before versus after the distribution of the stimulus payments on April 11, 2020 (second treatment). Formally, the empirical specification for the dollar change goes as follows.

$$\Delta Y_{zd} = \beta * \mathbb{1}\{d \geq 03 - 19\} + \gamma * \mathbb{1}\{d \geq 04 - 11\} + \theta_{zm} + \epsilon_{zd},$$

Where ΔY_{zd} is the dollar change for zip code z on a day d , that is, $\Delta Y_{zd} = Y_{zd,2020} - Y_{zd,2019}$. We have also estimated the same model for the percentage change, in which case $\Delta Y_{zd} = \frac{Y_{zd,2020} - Y_{zd,2019}}{Y_{zd,2019}} * 100\%$. The indicator function $\mathbb{1}\{d \geq 03 - 19\}$ equals 1 if a date d is on or after March 19, 2020, the date of initial lockdown by California; or 0 otherwise. Therefore, its coefficient β captures the effect of the initial lockdown on spending relative to the pre-lockdown period in 2020, while controlling for same day spending in 2019. Similarly, the indicator function $\mathbb{1}\{d \geq 04 - 11\}$ equals 1 if a date d is on or after the distribution of the stimulus payments on April 11, 2020; or 0 if before. Hence, its coefficient γ captures the *net* impact of the stimulus payments on household spending; and $(\beta + \gamma)$ together delineates the joint effect of both the lockdown and stimulus payments after April 11, 2020. Essentially, this approach uses a zip code's past self in 2019 as the control group for its spending in 2020. The difference-in-differences method involves two differences: the first is to subtract the daily spending in 2020 by the same-day spending in 2019 to tease out the inter-temporal confounders; and the second difference is to compare the YoY change in spending before and after each treatment (the lockdown or stimulus payments). We also add a zip code-month fixed effect θ_{zm} to further control for the local factors, such as population density, rural/urban, local health risks, and other idiosyncratic differences across zip codes, including local news, events, promotions, and consumption-related shocks.

Robustness Check. We further calibrate a specification with the staggered lockdown dates across different states, as opposed to a single date of the initial lockdown. The key findings remain (Table S2).

Spatial Association Analysis

To further analyze the degree of spatial dependency in the low-income population's spending behavior across geographic regions, we leverage the spatial association (auto-correlation) statistics [25, 35]. Specifically, we use the *Global Moran's I statistic* [51] to examine if there exists a spatially clustered or dispersed distribution of the spending across the U.S.. We also compute the *Local Moran's I statistic* (i.e., Anselin's Local Indices of Spatial Association) to identify local hot spots and cold spots [15]. These spatial association statistics require a spatial weighting matrix that reflects the spatial relationship between each location (such as county in our case) and its neighbours, e.g., the distance-to-neighbour matrix or the binary adjacency matrix in which the element value is 0 or 1, as determined by whether there is a shared boundary between a location and its neighbors. These spatial association statistics are compared with a null hypothesis of a complete spatial randomness process. A z-score and a p-value on a two-sided test are derived to evaluate the statistical significance of the indices. Note that the U.S. zip codes do not meet the spatial contiguity requirement. Thus we run all the spatial association statistical tests at the county level via ESRI's ArcGIS software version 10.7 and use the spatial contiguity/neighbouring constraints to define the spatial weighting matrix.

Specifically, the Global Moran's I Statistic is defined as [9]:

$$I = \frac{\sum_{i=1}^n \sum_{j=1}^n W_{i,j}(X_i - \bar{X})(X_j - \bar{X})}{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n} \sum_{i=1}^n \sum_{j=1}^n W_{i,j}}$$

where X_i is the daily aggregate spending (or per card spending) in county i ; X_j is the corresponding spending of another county j ; \bar{X} is the global mean of the corresponding spending across all counties; $W_{i,j}$ is the spatial weight between county i and county j (by convention, $W_{i,i} = 0$ and $W_{i,j} = 1$ only if i and j are neighbouring counties); n is the total number of counties with observed spending values (i.e., 2,966). The I statistic values fall between -1 (towards a dispersed pattern) and +1 (towards a clustered pattern).

The Local Moran's I statistic is defined as [10]:

$$I_i = \frac{(X_i - \bar{X}) \sum_{j=1, j \neq i}^n W_{i,j} (X_j - \bar{X})}{\frac{\sum_{j=1, j \neq i}^n (X_j - \bar{X})^2}{n-1}}$$

where the notations are same as the global Moran's I statistic except that I_i is a local index for each county i . Compared the observed statistic with a complete spatial randomness process, a high positive z-score indicates that the neighbouring counties have a similar spending pattern (either high values or low values) to that of the focal county and derives a high-high (or low-low) spatial cluster, whereas a low negative z-score indicates that the neighbouring counties have a reversed spending pattern to that of the focal county and derives a high-low (or low-high) spatial cluster.

Results

Impacts of the Lockdowns and Stimulus Payments on Spending over Time

Table 1: Effects of Initial Lockdown and Stimulus Payments on Zip Code Level Aggregate Spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-2214.308*** (27.910)	-1298.961*** (20.785)	-3779.522*** (62.869)	-23.035*** (0.198)	-20.924*** (0.266)	-26.645*** (0.280)
$\mathbb{1}\{\geq 04 - 11\}$	3307.330*** (43.781)	2335.112*** (35.289)	4963.615*** (99.186)	38.208*** (0.239)	40.501*** (0.315)	34.302*** (0.355)
Adjusted R ²	0.472	0.424	0.489	0.227	0.218	0.245
N	2521355	1589995	931360	2521355	1589995	931360

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip code-month fixed effect. The standard errors shown in the parenthesis are clustered at the zip code level.

Table 2: Effects of Initial Lockdown and Stimulus Payments on Per Card Spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-3.905*** (0.125)	-3.788*** (0.164)	-4.105*** (0.191)	-6.592*** (0.183)	-6.850*** (0.244)	-6.151*** (0.267)
$\mathbb{1}\{\geq 04 - 11\}$	15.774*** (0.129)	16.228*** (0.168)	15.000*** (0.198)	25.858*** (0.210)	27.288*** (0.280)	23.421*** (0.305)
Adjusted R ²	0.145	0.136	0.165	0.155	0.145	0.175
N	2521355	1589995	931360	2521355	1589995	931360

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table 1 shows the estimation results of the DID model using the zip code level dollar change and percentage change as the dependent variable, respectively. We see that after the initial lockdown on March 19, each zip code reduced the dollar change by \$2,214.308. The stimulus payments distributed since April 11 reversed the course by \$3,307.330, thus essentially increasing the dollar change by \$1,093.022 (i.e., \$3,307.330 -\$2,214.308) after April 11. The percentage change revealed a similar pattern, with the lockdown reducing the percentage change by 23.035 percentage points and stimulus payments reversing the decline by another 38.208 percentage points. Table 2 shows the results using the per card dollar change and percentage change as the dependent variables at zip code level. There was an average reduction of \$3.905 (6.592%) per card after the initial lockdown and a large increase of \$15.774 (25.858%) after the stimulus payments, resulting in a net increase of \$11.869 (19.266%) per card. The results demonstrate the improved effectiveness of the 2020 stimulus payments compared to the impacts of the 2001 and 2008 stimulus payments [50, 23, 53]. For instance, an average household's spending was found to rise by 10% in the first week and remained at 1.5–3.8% in the first three months after the 2008 stimulus payments [23].

Robustness check using the staggered state lockdowns. To check robustness of the results, we also estimate the proposed model using the staggered state lockdown dates (Table S2). The findings remain consistent, showing a large decline after the lockdowns (\$1,689.657 or 19.503%) and then rebound (\$3,409.338 or 39.386%) after the stimulus payments. The magnitude of the

initial spending decline is smaller, as compared to the result from using the initial lockdown date of March 19 (Table 1), potentially because the residents in those states with later lockdown dates had started reducing spending before their own states enforced lockdowns due to the geographical and social interdependence between regions [39].

Impacts of the Lockdowns and Stimulus Payments on Spending across Geographic Areas

Comparing across zip codes of different political affiliations

We are interested in the impact of the geo-spatial distribution of political affiliation on the spending shift, in light of recent studies showing a relationship between political affiliation and risk perception as well as social distancing compliance. For example, a county's higher share of the republican presidential votes is associated with less perceived risk and less compliance with social distancing during the COVID-19 pandemic [31, 20, 14]. Also, Democrats are less likely to respond to a state-level order issued by a Republican governor [52]. Table 1 clearly demonstrates that the effects of the lockdowns and stimulus payments on the dollar change and percentage change diverge across zip codes of different political affiliations. The Democratic zip codes (i.e., with lower vote shares for Trump during the 2016 presidential election) demonstrated a more volatile spending pattern than the Republic zip codes, with a more dramatic decline followed by a stronger rebound. Specifically, these Democratic zip codes reduced the dollar change nearly three times (\$3,779.522) as much as their Republican counterparts (\$1,298.961) after the initial lockdown. Such a pronounced initial spending decline is consistent with the higher risk perception in the Democratic areas [31, 14, 20]. These zip codes also exhibited a rebound (\$4,963.615) more than twice of that of the Republican zip codes (\$2,335.112) after the stimulus payments. As a result, the Democratic zip codes saw a slightly higher net increase (\$1,184.093) than the Republican zip codes (\$1,036.151) after the stimulus payments. The percentage change is less dramatic in comparison: the Democratic zip codes displayed a decline of 26.645 percentage points after the initial lockdown, compared to 20.924 in the Republican zip codes (Table 1). Their rebound (34.302 percentage points) was actually smaller than that of the Republican zip codes (40.501), resulting in a smaller net increase (7.657 percentage points) than the Republican zip codes (19.577). We will later discuss the partisan differences across categories.

Table 3: Effects of Initial Lockdown and Stimulus Payments on Dollar Change across Geographic Regions

Dependent Variable: Dollar Change (\$)								
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-1229.282*** (65.880)	-2177.546*** (80.652)	-2343.342*** (53.991)	-2008.290*** (70.553)	-1146.347*** (56.013)	-1722.898*** (99.195)	-3065.323*** (94.947)	-2951.148*** (83.750)
$1\{\geq 04 - 11\}$	1784.659*** (105.530)	2673.545*** (108.504)	4122.993*** (93.169)	3377.980*** (127.670)	2101.808*** (100.927)	2095.220*** (119.693)	4330.866*** (123.740)	2881.387*** (98.974)
Adjusted R ²	0.465	0.469	0.456	0.556	0.464	0.378	0.441	0.382
N	132596	362047	744803	418274	244021	83057	284190	255411

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table 4: Effects of Initial Lockdown and Stimulus Payments on Percentage Change across Geographic Regions

Dependent Variable: Percentage Change (%)								
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-26.860*** (0.948)	-26.690*** (0.555)	-22.073*** (0.357)	-24.093*** (0.509)	-18.603*** (0.680)	-21.203*** (1.177)	-18.747*** (0.472)	-26.560*** (0.557)
$1\{\geq 04 - 11\}$	33.665*** (1.113)	35.391*** (0.643)	45.813*** (0.426)	41.565*** (0.629)	36.239*** (0.811)	26.995*** (1.345)	34.071*** (0.581)	27.074*** (0.639)
Adjusted R ²	0.198	0.209	0.233	0.248	0.186	0.195	0.223	0.216
N	132596	362047	744803	418274	244021	83057	284190	255411

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Comparing across eight economic regions

To further examine the geographic variations, we estimate the DID model for each of the eight economic regions of the U.S. (Tables 3 and 4). Upon the initial lockdown, the Southwest (\$3,065.323) and Far West (\$2,951.148) exhibited the most pronounced reduction in the daily spending at the zip code level, as several early COVID-19 local clusters occurred in California and Washington states [28, 39]. In contrast, the Plains (\$1,146.347) and New England (\$1,229.282) showed the least reduction upon the initial lockdown; and were among those with the least rebound (\$2,101.808 and \$1,784.659 respectively) after the stimulus payments. Southwest (\$4,330.866) and Southeast (\$4,122.993) showed the most rebound. Overall, after the initial spending decline and subsequent

rebound, Southeast exhibited the largest net increase of \$1,779.651 daily per zip code, followed by Great Lakes (\$1,369.69). On the other hand, Far West saw a net reduction of \$69.761 daily per zip code even after the boost from the stimulus payments. The percentage change revealed a somewhat different picture (Table 4). After the initial lockdown, New England (-26.860 percentage points) and Mideast (-26.690) experienced the greatest percentage change, whereas Plains the least (18.603). After the stimulus payments, Southeast (45.813) and Great Lakes (41.565) saw the strongest rebound, whereas Rocky Mountains (26.995) and Far West (27.074) the least. The net effect is strongest in Southeast (23.74) and smallest in Far West (0.514). We will later further examine these variations across geographic regions by major spending group and category.

Understanding the county level spatial association

We next analyze the spatial distribution of the dollar change at the county and per card levels, respectively (Figure S1 and S2). We also measured the spatial association patterns between neighboring counties using the Moran's I statistic [51, 35]. As shown in Table S3, the global Moran's I for the total spending DID are 0.019 (effect of the initial lockdown) and 0.115 (effect of the stimulus payments), respectively; and for the per card DID 0.100 (lockdown) and 0.252 (stimulus), respectively. All z-scores are larger than 1.96, and thus the spatial clustered patterns are statistically significant ($p\text{-value} < 0.05$). Recent studies have identified the spatial association patterns of the COVID-19 spread and human mobility in the U.S. [28, 38, 39]. Our study thus enriches this literature with a better understanding of the spatial association patterns of consumer spending during the COVID-19 pandemic and suggests that spatial dependence may underlie the observed consumer spending patterns.

We then use the local Moran's I statistic [15] to further examine the high/low spatial association patterns of the neighbouring counties in the dollar change for both total spending and per card spending. As shown in Figure 2, after the initial lockdown, there emerged many local clusters with great declines (i.e., the low-low clusters on the map) in New York, New Jersey, Maryland, Michigan, California, Florida, Texas, Georgia, North Carolina, Louisiana, and so on. Many of those local clusters with great spending declines emerged in hot-spot regions with surging COVID-19 cases in late March [28, 44]. After the stimulus payments, most of the local high-high clusters of spending rebound emerged in the Southeast region. This is consist with the DID analysis by economic regions described earlier, although leveraging the local spatial association analysis has allowed us to further identify the spatial variations even within the same economic region and the spatial dependency in neighboring counties across the state or region borders. Regarding the per-card analysis, the low-low clusters of great declines upon the initial lockdown emerged mostly in the Far West, Rocky Mountains, and Southwest regions, as well as in Texas, while the high-high clusters of large rebound after the stimulus payments mostly appeared in the Plains and Rocky Mountains.

Overall, these analyses reveal that different geographic areas exhibited varied levels of needs and urgency for the stimulus program since the onset of the pandemic. Also importantly, the stimulus program generated differential effectiveness across the geography, hence pointing to the imperative need for more geo-targeted stimulus programs.

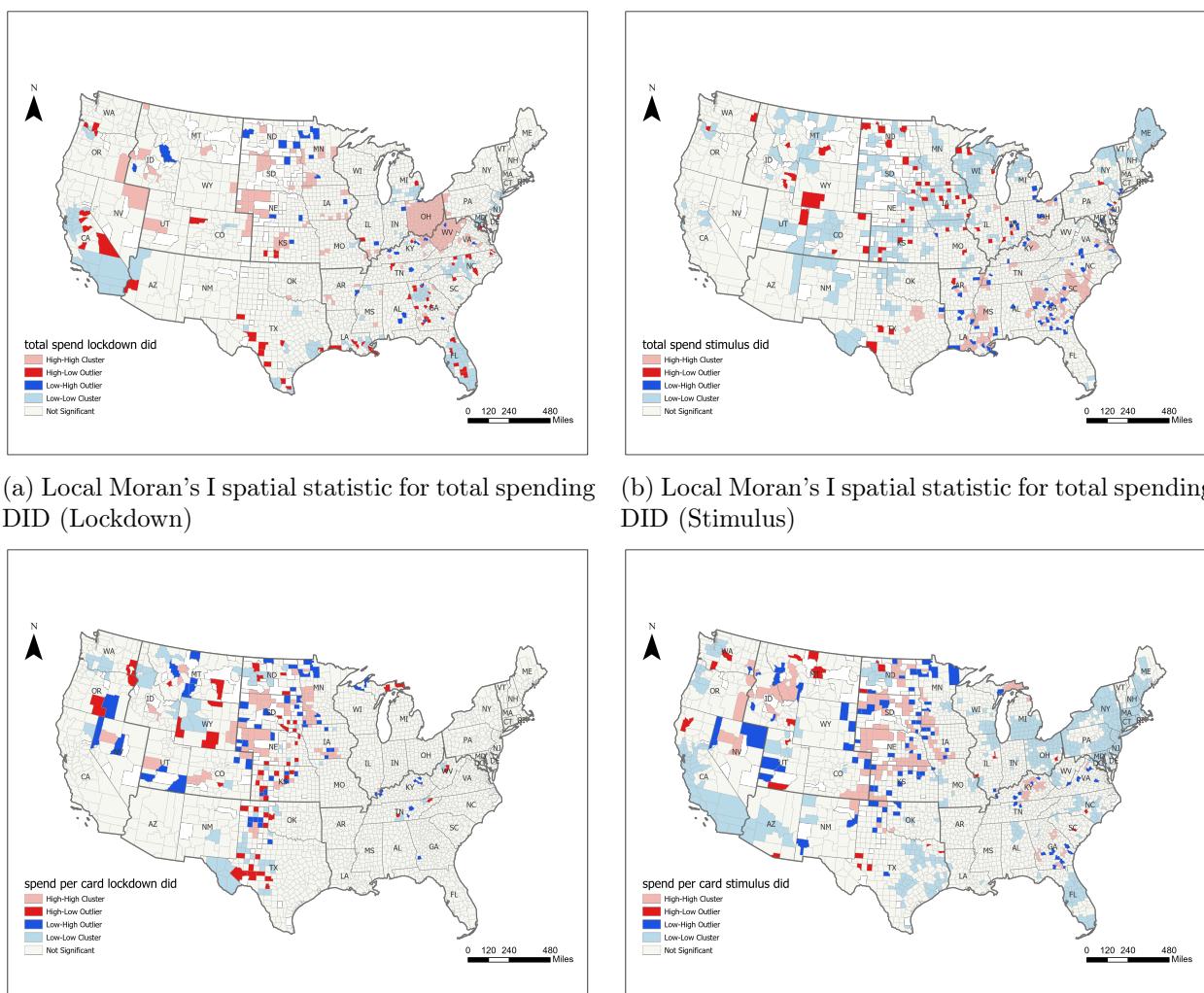


Figure 2: Local Moran's I spatial association analysis

Impacts of the Lockdowns and Stimulus Payments on Spending across Categories

Figures 3 and 4 visualize the percentage and dollar changes after the initial lockdown and stimulus payments by major spending groups and across categories, respectively. Tables S4 - S106 respectively exhibit the parameter estimates of the overall effects, and effects by political affiliations and regions, on the percentage change and dollar change for each major spending group and the key categories within each group. Below, we will first discuss the impacts of the lockdown and stimulus payments on the percentage change, which is more comparable across major spending groups and across categories, then on the dollar change.

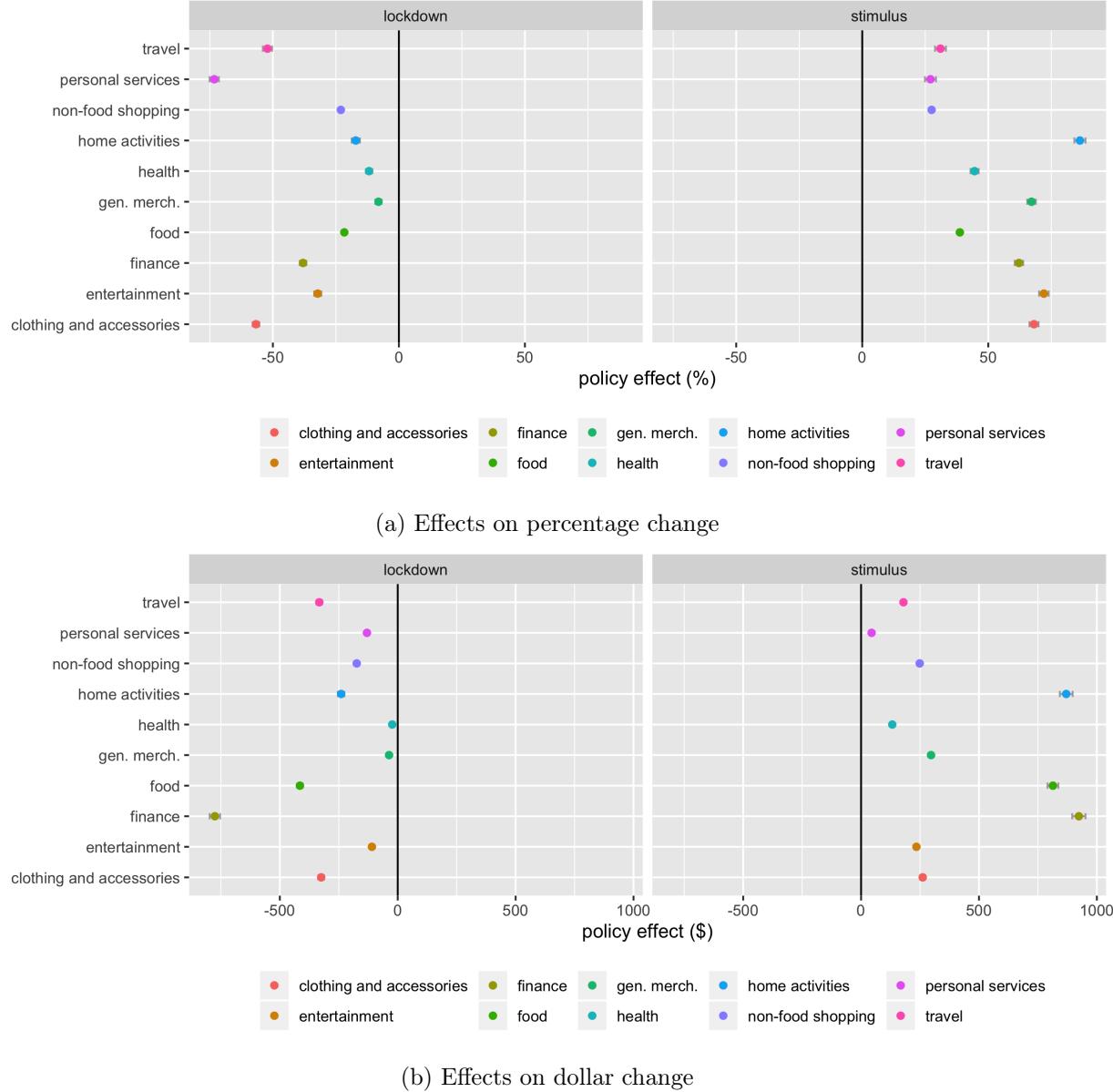
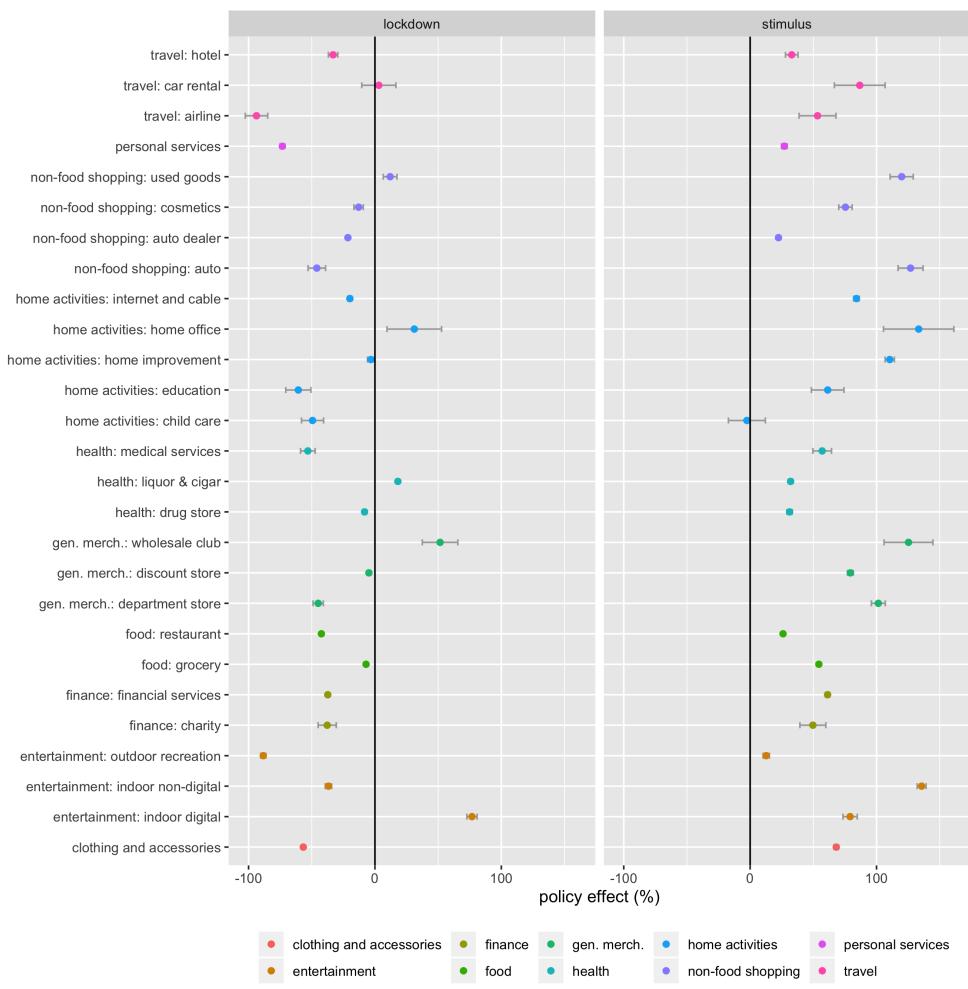
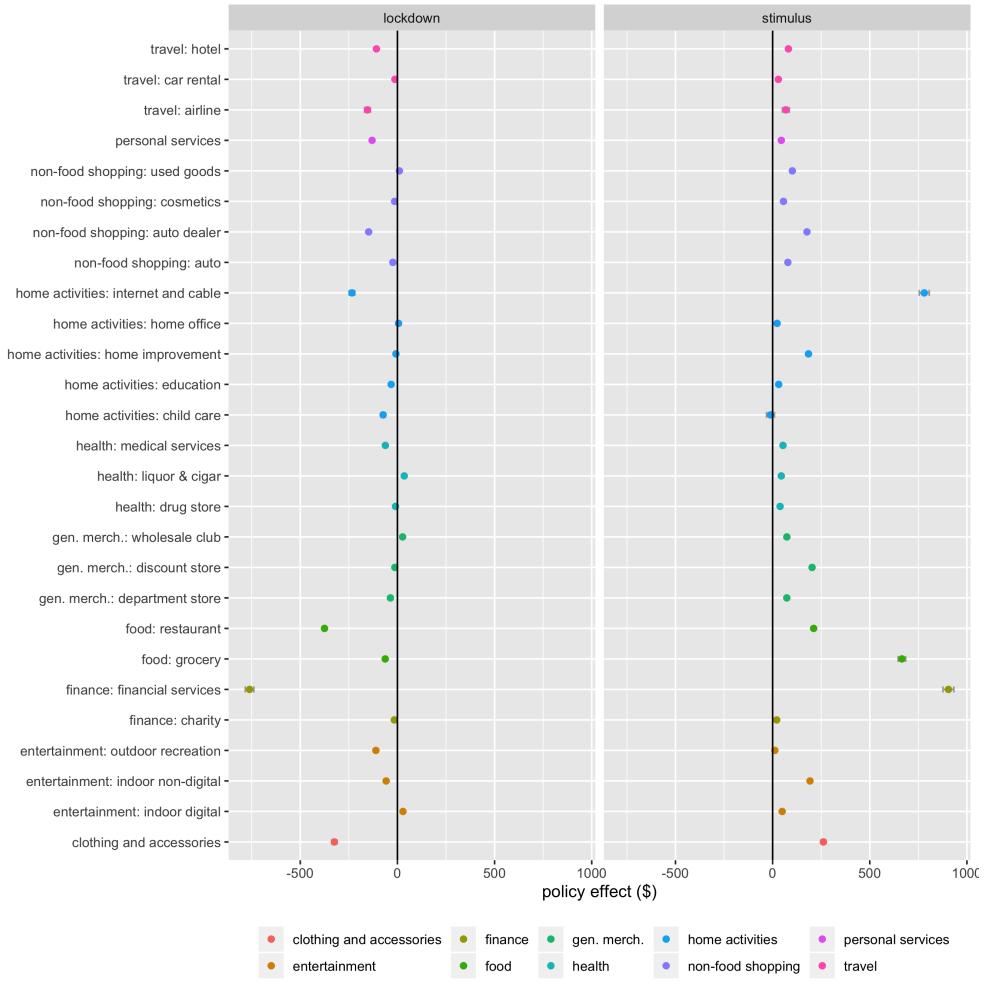


Figure 3: Effects of initial lockdown and stimulus payments by major spending group



(a) Effects on percentage change



(b) Effects on dollar change

Figure 4: Effects of initial lockdown and stimulus payments by category

Percentage change after the lockdown

The left panels of Figures 3a and 4a visualize the impact of the initial lockdown on the percentage changes across major spending groups and their categories, respectively. A few key findings emerge: (1) All major spending groups exhibited declines, varying from a reduction of 8.094 (general merchandise) to 73.247 (personal service) percentage points. (2) The declines were more pronounced among the less essential, or more hedonic, categories, particularly personal services (e.g., spa, salon) with 73.247 percentage points decrease, clothing and accessories (56.691), travel (52.151; e.g., airlines, cruising), and entertainment (32.198; particularly outdoor recreation like sports and parks: 88.356). (3) Another category with the greatest decline (38.025) was finance related spending (e.g., financial, charity, employment services), potentially as a result of the wide spread perception of the health and financial risks entailed by the pandemic. (4) The top categories witnessing the least decline include general merchandise, health (11.822), and home activities (17.094). (5) Great heterogeneity also emerged across categories within the same major spending group. For instance, even in those categories with major declines, such as travel, the category of car rental experienced an increase (3.076 percentage points), likely due to the public's reluctance to take public transportation. Similarly, within entertainment, indoor digital entertainment (such as gaming and movies) experienced an increase of 76.78 percentage points. Also, while grocery spending slightly decreased (7.053), the decline of food spending (21.651) stemmed primarily from the reduced spending on restaurants (42.387), potentially due to their health risks and lockdown closures. (6) Among the major spending groups with the least declines, two types of categories actually saw increases: the cost-saving categories (used goods: 12.002; wholesale clubs: 51.534) and home office category (31.127). Liquor and cigar stores experienced an increase as well (18.136), potentially reflecting the increased anxiety over the pandemic and stress introduced by stay-at-home, job loss, child care, among others.

In summary, the spending declines were apparent after the pandemic commenced, but displayed great heterogeneity across categories. Also, the spending has largely transitioned from outdoor to indoor activities (such as home office, home entertainment), and towards more economical alternatives (such as used goods) in anticipation of a prolonged economic downturn and potential unemployment. A number of concerning observations also emerge, such as the increased spending on liquor and cigar, and decreased spending towards health, financial and employment services. These findings also corroborate with the prior research that examines consumer behavior under emotional stress. For instance, consumers experiencing a stressful situation would strategically allocate their resources to gain control of their environment, by increasing savings (thus reducing spending), or increasing spending towards necessity products (such as car rental and home office in our context) [30]. Social exclusion, isolation, or loneliness stemming from, for instance, the lockdowns, may also contribute to increased materialism and spending on material goods [54]. Social exclusion may also lead consumers to buying more products symbolic of group membership (such as social gaming or alcohol for group consumption in our context) [48].

Percentage change after the stimulus payments

After the stimulus payments, the following key findings arise: (1) All categories displayed rebounds, varying from an increase of 27.074 (personal service) to 86.363 (home activities) percentage points. (2) Home activities (86.363) and entertainment (72.069) exhibited the highest increase, followed by clothing and accessories (68.147), and general merchandise (67.158). (3) The stimulus payments also mitigated the decline in financial, charity, and employment services (62.169), as well as health (44.573) — the two categories that exhibited concerning declines upon the initial lockdown. (4) The percentage change across all categories rebounded after the stimulus payments, except for child care (with a reduction of 2.57 percentage points), potentially because the COVID health risks left families with limited childcare options; or stay-at-home or unemployed parents chose to home-care or home-school their children. (5) Among the top-increasing categories discussed earlier, three groups of categories stood out: home office (133.344) and home improvement (110.444), indoor non-digital entertainment (135.663; such as toys, books, craft), and more economic categories (such as used good 119.888; wholesale clubs 125.289). The increased spending on home improvement is consistent with the latest media coverage and partly attributable to the increased time at home [11]. This observation can also be explained by the prior consumer behavior research, which suggests that consumers engage in more self-enhancement when facing life constraints [59, 56, 41]. The large rebound of the cosmetics category observed in our data, another important aspect of consumers' self-enhancement, also corroborates with this theory. (6) While essential categories, including health (medical services), food, financial, charity, and employment services experienced declines after the initial lockdown, some even to a serious extent, the stimulus payments mitigated these declines. Specifically, medical services saw an increase of 56.999 percentage points, food 38.729, and financial, charity, and employment services 62.169.

Overall, the stimulus payments offered an important policy mitigation that curbed the initial spending declines, particularly in those major spending groups and categories essential to the low-income population's health (medical services, grocery) and economic recovery (finance). They also potentially reduced the digital divide across the low- versus high-income populations, with the escalating spending on Internet, cable, and telecommunication by the low-income population [12]. Nonetheless, the stimulus payments also elevated the less essential categories (indoor digital entertainment, travel) and even a few concerning categories, such as cigar and liquor, therefore suggesting room for potential improvement of the stimulus program, such as via category-specific or category-targeted stimulus plans, or consumption vouchers implemented by other governments [46, 61].

Dollar changes after the lockdown and stimulus payments

Compared to the percentage changes, the dollar changes revealed a similar overall spending pattern (Figures 3b and 4b). Nonetheless, some categories with the largest percentage declines, such as personal service and clothing, actually experienced relatively small dollar declines (\$130.514 and \$324.618 respectively), potentially as they reflected a small portion of an individual's overall spending. On the other hand, a few categories, such as food (\$414.792), financial, charity, and employment services (\$775.464), while moderately declined in the percentage change, accounted for large dollar declines. Then, after the stimulus payments were distributed, although financial, charity, and employment services exhibited a moderate percentage increase as compared to other categories, they represented the largest increase in dollar amount (\$923.597). Similarly, grocery, not a top category in percentage increase, emerged on top in dollar increase (\$665.329). This is of important implication to resolving food insecurity that became more wide spread across the nation after the onset of the pandemic [13]. Lastly, spending on Internet, cable, and telecommunication, ranked high on not only the percentage increase (84.121%), but also dollar increase (\$780.411), may have captured the elevated need of staying connected with work, families, friends, and home entertainment. This increased investment by the low-income population on Internet and cable points to a positive potential to closing the digital divide in the country. Overall, we observe a positive dollar trend on those categories reflecting the essential needs during the public health and economic crises — food security, financial security, and digital connectedness, which are also closely related to work productivity, social engagement, and mental health.

Cross-category effects across political affiliations

Overall, the effects across political affiliations for each category remain consistent with those when pooling all categories together. That is, the democratic zip codes exhibited a more volatile shift, with a more dramatic decline in the dollar change after the initial lockdown, and then a larger rebound after the stimulus payments (albeit a smaller rebound in the percentage change), as compared to the Republican zip codes. A few categories, nonetheless, exhibited interesting, minor deviations from this primary result.

For instance, in the travel category of *car rental*, spending actually increased initially; and this increase was driven by the Republican zip codes' increased dollar change (\$8.961) and percentage change (102.836 percentage points). In contrast, the Democratic zip codes reduced the dollar change (\$19.577) and percentage change (26.985) after the initial lockdown. Although the Democratic zip codes saw positive dollar change (\$31.175) and percentage change (93.754) after the stimulus payments, their net dollar change and percentage change remained much smaller than those of the Republican zip codes. In another category, *outdoor recreation*, the Democratic zip codes showed less rebound in both the dollar change (\$9.775) and percentage change (6.393), relative to the Republic zip codes (\$13.057 and 18.763 respectively), consistent with the prior research on the heightened risk perception among the Democratic than Republican areas [31, 14, 20, 52].

Conversely, in the entertainment category of *in-home digital* entertainment, the Democratic zip codes displayed a greater increase in the dollar change both after the lockdown (\$36.567) and stimulus payments (\$60.322), compared to their Republic counterparts (\$21.424 and \$38.986 respectively). The Democratic zip codes also exhibited a higher net percentage change (157.439) than the Republican zip codes (154.685). Finally, the Democratic zip codes also saw more increase in the *cigar and liquor*'s dollar change both after the lockdown (\$48.155) and stimulus payments (\$61.805), compared to the Republic zip codes (\$22.621 and \$27.378 respectively). The resulting net percentage change after the stimulus payments turned out to be an increase of 52.119 percentage points for the Democratic zip codes and 48.143 for the Republican zip codes.

Overall, we find that the Republic zip codes drove the spending increase in car rental and rebound in outdoor recreations; whereas the Democratic zip codes drove the increases in indoor digital entertainment, as well as cigar and liquor.

Cross-category effects across regions

The category-specific analyses further revealed the spatial heterogeneity across geographic regions. We will discuss below, as examples, such heterogeneity in the dollar change among a few key major spending groups and categories of importance to the lower-income population's daily life. More detailed results for each category and each geographic region can be found in the supplementary material (Tables S4 - S106).

Travel. Mideast experienced the largest initial and overall declines in the travel dollar change after the initial lockdown (\$433.777) and stimulus payments (\$249.71), respectively. In the *airline* category, Great Lakes experienced the most pronounced initial (\$248.759) and overall (\$145.5) declines. In another category of *car rental*, New England showed the strongest increase (\$36.705) after an initial minor decline then a major rebound after the stimulus payments.

Home - Internet, Cable, and Telecommunication. Southeast experienced the greatest initial decline (\$324.799) and Rocky Mountains the least (\$55.812). After the stimulus payments, New England had the least overall gain (\$248.722) whereas Great Lakes the greatest (\$728.927).

Health. Far West experienced the largest initial drop in the health spending amount (\$38.115), whereas Rocky Mountains saw no statistically significant effect. The overall spending gain after the stimulus payments was the largest for Great Lakes (\$147.828) and least for New England (\$59.559). In the *liquor and cigar* category, Far West exhibited the least initial increase (\$3.677) and Southwest the most (\$54.859). The overall gain after the stimulus payments was the lowest at Far West (\$42.803) and highest at Great Lakes (\$108.604).

Food - Grocery. Mideast displayed a large initial gain in grocery spending (\$89.520) whereas Southwest had a huge dip (\$247.960) initially after the lockdown and then a large increase (\$952.408) after the stimulus payments. Overall, Great Lakes had the largest overall gain in the grocery spending (\$821.404).

Entertainment. Far West showed the largest initial decline (\$133.735) and the least overall gain (\$38.867) in entertainment, particularly in the *outdoor recreation* category. In contrast, Great Lakes showed the largest overall gain (\$207.411) after the stimulus payments. In the *outdoor recreation* category, Plains exhibited the least overall reduction (\$54.603). In the *indoor digital entertainment* category, Southwest gained the most initially (\$36.408) and Mideast had the largest net gain after the stimulus payments (\$93.261).

Finance. Southwest showed the largest initial decline (\$1031.536) whereas New England the least (\$453.322). After the stimulus payments, Mideast displayed an overall dip of \$273.515. In contrast, Southeast gained \$449.561.

Overall, our pooled-category analysis showed that Southeast had the great overall spending gain after the stimulus payments, whereas Far West the least. Our region-based and category-by-category analyses reveal that Southeast experienced the greatest gain in financial, charity, and employment services. Far West had the least gain over entertainment, cigar and alcohol. In addition, New England showed the largest overall gain in car rental, yet least in health, Internet, cable, and telecommunication. Mideast showed the most gain in indoor digital entertainment and most loss in travel, particularly, hotel, and financial, charity, and employment services. Great Lakes had the most cut on airline, yet the highest overall lift on entertainment, grocery, Internet, cable, and telecommunication, as well as cigar and alcohol. In short, these results depict a more granular picture of the category-specific, spatially heterogeneous impacts on the lower-income population's spending behaviour during the on-going public health and economic crisis.

Discussions and Conclusions

This research demonstrates that COVID-19 entailed a strong economic impact on the low-income population's spending in the U.S., over time and across geographic areas and spending categories, particularly among the Democratic areas, as well as Far West and New England where the early COVID-19 hot spots arose. The stimulus program largely curbed the initial spending declines and stimulated the spending across a number of major spending groups and categories of essential importance to this population's well-being. For instance, the rebound and net increase in the grocery spending helped mitigate the increasingly grave food insecurity in the U.S. The stimulus payments also negated the initial decrease in the spending on medical services critical amid the pandemic. Another positive impact is the elevated spending towards the Internet, cable, and telecommunication, potentially reducing digital divide and social disparity with significant implications for, for instance, equitable access to WiFi, tele-medicine, and online education. Furthermore, the rebound and elevated overall spending on financial, charity, and employment services is instrumental to economic recovery among the low-income population.

Nonetheless, the stimulus payments also stimulated non-essential categories and even undesirable categories, such as cigar and liquor, among the low-income population. Thus, this uniform program can be further improved with sharper geo- and category-targeting, for instance, (a) targeting

the areas hit the hardest or the earliest by the crises, with the greatest health risks, highest unemployment rate, or the most volatile spending shifts, and (b) targeting the most essential categories of top importance to the low-income population, such as grocery and medical, as accomplished by the category-specific stimulus vouchers implemented in other countries [46, 61]. Earlier studies have indeed demonstrated that different forms of stimulus programs vary in their effectiveness. For instance, the 2009 reduction in withholding boosted spending at roughly half the rate as the 2008 payments [58]. Hence, various improvements of the stimulus programs have been proposed, such as targeting the individuals with the highest marginal propensity to consume (MPC) [42], enlisting social insurance [24], voluntary loans [21], or coupons [45]. Our research thus enriches these policy recommendations with geo-spatial and cross-category dimensions, particularly in light of the distinct nature of the coupled public health and economic crises. Another crucial element to accompany an effective stimulation program is more effective, targeted, and strategic policy communications. For instance, more guided policy communications could be leveraged to direct spending towards more essential categories, such as grocery and medical, and away from less essential or more hedonic (and potentially harmful) categories, such as gaming, cigar and liquor, as observed in our data. Such policy communications may also help mitigate the core crisis (COVID-19 spread) by, for instance, promoting grocery or restaurant deliveries over dine-ins, outdoor over indoor entertainment, family, social time, learning and self-improvements (home office, education, Internet) instead of cigar and alcohol consumption to support mental health. Such communications should also advocate continued efforts towards seeking re-employment or continued spending toward employment services.

Lastly, our findings shed valuable lights on broader economic and business policies and strategies. For instance, the analyses offer empirical evidence of the importance of a business model's (and more broadly an economy's) crisis preparedness, resilience, and capability for agile transformation and accelerated economic recovery. Also, at times of convoluted public health and economic crises, the low-income population's spending has apparently leaned even more towards the more economical options (such as wholesale clubs, used goods, and cheaper brands), indoor/home options (home office, home entertainment), and digital options (such as digital entertainment). Industries or economies relying predominantly on offline or non-digital income, such as theaters, sports stadiums, and hotels, hence need to accelerate digital transformation and resilience design. Moreover, this pandemic has profoundly influenced the population's work and life styles, such as working from home, tele-conferencing, tele-medicine, online education, grocery delivery, residential choice, thus leading to broad and long-term impacts on the competitive landscape across many industries and a nation's economic structure. Lastly, the low-income population's shifting spending patterns also provide important guidance to broad advertising and communication strategies, pointing to the imperative need to empathetically align communications with consumers' focus on, such as life, health, and social equity, to support and accelerate business and economic recovery.

In summary, this research investigates the inter-temporal and joint effects of the two essential government mitigation policies amid the unprecedented public health and economic crises, the lockdowns and stimulus payments, on the daily expenditures of one of the most vulnerable populations in the U.S., the low-income population. It also reveals the strong heterogeneity across geography and spending categories, thus recommending more geo- and category-targeted mitigation policies to protect and promote the well-being of the low-income population that is of essential importance to social equity and economic recovery.

Acknowledgements

The authors acknowledge the data support from Facteus and provided by the SafeGraph COVID-19 Data Consortium. Song Gao acknowledges the funding support provided by the U.S. National Science Foundation (Award No. BCS-2027375). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

References

- [1] U.S. Bureau of Economic Analysis, Gross Domestic Product, Second Quarter 2020, available at <https://www.bea.gov/news/blog/2020-07-30/gross-domestic-product-second-quarter-2020-advance-estimate-and-annual-update>. Accessed on August 10, 2020.
- [2] U.S. Bureau of Labor Statistics Employment Situation Summary, available at <https://www.bls.gov/news.release/empsit.nr0.htm>. Accessed on August 10, 2020.

- [3] Census's New Household Pulse Survey Shows Who Is Hardest Hit During COVID-19 Pandemic, available at <https://www.census.gov/library/stories/2020/06/low-income-and-younger-adults-hardest-hit-by-loss-of-income-during-covid-19.html>. Accessed on August 10, 2020.
- [4] Income emerges as a major predictor of coronavirus infections, along with race, available at https://www.washingtonpost.com/health/income-emerges-as-a-major-predictor-of-coronavirus-infections-along-with-race/2020/06/22/9276f31e-b4a3-11ea-a510-55bf26485c93_story.html. Accessed on August 10, 2020.
- [5] The Coronavirus Aid, Relief, and Economic Security (CARES) Act, available at <https://home.treasury.gov/policy-issues/cares>. Accessed August 10, 2020.
- [6] County Presidential Election Returns 2000-2016, available at <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/VOQCHQ>. Accessed on August 10, 2020.
- [7] U.S. Bureau of Economic Analysis Regional Economic Data Download, available at <https://apps.bea.gov/regional/downloadzip.cfm>. Accessed on August 10, 2020.
- [8] See Which States and Cities Have Told Residents to Stay at Home - The New York Times, available at <https://www.nytimes.com/interactive/2020/us/coronavirus-stay-at-home-order.html>. Accessed on August 10, 2020.
- [9] How Spatial Autocorrelation (Global Moran's I) works?, available at <https://desktop.arcgis.com/en/arcmap/10.7/tools/spatial-statistics-toolbox/h-how-spatial-autocorrelation-moran-s-i-spatial-st.htm>. Accessed on August 10, 2020.
- [10] How Cluster and Outlier Analysis (Anselin Local Moran's I) works?, available at <https://desktop.arcgis.com/en/arcmap/10.7/tools/spatial-statistics-toolbox/h-how-cluster-and-outlier-analysis-anselin-local-m.htm>. Accessed on August 10, 2020.
- [11] Lowe's same-store sales surge 11.2% as coronavirus restrictions spark home improvement spending, available at <https://www.cnbc.com/2020/05/20/lowes-low-earnings-q1-2020.html>. Accessed on August 10, 2020.
- [12] Pandemic underscores digital divide facing students and educators, available at <https://www.cnn.com/2020/04/09/politics/digital-divide-education-coronavirus/index.html>. Accessed on August 10, 2020.
- [13] Nearly 30 million Americans told the Census Bureau they didn't have enough to eat last week, available at <https://www.cnn.com/2020/07/31/us/food-insecurity-30-million-census-survey/index.html>. Accessed on August 10, 2020.
- [14] ALLCOTT, H., BOXELL, L., CONWAY, J., GENTZKOW, M., THALER, M., AND YANG, D. Y. Polarization and public health: Partisan differences in social distancing during the coronavirus pandemic. *NBER Working Paper*, w26946 (2020).
- [15] ANSELIN, L. Local indicators of spatial association—LISA. *Geographical Analysis* 27, 2 (1995), 93–115.
- [16] ARCHER, C. L., CERVONE, G., GOLBAZI, M., FAHEL, N. A., AND HULTQUIST, C. Changes in air quality and human mobility in the us during the covid-19 pandemic. *arXiv preprint arXiv:2006.15279* (2020).
- [17] ASKITAS, N., TATSIRAMOS, K., AND VERHEYDEN, B. Lockdown strategies, mobility patterns and covid-19. *arXiv preprint arXiv:2006.00531* (2020).
- [18] BAKER, S. R., FARROKHNA, R. A., MEYER, S., PAGEL, M., AND YANELIS, C. How does household spending respond to an epidemic? consumption during the 2020 covid-19 pandemic. Tech. rep., National Bureau of Economic Research, 2020.
- [19] BAKER, S. R., FARROKHNA, R. A., MEYER, S., PAGEL, M., AND YANELIS, C. Income, liquidity, and the consumption response to the 2020 economic stimulus payments. Tech. rep., National Bureau of Economic Research, 2020.

- [20] BARRIOS, J. M., AND HOCHBERG, Y. V. Risk perception through the lens of politics in the time of the covid-19 pandemic. Tech. rep., University of Chicago, 2020.
- [21] BIGGS, A. G., AND RAUH, J. Funding direct payments to americans through social security deferral. Tech. rep., American Enterprise Institute, 2020.
- [22] BONACCORSI, G., PIERRI, F., CINELLI, M., FLORI, A., GALEAZZI, A., PORCELLI, F., SCHMIDT, A. L., VALENSISE, C. M., SCALA, A., QUATTROCIOCCHI, W., ET AL. Economic and social consequences of human mobility restrictions under covid-19. *Proceedings of the National Academy of Sciences* 117, 27 (2020), 15530–15535.
- [23] BRODA, C., AND PARKER, J. A. The economic stimulus payments of 2008 and the aggregate demand for consumption. *Journal of Monetary Economics* (2014), 68, S20–S361.
- [24] CHETTY, R., FRIEDMAN, J. N., HENDREN, N., STEPNER, M., ET AL. How did covid-19 and stabilization policies affect spending and employment? a new real-time economic tracker based on private sector data. Tech. rep., National Bureau of Economic Research, 2020.
- [25] CLIFF, A. D., AND ORD, J. K. *Spatial processes: models & applications*. Taylor & Francis, 1981.
- [26] COIBION, O., GORODNICHENKO, Y., AND WEBER, M. The cost of the covid-19 crisis: lockdowns, macroeconomic expectations, and consumer spending. Tech. rep., National Bureau of Economic Research, 2020.
- [27] COIBION, O., GORODNICHENKO, Y., AND WEBER, M. The cost of the covid-19 crisis: lockdowns, macroeconomic expectations, and consumer spending. Tech. rep., National Bureau of Economic Research, 2020.
- [28] COIBION, O., GORODNICHENKO, Y., AND WEBER, M. The cost of the covid-19 crisis: lockdowns, macroeconomic expectations, and consumer spending. Tech. rep., National Bureau of Economic Research, 2020.
- [29] COIBION, O., GORODNICHENKO, Y., AND WEBER, M. The cost of the covid-19 crisis: lockdowns, macroeconomic expectations, and consumer spending. Tech. rep., National Bureau of Economic Research, 2020.
- [30] DESJARDINS, M., HOHL, A., AND DELMELLE, E. Rapid surveillance of covid-19 in the united states using a prospective space-time scan statistic: Detecting and evaluating emerging clusters. *Applied Geography* (2020), 102202.
- [31] DONG, E., DU, H., AND GARDNER, L. An interactive web-based dashboard to track covid-19 in real time. *The Lancet Infectious Diseases* 20, 5 (2020), 533–534.
- [32] DURANTE, K. M., AND LARAN, J. The effect of stress on consumer saving and spending. *Journal of Marketing Research* (2016), 53 (5), 814–828.
- [33] FAN, Y., ORHUN, A. Y., AND TURJEMAN, D. Heterogeneous actions, beliefs, constraints and risk tolerance during the covid-19 pandemic. Tech. rep., National Bureau of Economic Research, 2020.
- [34] FANG, H., WANG, L., AND YANG, Y. Human mobility restrictions and the spread of the novel coronavirus (2019-ncov) in China. Tech. rep., National Bureau of Economic Research, 2020.
- [35] FARRELL, D., WHEAT, C. O., WARD JR., M. M., AND RELIHAN, L. E. The early impact of covid-19 on local commerce: Changes in spend across neighborhoods and online. Tech. rep., JPMorgan Chase Institute, 2020.
- [36] GAO, S., RAO, J., KANG, Y., LIANG, Y., AND KRUSE, J. Mapping county-level mobility pattern changes in the united states in response to covid-19. *SIGSPATIAL Special* 12, 1 (2020), 16–26.
- [37] GRIFFITH, D. A. What is spatial autocorrelation? reflections on the past 25 years of spatial statistics. *L'Espace géographique* (1992), 265–280.
- [38] GUAN, D., WANG, D., HALLEGATTE, S., DAVIS, S. J., HUO, J., LI, S., BAI, Y., LEI, T., XUE, Q., COFFMAN, D., ET AL. Global supply-chain effects of covid-19 control measures. *Nature Human Behaviour* (2020), 1–11.
- [39] HE, G., PAN, Y., AND TANAKA, T. The short-term impacts of covid-19 lockdown on urban air pollution in china. *Nature Sustainability* (2020), 1–7.
- [40] HOHL, A., DELMELLE, E., DESJARDINS, M., AND LAN, Y. Daily surveillance of covid-19 using the prospective space-time scan statistic in the united states. *Spatial and Spatio-temporal Epidemiology* (2020), 100354.
- [41] HOLTZ, D., ZHAO, M., BENZELL, S. G., CAO, C. Y., RAHIMIAN, M. A., YANG, J., ALLEN, J. N. L., COLLIS, A., MOEHRING, A. V., SOWRIRAJAN, T., ET AL. Interdependence and the cost of uncoordinated responses to covid-19. *Proceedings of the National Academy of Sciences* (2020).

- [40] HUANG, Z., HUANG, X., AND JIANG, Y. The impact of death-related media information on consumer value orientation and scope sensitivity. *Journal of Marketing Research* (2018), 55 (3), 432–445.
- [41] KAMAKURA, W. A., AND Y., D. How economic contractions and expansions affect expenditure patterns. *Journal of Consumer Research* (2012), 39 (2), 229–247.
- [42] KARGER, E., AND RAJAN, A. Heterogeneity in the marginal propensity to consume: evidence from covid-19 stimulus payments. Tech. rep., Federal Reserve Bank of Chicago, 2020.
- [43] LAI, S., RUKTANONCHAI, N. W., ZHOU, L., PROSPER, O., LUO, W., FLOYD, J. R., WESOLOWSKI, A., SANTILLANA, M., ZHANG, C., DU, X., ET AL. Effect of non-pharmaceutical interventions to contain covid-19 in china. *Nature* (2020), 1–7.
- [44] LI, X., LIN, Q., AND KOLAK, M. The US COVID-19 Atlas. Tech. rep., The Center for Spatial Data Science at the University of Chicago, 2020.
- [45] LIU, Q., SHEN, Q., LI, Z., AND CHEN, S. Stimulating consumption at low budget—evidence from a large-scale policy experiment amid the covid-19 pandemic. Tech. rep., Peking University, 2020.
- [46] LIU, Q., SHEN, QIAOWEI AND LI, Z., AND CHEN, S. Stimulating consumption at low budget: Evidence from a large-scale policy experiment amid the covid-19 pandemic. Tech. rep., Peking University, 2020.
- [47] MANDEL, N., AND SMEESTERS, D. The sweet escape: Effects of mortality salience on consumption quantities for high- and low- self-esteem consumers. *Journal of Consumer Research* (2008), 35 (2), 309–323.
- [48] MEAD, N. L., BAUMEISTER, R. F., STILLMAN, T. F., RAWN, C., AND VOHS, K. D. Social exclusion causes people to spend and consume strategically in the service of affiliation. *Journal of Consumer Research* (2011), 37 (5), 902–919.
- [49] MISRA, K., SINGH, V., AND ZHANG, Q. P. Impact of the cares act stimulus payments on consumption. Tech. rep., UC San Diego, 2020.
- [50] MISRA, K., AND SURICO, P. Consumption, income changes, and heterogeneity: evidence from two fiscal stimulus programs. *American Economic Journal: Macroeconomics* (2014), 6(4), 84–106.
- [51] MORAN, P. A. Notes on continuous stochastic phenomena. *Biometrika* 37, 1/2 (1950), 17–23.
- [52] PAINTER, M. O., AND QIU, T. Political beliefs affect compliance with covid-19 social distancing orders. Tech. rep., Saint Louis University, 2020.
- [53] PARKER, J. A., SOULELES, N. S., JOHNSON, D. S., AND MCCLELLAND, R. Consumer spending and the economic stimulus payments of 2008. *American Economic Review* (2020), 103 (6), 2530–2553.
- [54] PIETERS, R. Bidirectional dynamics of materialism and loneliness: Not just a vicious cycle. *Journal of Consumer Research* (2014), June 2014, S283—S299.
- [55] REINHOLTZ, N., BARTELS, D. M., AND PARKER, J. R. On the mental accounting of restricted-use funds: How gift cards change what people purchase. *Journal of Consumer Research* (2015), 42 (4), 596–614.
- [56] ROUX, C., GOLDSMITH, K., AND BONEZZI, A. On the psychology of scarcity: When reminders of resource scarcity promote selfish (and generous) behavior. *Journal of Consumer Research* (2015), 42 (4), 615–631.
- [57] RUBIN, D., HUANG, J., FISHER, B. T., GASPARRINI, A., TAM, V., SONG, L., WANG, X., KAUFMAN, J., FITZPATRICK, K., JAIN, A., ET AL. Association of social distancing, population density, and temperature with the instantaneous reproduction number of sars-cov-2 in counties across the united states. *JAMA Network Open* 3, 7 (2020), e2016099–e2016099.
- [58] SAHM, C. R., SHAPIRO, M. D., AND SLEMROD, J. Check in the mail or more in the paycheck: does the effectiveness of fiscal stimulus depend on how it is delivered? *American Economic Journal: Economic Policy* (2012), 4(3), 216–250.

- [59] TULLY, S. M., HERSHFIELD, H. E., AND MEYVIS, T. Seeking lasting enjoyment with limited money: Financial constraints increase preference for material goods over experiences. *Journal of Consumer Research* (2015), 42 (1), 59–75.
- [60] VAN BAVEL, J. J., BAICKER, K., BOGGIO, P. S., CAPRARO, V., CICHOCKA, A., CIKARA, M., CROCKETT, M. J., CRUM, A. J., DOUGLAS, K. M., DRUCKMAN, J. N., ET AL. Using social and behavioural science to support covid-19 pandemic response. *Nature Human Behaviour* (2020), 1–12.
- [61] WU, D., NAIR, H. S., AND GENG, T. Consumption vouchers during covid-19: Evidence from e-commerce. Tech. rep., JD.com, 2020.

Supplementary Material

A Figures

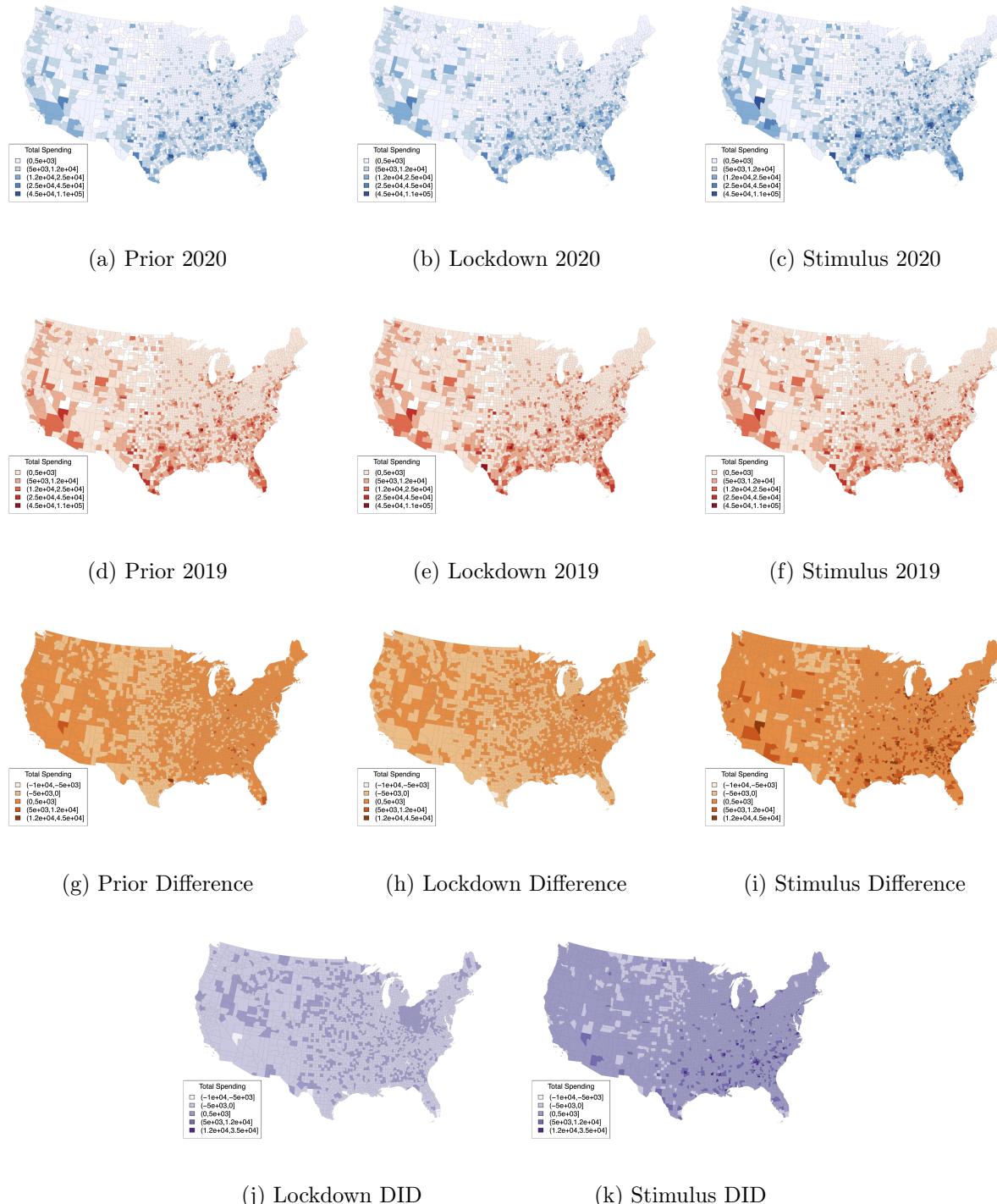


Figure S1: The spatial distributions of daily zip code level total spending on average in different periods.

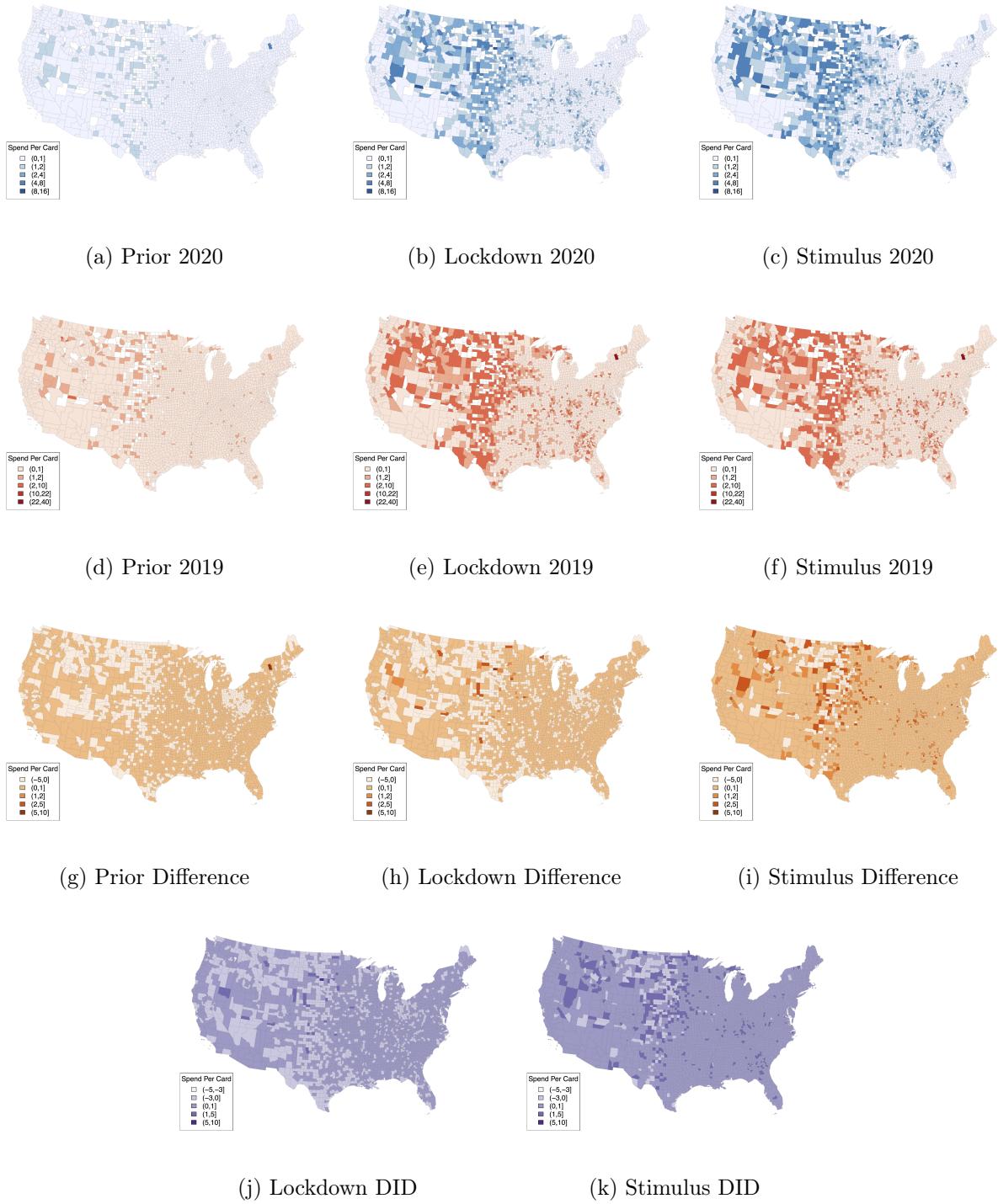


Figure S2: The spatial distributions of daily per card spending on average in different periods.

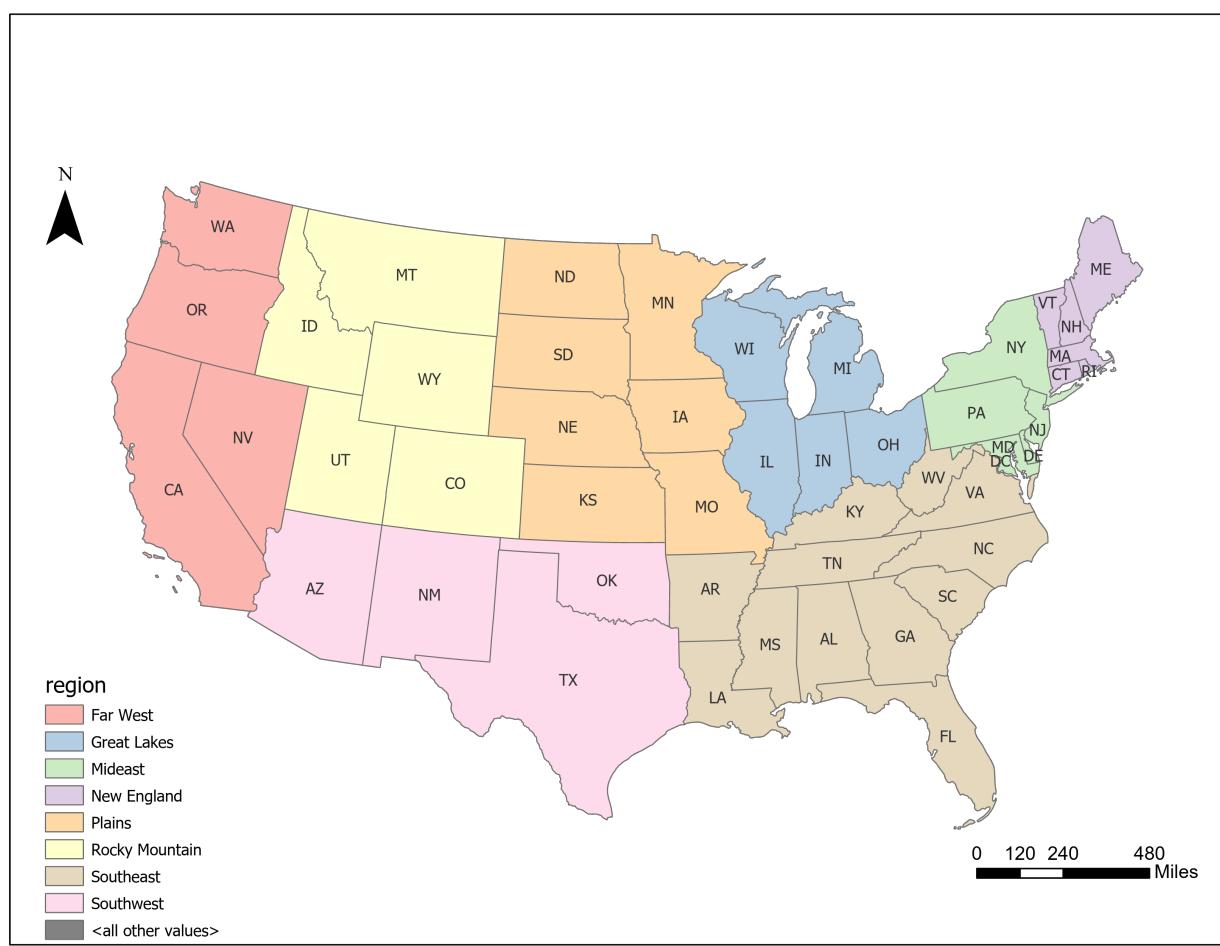


Figure S3: The eight U.S. economic regions defined by the Department of Commerce Bureau of Economic Analysis: New England, Mideast, Southeast, Great Lakes, Plains, Rocky Mountains, Southwest, and Far West.

B Tables

Table S1: Major Spending Groups and Categories

Spending Group	Category	Sub-category
Travel	airlines	
	car rental	
	hotels	
Home Activities	internet	internet, cable, telecommunication, etc
	home office	Computer maintenance, e-repair, office stores, etc
	home improvement	Glassware, air-condition, furniture, floor-covering, etc
Health	education	school tuition, educational services
	child care	
	medical services	physician, dental, opticians, nursing, osteopaths, etc
Food	liquor & cigar stores	beer, wine, tobacco
	drug stores	pharmacies
General merchandise	wholesale clubs	e.g. Costco
	department stores	e.g. Macy's
	discount stores	e.g. dollar tree
Entertainment	restaurants	catering, restaurant, drinking, fast-food
	grocery	grocery store, freezer candy, nuts, dairy, bakery
Other non-food Shopping	outdoor recreation	movie, band, orchestra, dance hall, tourist, betting, park, club, aquariums, etc
	indoor digital	game, book, movies, music, online gambling
	indoor non-digital	toys, books, craft, photography, etc
Finance	used goods	antique, pawn, etc
	cosmetics	e.g. Sephora
	auto dealers	car selling/leasing, accessories stores, etc
	auto	auto repair, tire, paint, car wash, towing, etc
Personal Services		tax, real estate, charity, political fundraising, employment services, etc
		dryer, dating, funeral, spa, massage, tattoo, shoe repair, etc
Clothing and Accessories		jewelry, clocks, silverware, clothes, fur, shoe, tailor, etc

B.1 Daily Zip Code Level Spending

Table S2: Effects of staggered lockdowns and stimulus payments on zip code level spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq \text{order_date}\}$	-1689.657*** (36.548)	-686.725*** (25.792)	-2890.987*** (71.184)	-19.503*** (0.282)	-15.945*** (0.412)	-24.182*** (0.360)
$\mathbb{1}\{\geq 04 - 11\}$	3409.338*** (44.855)	2383.852*** (35.932)	5085.928*** (100.879)	39.386*** (0.240)	41.633*** (0.318)	35.325*** (0.358)
Adjusted R ²	0.467	0.419	0.482	0.223	0.215	0.240
N	2521355	1589995	931360	2521355	1589995	931360

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S3: Global Moran's I statistical analysis for DID analysis of daily county level spending and per card spending during lockdown and stimulus payments periods.

Title	Period	Moran's Index	Z-value	Results
Total Spending DID	lockdown	0.019	5.202	clustered
	stimulus	0.115	12.813	clustered
Per Card Spending DID	lockdown	0.100	9.098	clustered
	stimulus	0.252	22.435	clustered

B.2 Travel Spending

Total

Table S4: Effects of initial lockdown and stimulus payments on zip code level travel spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-332.649*** (5.880)	-177.101*** (4.342)	-476.996*** (10.272)	-52.151*** (0.928)	-45.187*** (1.484)	-58.613*** (1.139)
$\mathbb{1}\{\geq 04 - 11\}$	179.719*** (4.351)	124.114*** (4.077)	228.512*** (7.288)	31.037*** (1.100)	38.332*** (1.889)	24.636*** (1.225)
Adjusted R ²	0.224	0.118	0.259	0.144	0.131	0.151
N	1245420	601982	643438	1245420	601982	643438

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S5: Effects on travel dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-238.813*** (17.775)	-433.777*** (21.401)	-317.248*** (10.407)	-367.296*** (17.512)	-210.460*** (13.673)	-266.089*** (19.837)	-297.472*** (12.877)	-359.186*** (13.842)
$\mathbb{1}\{\geq 04 - 11\}$	127.277*** (12.730)	184.067*** (13.568)	203.001*** (7.580)	244.026*** (13.516)	124.936*** (10.937)	95.401*** (21.983)	163.951*** (11.837)	134.610*** (9.686)
Adjusted R ²	0.152	0.248	0.266	0.157	0.118	0.116	0.248	0.181
N	60057	192585	366219	176632	83371	41011	153891	172635

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S6: Effects on travel percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-68.551*** (5.227)	-62.882*** (2.422)	-48.942*** (1.711)	-55.268*** (2.485)	-48.852*** (3.990)	-50.949*** (5.225)	-38.168*** (2.300)	-53.929*** (2.280)
$\mathbb{1}\{\geq 04 - 11\}$	28.415*** (5.512)	18.480*** (2.456)	39.435*** (2.171)	46.036*** (2.972)	37.778*** (4.946)	29.837*** (6.425)	24.246*** (2.949)	17.585*** (2.541)
Adjusted R ²	0.152	0.158	0.137	0.141	0.139	0.138	0.138	0.141
N	60057	192585	366219	176632	83371	41011	153891	172635

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Airlines

Table S7: Effects of initial lockdown and stimulus payments on zip code level airlines spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-154.360*** (7.332)	-90.181*** (9.397)	-171.610*** (8.838)	-93.717*** (4.526)	-82.489*** (11.634)	-96.734*** (4.813)
$\mathbb{1}\{\geq 04 - 11\}$	68.360*** (8.919)	58.402*** (20.041)	70.449*** (9.932)	53.313*** (7.451)	68.883*** (20.922)	50.046*** (7.879)
Adjusted R ²	0.181	0.210	0.176	0.189	0.232	0.173
N	106376	23980	82396	106376	23980	82396

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S8: Effects on airlines dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-106.142*** (30.961)	-192.843*** (20.008)	-145.844*** (13.574)	-248.759*** (27.966)	-143.143*** (27.540)	-124.428*** (22.361)	-127.092*** (13.821)	-105.301*** (14.230)
$\mathbb{1}\{\geq 04 - 11\}$	3.541 (46.159)	97.818*** (28.041)	71.356*** (17.890)	103.259*** (22.852)	2.806 (48.160)	37.079 (48.145)	38.752* (21.362)	60.039*** (17.035)
Adjusted R ²	0.198	0.200	0.169	0.149	0.216	0.153	0.217	0.157
N	3158	15987	26837	13955	4276	4276	16888	21074

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S9: Effects on airlines percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-107.477*** (23.551)	-107.520*** (10.075)	-88.736*** (8.632)	-118.338*** (10.190)	-88.262*** (23.634)	-118.630*** (23.128)	-81.075*** (13.677)	-75.743*** (10.816)
$\mathbb{1}\{\geq 04 - 11\}$	31.691 (38.138)	91.739*** (17.667)	45.747*** (14.221)	64.763*** (15.923)	30.777 (39.309)	9.161 (38.597)	29.511 (24.938)	56.978*** (16.219)
Adjusted R ²	0.240	0.175	0.184	0.190	0.244	0.205	0.178	0.184
N	3158	15987	26837	13955	4276	4276	16888	21074

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Car Rental

Table S10: Effects of initial lockdown and stimulus payments on zip code level car rental spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-12.969*** (2.350)	8.961** (4.360)	-19.577*** (2.746)	3.076 (6.896)	102.836*** (16.688)	-26.985*** (7.373)
$\mathbb{1}\{\geq 04 - 11\}$	29.436*** (3.232)	21.719*** (6.459)	31.175*** (3.682)	86.714*** (10.245)	55.473* (29.777)	93.754*** (10.609)
Adjusted R ²	0.096	0.133	0.086	0.137	0.172	0.122
N	355734	84199	271535	355734	84199	271535

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S11: Effects on car rental dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-6.280 (10.382)	-25.978*** (5.874)	-10.139** (5.111)	-31.340*** (7.781)	14.359 (9.034)	-2.728 (11.777)	-4.477 (5.842)	-9.965** (4.378)
$\mathbb{1}\{\geq 04 - 11\}$	42.985** (17.065)	32.262*** (7.747)	40.944*** (6.954)	53.832*** (10.135)	12.892 (13.264)	-5.882 (15.386)	-0.799 (7.716)	20.131*** (6.114)
Adjusted R ²	0.115	0.103	0.092	0.109	0.111	0.104	0.098	0.079
N	16161	58713	86254	44501	15993	11360	49376	73400

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S12: Effects on car rental percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-3.849 (34.961)	-18.667 (15.674)	45.852*** (13.972)	11.194 (20.282)	45.469 (35.041)	-29.520 (43.788)	-0.342 (16.920)	-39.811** (15.716)
$\mathbb{1}\{\geq 04 - 11\}$	190.467*** (58.471)	124.968*** (21.055)	72.370*** (22.286)	131.194*** (28.974)	96.326* (52.861)	-6.235 (87.337)	11.393 (26.660)	70.639*** (21.489)
Adjusted R ²	0.148	0.144	0.142	0.149	0.155	0.131	0.129	0.113
N	16161	58713	86254	44501	15993	11360	49376	73400

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Hotels

Table S13: Effects of initial lockdown and stimulus payments on zip code level hotels spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-108.018*** (3.452)	-76.889*** (4.109)	-130.210*** (5.089)	-33.112*** (1.895)	-29.639*** (3.009)	-35.588*** (2.435)
$1\{\geq 04 - 11\}$	81.223*** (4.048)	58.514*** (5.024)	95.869*** (5.796)	32.907*** (2.539)	29.124*** (4.199)	35.347*** (3.180)
Adjusted R ²	0.200	0.109	0.225	0.125	0.135	0.118
N	431098	177674	253424	431098	177674	253424

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S14: Effects on hotels dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-66.959*** (14.379)	-117.128*** (13.180)	-130.423*** (6.065)	-130.567*** (9.804)	-62.155*** (10.507)	-64.311*** (14.223)	-74.074*** (8.175)	-105.558*** (8.462)
$1\{\geq 04 - 11\}$	30.597* (17.148)	68.623*** (11.745)	96.476*** (7.163)	131.934*** (11.750)	63.773*** (14.878)	13.381 (17.788)	47.280*** (10.588)	77.431*** (9.797)
Adjusted R ²	0.153	0.123	0.288	0.102	0.106	0.089	0.204	0.106
N	10550	45461	142764	53441	23625	16107	72361	66869

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S15: Effects on hotels percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-41.326*** (12.599)	-34.136*** (6.463)	-36.692*** (3.096)	-41.688*** (5.084)	-24.831*** (8.414)	-42.015*** (10.565)	-18.852*** (4.661)	-33.483*** (5.046)
$1\{\geq 04 - 11\}$	31.226 (18.962)	25.844*** (8.022)	37.582*** (4.073)	48.693*** (6.921)	13.976 (13.417)	12.606 (13.783)	24.526*** (6.487)	33.740*** (6.496)
Adjusted R ²	0.154	0.134	0.124	0.133	0.133	0.116	0.121	0.113
N	10550	45461	142764	53441	23625	16107	72361	66869

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.3 Home Activities Spending

Total

Table S16: Effects of initial lockdown and stimulus payments on zip code level home activity spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-240.075*** (7.048)	-132.213*** (4.992)	-405.968*** (15.954)	-17.094*** (0.833)	-16.663*** (1.141)	-17.757*** (1.176)
$\mathbb{1}\{\geq 04 - 11\}$	870.072*** (13.858)	550.086*** (9.873)	1347.563*** (30.414)	86.363*** (1.127)	88.588*** (1.549)	83.042*** (1.595)
Adjusted R ²	0.431	0.354	0.443	0.125	0.118	0.137
N	1934896	1167328	767568	1934896	1167328	767568

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S17: Effects on home activity dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-110.479*** (14.079)	-273.100*** (15.081)	-336.054*** (18.240)	-231.337*** (14.088)	-87.482*** (10.692)	-65.350*** (13.582)	-238.996*** (19.216)	-168.682*** (11.135)
$\mathbb{1}\{\geq 04 - 11\}$	417.723*** (29.489)	746.195*** (32.976)	1026.457*** (28.947)	1047.871*** (44.680)	619.765*** (36.419)	507.146*** (31.785)	1105.759*** (35.981)	636.509*** (26.057)
Adjusted R ²	0.462	0.436	0.401	0.478	0.417	0.247	0.516	0.347
N	94929	277303	590000	307091	169256	61093	224696	212646

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S18: Effects on home activity percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-8.703* (4.675)	-22.041*** (2.345)	-23.847*** (1.470)	-14.408*** (2.215)	-5.862* (3.022)	-5.351 (4.564)	-14.528*** (1.951)	-15.075*** (2.306)
$\mathbb{1}\{\geq 04 - 11\}$	79.605*** (5.658)	74.309*** (3.013)	98.406*** (1.990)	106.246*** (3.007)	83.131*** (4.142)	60.663*** (6.724)	76.344*** (2.806)	63.829*** (2.982)
Adjusted R ²	0.112	0.119	0.122	0.123	0.117	0.126	0.138	0.123
N	94929	277303	590000	307091	169256	61093	224696	212646

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Internet, cable and telecommunication

Table S19: Effects of initial lockdown and stimulus payments on zip code level Internet, cable and telecommunication spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-233.927*** (7.179)	-129.202*** (5.193)	-384.997*** (15.663)	-19.839*** (0.810)	-19.633*** (1.113)	-20.136*** (1.157)
$\mathbb{1}\{\geq 04 - 11\}$	780.411*** (13.117)	494.647*** (9.316)	1181.571*** (27.992)	84.121*** (1.104)	83.867*** (1.517)	84.478*** (1.582)
Adjusted R ²	0.427	0.361	0.433	0.118	0.112	0.129
N	1722910	1014795	708115	1722910	1014795	708115

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S20: Effects on Internet, cable and telecommunication dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-117.970*** (15.092)	-267.809*** (15.171)	-324.799*** (18.949)	-239.295*** (14.679)	-94.391*** (11.325)	-55.812*** (13.359)	-200.515*** (12.990)	-161.638*** (10.563)
$\mathbb{1}\{\geq 04 - 11\}$	366.692*** (27.443)	660.950*** (29.997)	923.030*** (27.755)	968.222*** (42.387)	564.812*** (35.400)	422.227*** (28.209)	965.348*** (31.970)	531.624*** (23.455)
Adjusted R ²	0.461	0.433	0.404	0.492	0.426	0.247	0.461	0.348
N	77650	239070	541197	266925	142957	53858	207485	195483

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S21: Effects on Internet, cable and telecommunication percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-10.105** (4.519)	-22.812*** (2.316)	-25.822*** (1.409)	-18.387*** (2.183)	-10.409*** (2.960)	-6.676 (4.956)	-18.292*** (1.900)	-17.601*** (2.290)
$\mathbb{1}\{\geq 04 - 11\}$	76.993*** (5.876)	68.075*** (2.952)	96.735*** (1.944)	104.501*** (2.920)	78.868*** (3.978)	56.585*** (6.603)	79.629*** (2.771)	61.402*** (3.008)
Adjusted R ²	0.113	0.117	0.115	0.117	0.112	0.111	0.128	0.107
N	77650	239070	541197	266925	142957	53858	207485	195483

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Home Improvement

Table S22: Effects of initial lockdown and stimulus payments on zip code level home improvement spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-7.635*** (1.680)	-1.894 (1.650)	-15.085*** (3.211)	-3.227** (1.350)	-0.863 (1.871)	-6.296*** (1.931)
$1\{\geq 04 - 11\}$	184.652*** (3.111)	123.582*** (2.641)	261.618*** (6.056)	110.444*** (1.862)	112.940*** (2.568)	107.298*** (2.691)
Adjusted R ²	0.164	0.113	0.186	0.121	0.122	0.118
N	1464943	824003	640940	1464943	824003	640940

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S23: Effects on home improvement dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-2.354 (6.222)	-29.281*** (4.708)	-8.337*** (2.746)	-8.327* (4.663)	7.352 (4.598)	-2.002 (7.575)	-0.986 (6.302)	-1.619 (4.189)
$1\{\geq 04 - 11\}$	126.997*** (10.338)	192.820*** (9.448)	178.781*** (5.195)	235.400*** (10.557)	163.429*** (9.018)	141.030*** (10.853)	220.459*** (8.558)	139.434*** (6.672)
Adjusted R ²	0.172	0.160	0.148	0.143	0.131	0.091	0.256	0.123
N	64344	201589	449575	223172	117279	46382	185175	178809

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S24: Effects on home improvement percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-10.748 (7.100)	-12.069*** (3.773)	-5.540** (2.442)	3.249 (3.667)	8.373* (4.856)	-4.031 (7.178)	-2.734 (3.283)	-0.621 (3.792)
$1\{\geq 04 - 11\}$	99.472*** (9.710)	108.000*** (4.857)	110.216*** (3.272)	145.284*** (5.105)	130.471*** (7.116)	107.717*** (9.628)	94.980*** (4.902)	77.579*** (5.104)
Adjusted R ²	0.127	0.122	0.113	0.127	0.128	0.114	0.122	0.111
N	64344	201589	449575	223172	117279	46382	185175	178809

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Home Office

Table S25: Effects of initial lockdown and stimulus payments on zip code level home office spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	5.592*** (1.458)	7.199*** (2.227)	4.792** (1.881)	31.127*** (11.011)	46.111** (19.160)	23.670* (13.445)
$1\{\geq 04 - 11\}$	23.172*** (1.577)	20.736*** (2.466)	24.291*** (2.001)	133.344*** (14.203)	136.980*** (24.847)	131.672*** (17.305)
Adjusted R ²	0.174	0.174	0.174	0.165	0.189	0.153
N	132951	46030	86921	132951	46030	86921

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S26: Effects on home office dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	0.219 (4.268)	6.990* (3.621)	4.541* (2.759)	-2.861 (5.305)	23.516*** (7.512)	10.331 (6.336)	7.149** (2.785)	5.611 (4.082)
$1\{\geq 04 - 11\}$	18.026*** (5.915)	22.564*** (4.056)	27.394*** (3.097)	20.978*** (3.794)	24.279*** (9.196)	15.993 (9.884)	23.709*** (3.841)	17.892*** (3.420)
Adjusted R ²	0.229	0.142	0.147	0.210	0.212	0.228	0.195	0.213
N	4368	18885	41951	13730	5938	3447	24901	19752

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S27: Effects on home office percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-87.450 (70.257)	29.618 (27.751)	29.778 (20.743)	21.545 (35.842)	43.529 (48.114)	13.853 (64.531)	46.024* (23.568)	47.912* (27.301)
$1\{\geq 04 - 11\}$	88.527 (62.961)	138.524*** (33.628)	154.154*** (24.614)	170.734*** (44.779)	51.199 (76.271)	80.950 (86.644)	123.214*** (35.546)	113.026*** (39.109)
Adjusted R ²	0.197	0.150	0.156	0.191	0.196	0.203	0.148	0.178
N	4368	18885	41951	13730	5938	3447	24901	19752

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

School/Education

Table S28: Effects of initial lockdown and stimulus payments on zip code level school/education spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-32.268*** (2.385)	-28.065*** (3.411)	-34.929*** (3.239)	-60.632*** (5.073)	-64.735*** (7.670)	-58.036*** (6.712)
$1\{\geq 04 - 11\}$	31.249*** (2.730)	25.019*** (4.061)	34.914*** (3.614)	61.353*** (6.578)	63.345*** (10.515)	60.181*** (8.419)
Adjusted R ²	0.102	0.116	0.095	0.141	0.156	0.131
N	260776	106597	154179	260776	106597	154179

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S29: Effects on school/education dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-17.574* (9.860)	-30.356*** (7.437)	-38.784*** (4.323)	-20.429*** (5.359)	-24.395** (10.680)	-9.638 (9.908)	-47.597*** (5.618)	-13.242** (6.487)
$1\{\geq 04 - 11\}$	27.225** (12.605)	16.640* (8.844)	44.670*** (4.810)	27.694*** (7.392)	31.918*** (11.013)	-5.174 (11.985)	33.471*** (6.571)	19.854*** (6.939)
Adjusted R ²	0.158	0.110	0.088	0.104	0.108	0.110	0.091	0.137
N	6744	26688	82028	33575	17244	9133	52996	32411

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S30: Effects on school/education percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-24.995 (30.382)	-46.464*** (16.440)	-73.428*** (8.694)	-36.041** (14.605)	-64.295*** (22.458)	-32.553 (31.724)	-86.310*** (9.506)	-28.467* (16.962)
$1\{\geq 04 - 11\}$	90.817** (41.590)	50.529** (20.377)	86.373*** (11.046)	71.720*** (19.511)	82.676*** (25.894)	-29.055 (44.441)	41.400*** (13.905)	32.791* (19.792)
Adjusted R ²	0.168	0.153	0.130	0.144	0.151	0.140	0.120	0.156
N	6744	26688	82028	33575	17244	9133	52996	32411

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Child Care

Table S31: Effects of initial lockdown and stimulus payments on zip code level child care spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-73.643*** (5.631)	-43.961*** (7.762)	-93.927*** (7.619)	-49.375*** (4.463)	-31.240*** (6.545)	-61.768*** (5.950)
$1\{\geq 04 - 11\}$	-10.844 (10.357)	-14.089 (14.128)	-8.485 (14.656)	-2.570 (7.465)	-1.149 (12.196)	-3.603 (9.363)
Adjusted R ²	0.166	0.190	0.156	0.205	0.236	0.188
N	41476	15461	26015	41476	15461	26015

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S32: Effects on child care spending change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-17.631 (97.347)	-26.120 (25.621)	-76.694*** (7.617)	-67.675*** (19.693)	-77.330** (36.644)	-37.237 (45.899)	-77.840*** (10.181)	-51.276 (32.985)
$1\{\geq 04 - 11\}$	11.090*** (0.000)	46.004 (31.695)	-10.975 (11.638)	85.838** (40.557)	23.420 (33.988)	-7.123*** (0.000)	-24.760 (21.774)	4.645 (39.843)
Adjusted R ²	0.342	0.196	0.156	0.241	0.222	0.450	0.154	0.201
N	527	2714	19628	2556	1448	228	13150	1225

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S33: Effects on child care percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	38.217 (73.574)	-47.777** (19.851)	-43.779*** (6.326)	-92.860*** (24.847)	-46.869 (32.781)	-159.026 (102.188)	-51.347*** (7.033)	-60.365* (32.272)
$1\{\geq 04 - 11\}$	6.042*** (0.000)	24.798 (48.427)	-8.893 (9.027)	70.947* (42.610)	50.785 (48.181)	-0.760*** (0.000)	-2.874 (13.744)	-33.897 (50.865)
Adjusted R ²	0.365	0.229	0.191	0.276	0.254	0.340	0.173	0.225
N	527	2714	19628	2556	1448	228	13150	1225

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.4 Health Spending

Total

Table S34: Effects of initial lockdown and stimulus payments on zip code level health spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-23.261*** (1.295)	-14.858*** (1.491)	-33.324*** (2.209)	-11.822*** (0.636)	-9.802*** (0.920)	-14.240*** (0.861)
$\mathbb{1}\{\geq 04 - 11\}$	132.333*** (2.223)	96.419*** (2.130)	173.725*** (4.053)	44.573*** (0.824)	46.656*** (1.197)	42.172*** (1.113)
Adjusted R ²	0.169	0.120	0.196	0.120	0.120	0.117
N	1471045	800112	670933	1471045	800112	670933

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S35: Effects on health dollar change across geographic region

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-20.834*** (4.398)	-28.333*** (3.261)	-21.098*** (2.350)	-18.806*** (3.118)	-3.478 (3.721)	3.449 (6.201)	-34.530*** (4.658)	-38.115*** (3.939)
$\mathbb{1}\{\geq 04 - 11\}$	80.393*** (6.251)	123.298*** (5.642)	133.160*** (3.672)	166.634*** (7.687)	126.917*** (7.882)	104.880*** (9.188)	162.603*** (6.845)	108.321*** (5.718)
Adjusted R ²	0.196	0.223	0.151	0.250	0.139	0.103	0.146	0.092
N	78606	220289	447491	217978	112783	46492	175051	173444

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S36: Effects on health percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-8.164** (3.181)	-18.510*** (1.750)	-12.026*** (1.147)	-12.928*** (1.694)	-5.080** (2.332)	0.184 (3.357)	-9.305*** (1.579)	-13.668*** (1.802)
$\mathbb{1}\{\geq 04 - 11\}$	29.615*** (3.556)	36.430*** (2.064)	50.202*** (1.493)	55.209*** (2.261)	47.226*** (3.103)	39.661*** (4.657)	39.010*** (2.292)	39.802*** (2.270)
Adjusted R ²	0.131	0.113	0.114	0.135	0.120	0.124	0.119	0.107
N	78606	220289	447491	217978	112783	46492	175051	173444

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Medical Services

Table S37: Effects of initial lockdown and stimulus payments on zip code level medical services spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-62.229*** (2.624)	-45.439*** (3.282)	-77.830*** (4.002)	-53.095*** (2.947)	-49.804*** (4.261)	-56.153*** (4.078)
$1\{\geq 04 - 11\}$	53.355*** (2.830)	45.595*** (3.518)	60.342*** (4.338)	56.999*** (3.761)	55.610*** (5.429)	58.250*** (5.215)
Adjusted R ²	0.101	0.093	0.106	0.127	0.136	0.119
N	342838	164579	178259	342838	164579	178259

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S38: Health medical services spending difference by geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-45.486*** (12.186)	-49.971*** (7.004)	-62.532*** (4.166)	-53.329*** (6.714)	-48.465*** (8.404)	-49.796*** (10.769)	-87.467*** (7.216)	-40.838*** (7.196)
$1\{\geq 04 - 11\}$	42.239*** (13.698)	39.343*** (7.345)	60.936*** (4.554)	50.424*** (7.875)	53.893*** (11.407)	62.789*** (13.079)	52.556*** (7.357)	43.490*** (9.019)
Adjusted R ²	0.150	0.098	0.083	0.094	0.088	0.099	0.118	0.120
N	6622	34109	119895	40898	21734	12589	71166	35864

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S39: Health medical services percentage difference by geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-46.095* (26.495)	-63.773*** (9.975)	-54.133*** (5.017)	-60.250*** (9.243)	-32.981*** (12.308)	-44.992*** (15.687)	-56.194*** (5.546)	-41.508*** (9.603)
$1\{\geq 04 - 11\}$	79.043*** (29.434)	58.867*** (11.338)	60.212*** (6.441)	70.599*** (11.012)	62.848*** (13.119)	69.702*** (18.873)	45.641*** (8.099)	38.755*** (12.601)
Adjusted R ²	0.196	0.138	0.120	0.133	0.132	0.120	0.108	0.139
N	6622	34109	119895	40898	21734	12589	71166	35864

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Drug Stores

Table S40: Effects of initial lockdown and stimulus payments on zip code level drug stores spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-9.908*** (0.646)	-3.518*** (0.686)	-15.499*** (1.045)	-8.224*** (0.806)	-6.394*** (1.245)	-9.825*** (1.048)
$1\{\geq 04 - 11\}$	38.363*** (0.936)	23.730*** (0.936)	50.736*** (1.513)	31.205*** (1.050)	28.508*** (1.639)	33.486*** (1.354)
Adjusted R ²	0.150	0.117	0.162	0.122	0.127	0.115
N	1010485	474365	536120	1010485	474365	536120

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S41: Effects on drug stores dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)								
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West	
$1\{\geq 03 - 19\}$	-15.866*** (2.700)	-9.460*** (1.687)	-10.874*** (1.066)	-15.433*** (2.219)	-8.283*** (2.377)	-3.434 (2.779)	-8.353*** (1.816)	-3.332** (1.497)	
$1\{\geq 04 - 11\}$	37.247*** (3.931)	46.269*** (2.670)	27.176*** (1.374)	57.974*** (3.188)	39.307*** (3.739)	25.438*** (3.895)	40.568*** (2.579)	33.359*** (2.225)	
Adjusted R ²	0.137	0.172	0.115	0.177	0.113	0.080	0.184	0.121	
N	51366	147260	308623	149207	64087	26302	128362	135491	

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S42: Effects on drug stores percentage change across geographic regions

	Dependent Variable: Percentage Change (%)								
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West	
$1\{\geq 03 - 19\}$	-19.457*** (3.875)	-8.285*** (2.111)	-9.011*** (1.431)	-9.391*** (2.207)	-9.020*** (3.421)	-6.938 (5.706)	-3.748* (1.930)	-5.076** (2.251)	
$1\{\geq 04 - 11\}$	39.985*** (4.534)	30.797*** (2.714)	24.757*** (1.853)	40.509*** (2.963)	31.968*** (4.344)	40.565*** (7.514)	29.301*** (2.774)	32.110*** (2.753)	
Adjusted R ²	0.134	0.122	0.120	0.136	0.114	0.097	0.123	0.098	
N	51366	147260	308623	149207	64087	26302	128362	135491	

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Liquor Stores and Cigar Stores

Table S43: Effects of initial lockdown and stimulus payments on zip code level liquor stores and cigar stores spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	35.067*** (0.924)	22.621*** (0.803)	48.155*** (1.676)	18.136*** (0.728)	18.476*** (1.040)	17.778*** (1.016)
$\mathbb{1}\{\geq 04 - 11\}$	44.528*** (1.134)	27.378*** (0.919)	61.805*** (2.050)	31.996*** (0.904)	29.667*** (1.298)	34.341*** (1.257)
Adjusted R ²	0.352	0.244	0.379	0.132	0.131	0.134
N	1096502	560205	536297	1096502	560205	536297

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S44: Effects on liquor stores and cigar stores dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	26.583*** (2.547)	27.531*** (3.117)	44.642*** (1.629)	35.921*** (2.842)	28.171*** (2.076)	42.636*** (4.071)	54.859*** (2.428)	3.677* (1.942)
$\mathbb{1}\{\geq 04 - 11\}$	30.851*** (3.184)	57.852*** (3.485)	36.963*** (1.535)	72.683*** (4.693)	35.298*** (2.883)	17.851*** (4.059)	34.492*** (2.399)	39.126*** (2.555)
Adjusted R ²	0.384	0.419	0.356	0.400	0.277	0.211	0.294	0.136
N	58134	167013	323255	161071	84868	38599	133171	131179

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S45: Effects on liquor stores and cigar stores percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	16.621*** (2.946)	5.209*** (1.980)	29.551*** (1.338)	9.146*** (1.847)	16.213*** (2.413)	17.919*** (3.393)	33.206*** (2.063)	2.527 (2.068)
$\mathbb{1}\{\geq 04 - 11\}$	27.048*** (3.706)	33.830*** (2.187)	31.393*** (1.713)	40.431*** (2.375)	32.031*** (3.191)	5.898 (4.449)	28.384*** (2.692)	33.031*** (2.597)
Adjusted R ²	0.149	0.130	0.126	0.151	0.143	0.141	0.122	0.119
N	58134	167013	323255	161071	84868	38599	133171	131179

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.5 General Purpose Merchandise Spending

Total

Table S46: Effects of initial lockdown and stimulus payments on zip code level general purpose merchandise spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-36.786*** (1.730)	-22.770*** (1.516)	-60.344*** (3.856)	-8.094*** (0.622)	-7.184*** (0.810)	-9.624*** (0.963)
$1\{\geq 04 - 11\}$	296.691*** (5.112)	177.487*** (3.330)	490.613*** (11.849)	67.158*** (0.869)	62.829*** (1.117)	74.201*** (1.375)
Adjusted R ²	0.277	0.234	0.294	0.140	0.139	0.140
N	1803147	1122319	680828	1803147	1122319	680828

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S47: Effects on general purpose merchandise dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-2.147 (8.180)	-8.678* (4.753)	-38.535*** (2.714)	-18.518*** (4.347)	-10.467** (5.193)	-46.693*** (7.653)	-77.077*** (5.111)	-79.913*** (7.292)
$1\{\geq 04 - 11\}$	290.519*** (22.495)	369.306*** (17.469)	264.699*** (7.080)	405.927*** (18.301)	211.330*** (13.771)	136.249*** (10.542)	245.401*** (9.410)	292.834*** (13.516)
Adjusted R ²	0.249	0.332	0.287	0.354	0.229	0.114	0.229	0.125
N	74216	242200	595244	284845	155468	49646	222935	179817

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S48: Effects on general purpose merchandise percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-1.049 (3.853)	-3.498* (1.856)	-8.186*** (0.998)	-7.638*** (1.711)	-1.412 (2.162)	-23.436*** (4.192)	-10.775*** (1.440)	-15.557*** (2.011)
$1\{\geq 04 - 11\}$	79.350*** (4.759)	76.739*** (2.419)	64.445*** (1.368)	84.161*** (2.427)	58.582*** (3.229)	53.813*** (5.225)	46.338*** (2.044)	63.550*** (2.843)
Adjusted R ²	0.139	0.129	0.139	0.149	0.122	0.112	0.143	0.116
N	74216	242200	595244	284845	155468	49646	222935	179817

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Wholesale Clubs

Table S49: Effects of initial lockdown and stimulus payments on zip code level wholesale clubs spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
1{ $\geq 03 - 19\}$	26.638*** (2.331)	19.629*** (3.652)	30.938*** (3.018)	51.534*** (7.170)	70.515*** (11.851)	39.891*** (8.988)
1{ $\geq 04 - 11\}$	73.307*** (3.393)	51.506*** (4.666)	86.007*** (4.600)	125.289*** (9.859)	109.802*** (16.720)	134.310*** (12.183)
Adjusted R ²	0.189	0.171	0.196	0.131	0.141	0.125
N	285230	108211	177019	285230	108211	177019

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S50: Effects on wholesale clubs dollar change across geographic regions

	Dependent Variable: Spending Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
1{ $\geq 03 - 19\}$	13.433 (10.967)	42.014*** (6.943)	28.177*** (4.305)	26.644*** (6.855)	30.351*** (8.863)	14.677 (12.448)	23.408*** (5.496)	20.096*** (5.622)
1{ $\geq 04 - 11\}$	74.622*** (13.279)	78.795*** (8.759)	60.630*** (6.171)	130.347*** (14.369)	67.851*** (9.752)	58.032*** (14.279)	60.628*** (7.124)	71.159*** (8.270)
Adjusted R ²	0.213	0.178	0.184	0.173	0.180	0.127	0.249	0.154
N	6212	33107	81380	32551	19658	11087	56683	44702

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S51: Effects on wholesale clubs percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
1{ $\geq 03 - 19\}$	29.257 (46.855)	68.326*** (21.034)	63.236*** (12.938)	44.412** (22.017)	62.552** (28.392)	24.569 (41.837)	36.654** (15.018)	47.074** (19.462)
1{ $\geq 04 - 11\}$	178.867*** (46.520)	136.090*** (26.671)	120.229*** (19.131)	192.796*** (31.280)	96.617** (39.607)	86.108 (56.779)	78.882*** (19.678)	142.038*** (25.487)
Adjusted R ²	0.172	0.143	0.133	0.139	0.132	0.121	0.114	0.121
N	6212	33107	81380	32551	19658	11087	56683	44702

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Discount Stores

Table S52: Effects of initial lockdown and stimulus payments on zip code level discount stores spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-13.181*** (1.535)	-7.110*** (1.244)	-23.723*** (3.598)	-4.755*** (0.791)	-4.162*** (1.001)	-5.785*** (1.290)
$1\{\geq 04 - 11\}$	203.109*** (3.876)	121.011*** (2.487)	341.540*** (9.159)	79.296*** (1.147)	68.249*** (1.413)	97.924*** (1.928)
Adjusted R ²	0.193	0.174	0.202	0.136	0.136	0.136
N	1476475	929384	547091	1476475	929384	547091

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S53: Effects on discount stores dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	21.569** (10.385)	16.170*** (4.798)	-15.025*** (1.927)	14.241*** (4.230)	2.944 (5.501)	-34.018*** (7.084)	-47.826*** (3.823)	-62.900*** (7.322)
$1\{\geq 04 - 11\}$	282.466*** (24.385)	282.419*** (14.989)	162.400*** (4.584)	272.062*** (13.218)	147.716*** (11.011)	101.463*** (9.249)	154.720*** (6.310)	228.226*** (12.697)
Adjusted R ²	0.184	0.259	0.191	0.233	0.142	0.088	0.192	0.100
N	50301	183572	532169	225055	123383	28625	194812	139004

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S54: Effects on discount stores percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	3.814 (5.157)	6.514*** (2.469)	-6.286*** (1.214)	1.174 (2.249)	4.097 (2.804)	-38.123*** (6.305)	-13.170*** (1.797)	-15.129*** (2.715)
$1\{\geq 04 - 11\}$	103.096*** (6.732)	96.729*** (3.400)	72.006*** (1.698)	105.737*** (3.448)	69.169*** (4.030)	69.461*** (9.275)	51.499*** (2.677)	75.015*** (3.728)
Adjusted R ²	0.148	0.131	0.131	0.145	0.123	0.098	0.130	0.110
N	50301	183572	532169	225055	123383	28625	194812	139004

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Department Stores

Table S55: Effects of initial lockdown and stimulus payments on zip code level department stores spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-36.047*** (1.283)	-25.160*** (1.341)	-46.437*** (2.137)	-44.908*** (2.070)	-46.349*** (3.091)	-43.534*** (2.767)
$1\{\geq 04 - 11\}$	73.054*** (1.789)	48.362*** (1.586)	95.353*** (3.017)	101.423*** (2.816)	99.653*** (4.207)	103.021*** (3.778)
Adjusted R ²	0.121	0.104	0.129	0.116	0.122	0.110
N	582843	284687	298156	582843	284687	298156

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S56: Effects on department stores dollar change across geographic regions

	Dependent Variable: Spending Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-25.884*** (6.401)	-36.972*** (4.172)	-35.334*** (2.098)	-45.273*** (3.961)	-41.110*** (4.293)	-23.336*** (4.675)	-40.618*** (3.448)	-22.946*** (3.082)
$1\{\geq 04 - 11\}$	63.288*** (6.774)	115.386*** (6.791)	61.717*** (2.409)	116.877*** (6.234)	72.004*** (5.857)	28.157*** (5.585)	46.661*** (3.800)	49.654*** (3.673)
Adjusted R ²	0.127	0.122	0.104	0.117	0.101	0.094	0.167	0.098
N	17257	71616	183800	84764	40234	17705	92389	75221

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S57: Effects on department stores percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-50.088*** (12.223)	-34.206*** (5.797)	-45.005*** (3.756)	-49.801*** (5.380)	-52.914*** (8.239)	-48.218*** (11.166)	-48.448*** (4.640)	-38.034*** (6.264)
$1\{\geq 04 - 11\}$	121.116*** (15.853)	123.227*** (7.266)	101.639*** (4.993)	143.735*** (7.718)	93.868*** (10.494)	52.797*** (17.896)	75.228*** (6.577)	69.942*** (8.228)
Adjusted R ²	0.139	0.128	0.111	0.124	0.118	0.112	0.109	0.106
N	17257	71616	183800	84764	40234	17705	92389	75221

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.6 Food Spending

Total

Table S58: Effects of initial lockdown and stimulus payments on zip code level food spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-414.792*** (5.971)	-265.317*** (5.578)	-663.623*** (12.418)	-21.651*** (0.286)	-19.074*** (0.389)	-25.941*** (0.397)
$\mathbb{1}\{\geq 04 - 11\}$	813.651*** (11.677)	620.880*** (10.881)	1122.352*** (24.529)	38.729*** (0.376)	42.836*** (0.514)	32.152*** (0.520)
Adjusted R ²	0.249	0.193	0.287	0.162	0.156	0.175
N	2250916	1399538	851378	2250916	1399538	851378

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S59: Effects on food dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-215.851*** (11.281)	-228.818*** (8.744)	-464.087*** (12.677)	-334.420*** (12.279)	-204.830*** (10.969)	-480.004*** (31.936)	-747.475*** (26.313)	-554.682*** (16.304)
$\mathbb{1}\{\geq 04 - 11\}$	327.764*** (22.486)	464.208*** (20.538)	1034.103*** (24.348)	988.375*** (37.494)	599.097*** (29.400)	606.805*** (42.005)	1140.926*** (38.011)	649.679*** (27.531)
Adjusted R ²	0.227	0.378	0.192	0.337	0.209	0.117	0.265	0.220
N	122062	332401	667516	367148	207829	71851	249687	235181

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S60: Effects on food-related percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-30.436*** (1.416)	-23.233*** (0.786)	-19.974*** (0.512)	-22.646*** (0.772)	-17.267*** (1.030)	-23.040*** (1.481)	-17.918*** (0.676)	-25.638*** (0.769)
$\mathbb{1}\{\geq 04 - 11\}$	27.601*** (1.551)	29.637*** (0.926)	47.051*** (0.678)	50.050*** (1.029)	38.058*** (1.457)	28.549*** (2.277)	34.039*** (0.925)	25.855*** (0.933)
Adjusted R ²	0.148	0.142	0.155	0.182	0.139	0.151	0.158	0.179
N	122062	332401	667516	367148	207829	71851	249687	235181

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Restaurants

Table S61: Effects of initial lockdown and stimulus payments on zip code level restaurants spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-375.228*** (4.097)	-229.036*** (3.303)	-610.941*** (8.613)	-42.387*** (0.248)	-38.985*** (0.336)	-47.872*** (0.346)
$\mathbb{1}\{\geq 04 - 11\}$	211.148*** (3.162)	142.876*** (2.446)	317.706*** (6.968)	26.040*** (0.279)	27.794*** (0.391)	23.303*** (0.372)
Adjusted R ²	0.395	0.352	0.428	0.198	0.184	0.229
N	2145451	1318079	827372	2145451	1318079	827372

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S62: Effects on restaurants dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-238.571*** (10.848)	-326.747*** (10.594)	-383.259*** (7.840)	-340.413*** (10.527)	-220.881*** (9.229)	-353.096*** (17.898)	-528.180*** (14.285)	-505.073*** (11.562)
$\mathbb{1}\{\geq 04 - 11\}$	132.075*** (8.726)	222.262*** (10.145)	235.010*** (5.620)	249.478*** (9.685)	176.198*** (9.604)	81.491*** (7.651)	236.011*** (7.874)	147.530*** (5.788)
Adjusted R ²	0.313	0.376	0.355	0.468	0.297	0.330	0.424	0.406
N	113791	311442	648672	349024	190904	66147	242005	225598

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S63: Effects on restaurants percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-52.051*** (1.280)	-46.805*** (0.718)	-40.720*** (0.426)	-44.602*** (0.666)	-37.195*** (0.893)	-44.932*** (1.455)	-33.823*** (0.559)	-46.396*** (0.658)
$\mathbb{1}\{\geq 04 - 11\}$	21.788*** (1.266)	26.290*** (0.756)	30.014*** (0.474)	30.717*** (0.781)	27.549*** (1.099)	12.118*** (1.681)	20.755*** (0.702)	17.117*** (0.655)
Adjusted R ²	0.176	0.174	0.200	0.204	0.162	0.187	0.195	0.233
N	113791	311442	648672	349024	190904	66147	242005	225598

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Grocery

Table S64: Effects of initial lockdown and stimulus payments on zip code level grocery spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-62.824*** (4.193)	-55.841*** (4.226)	-73.974*** (8.546)	-7.053*** (0.476)	-7.623*** (0.646)	-6.142*** (0.680)
$1\{\geq 04 - 11\}$	665.329*** (9.968)	534.676*** (9.822)	865.998*** (20.107)	54.371*** (0.655)	60.180*** (0.885)	45.449*** (0.945)
Adjusted R ²	0.216	0.163	0.251	0.139	0.136	0.145
N	2059416	1260863	798553	2059416	1260863	798553

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S65: Effects on grocery dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	13.092 (9.105)	89.520*** (8.335)	-99.726*** (8.215)	-12.647 (10.193)	-3.326 (10.510)	-173.912*** (20.443)	-247.960*** (17.124)	-73.808*** (9.833)
$1\{\geq 04 - 11\}$	230.743*** (17.564)	285.615*** (13.461)	857.412*** (20.911)	834.051*** (32.050)	494.061*** (24.542)	574.768*** (39.432)	952.408*** (33.336)	535.358*** (24.308)
Adjusted R ²	0.195	0.320	0.167	0.276	0.185	0.103	0.257	0.181
N	105717	296317	623611	327075	182889	65955	237772	222697

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S66: Effects on grocery percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-7.792*** (2.488)	0.483 (1.378)	-8.666*** (0.847)	-8.425*** (1.272)	-3.902** (1.702)	-10.927*** (2.446)	-9.842*** (1.107)	-7.811*** (1.299)
$1\{\geq 04 - 11\}$	37.938*** (2.942)	35.235*** (1.717)	66.371*** (1.158)	72.405*** (1.783)	53.670*** (2.394)	45.623*** (3.701)	48.728*** (1.655)	39.223*** (1.713)
Adjusted R ²	0.122	0.120	0.131	0.153	0.134	0.146	0.144	0.140
N	105717	296317	623611	327075	182889	65955	237772	222697

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.7 Entertainment Spending

Total

Table S67: Effects of initial lockdown and stimulus payments on zip code level entertainment spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-109.533*** (1.843)	-72.870*** (1.759)	-161.390*** (3.598)	-32.198*** (0.718)	-28.593*** (1.010)	-37.296*** (0.981)
$\mathbb{1}\{\geq 04 - 11\}$	234.709*** (3.442)	166.371*** (2.979)	327.795*** (6.893)	72.069*** (0.974)	76.958*** (1.368)	65.409*** (1.345)
Adjusted R ²	0.288	0.191	0.336	0.134	0.130	0.138
N	1706646	992200	714446	1706646	992200	714446

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S68: Effects on entertainment dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountain	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-66.682*** (5.562)	-113.455*** (5.472)	-120.933*** (3.412)	-100.217*** (4.356)	-63.047*** (4.366)	-80.604*** (8.401)	-122.067*** (5.198)	-133.735*** (6.592)
$\mathbb{1}\{\geq 04 - 11\}$	164.402*** (10.646)	283.152*** (11.566)	227.726*** (5.636)	307.628*** (10.927)	193.065*** (10.082)	152.557*** (12.165)	233.514*** (7.950)	172.602*** (7.292)
Adjusted R ²	0.251	0.440	0.204	0.316	0.236	0.196	0.275	0.191
N	83764	246437	507455	266826	143960	54664	204676	200585

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S69: Effects on entertainment percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-37.682*** (3.566)	-31.202*** (2.110)	-38.529*** (1.285)	-27.429*** (1.902)	-21.652*** (2.608)	-27.285*** (4.165)	-24.415*** (1.683)	-38.722*** (1.927)
$\mathbb{1}\{\geq 04 - 11\}$	70.043*** (4.665)	74.203*** (2.643)	75.035*** (1.750)	98.654*** (2.689)	79.044*** (3.577)	49.461*** (5.069)	56.286*** (2.396)	43.291*** (2.357)
Adjusted R ²	0.127	0.141	0.126	0.135	0.123	0.129	0.136	0.126
N	83764	246437	507455	266826	143960	54664	204676	200585

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Outdoor Recreational Activities

Table S70: Effects of initial lockdown and stimulus payments on zip code level outdoor recreational activities spending

	Spending Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-110.800*** (1.906)	-68.879*** (1.705)	-156.947*** (3.395)	-88.356*** (1.042)	-80.770*** (1.556)	-96.707*** (1.355)
$\mathbb{1}\{\geq 04 - 11\}$	11.456*** (1.187)	13.057*** (1.384)	9.775*** (1.952)	12.729*** (1.273)	18.763*** (1.970)	6.393*** (1.585)
Adjusted R ²	0.374	0.127	0.440	0.134	0.133	0.133
N	957669	491093	466576	957669	491093	466576

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S71: Effects on outdoor recreational activities dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountain	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-71.767*** (5.714)	-127.373*** (6.062)	-103.404*** (3.044)	-107.291*** (4.809)	-74.073*** (4.990)	-103.851*** (8.692)	-118.763*** (5.709)	-140.293*** (6.161)
$\mathbb{1}\{\geq 04 - 11\}$	8.573 (5.312)	1.784 (3.771)	14.540*** (1.937)	20.597*** (2.878)	19.470*** (4.258)	11.688* (6.249)	10.044*** (3.077)	1.955 (3.774)
Adjusted R ²	0.144	0.659	0.159	0.146	0.141	0.163	0.236	0.239
N	35199	112774	290455	135802	71776	33360	144000	134970

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S72: Effects on outdoor recreational activities percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountain	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-90.217*** (6.093)	-94.560*** (3.183)	-91.856*** (1.915)	-92.619*** (2.808)	-75.019*** (4.089)	-93.608*** (5.556)	-68.453*** (2.297)	-99.493*** (2.707)
$\mathbb{1}\{\geq 04 - 11\}$	10.504 (7.757)	4.793 (3.441)	16.310*** (2.403)	16.786*** (3.509)	22.067*** (5.314)	7.809 (6.615)	16.419*** (2.995)	1.031 (2.998)
Adjusted R ²	0.154	0.142	0.129	0.131	0.127	0.128	0.139	0.128
N	35199	112774	290455	135802	71776	33360	144000	134970

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

In-home Digital

Table S73: Effects of initial lockdown and stimulus payments on zip code level in-home digital spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	28.612*** (0.659)	21.424*** (0.710)	36.567*** (1.132)	76.780*** (2.053)	69.672*** (2.836)	84.646*** (2.973)
$\mathbb{1}\{\geq 04 - 11\}$	49.302*** (1.046)	38.986*** (1.049)	60.322*** (1.833)	79.104*** (2.877)	85.013*** (3.960)	72.793*** (4.184)
Adjusted R ²	0.382	0.315	0.403	0.147	0.143	0.152
N	854505	444974	409531	854505	444974	409531

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S74: Effects on in-home digital dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)								
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountain	Southwest	Far West	
$\mathbb{1}\{\geq 03 - 19\}$	26.275*** (2.410)	21.482*** (3.319)	23.277*** (0.841)	32.575*** (1.489)	29.781*** (1.903)	30.683*** (2.871)	36.408*** (1.409)	34.417*** (1.672)	
$\mathbb{1}\{\geq 04 - 11\}$	37.285*** (3.708)	71.779*** (4.700)	42.822*** (1.409)	65.295*** (2.655)	47.434*** (3.169)	42.116*** (3.663)	45.543*** (2.037)	28.731*** (1.935)	
Adjusted R ²	0.400	0.378	0.359	0.438	0.291	0.325	0.374	0.361	
N	29998	118529	256379	130479	65832	27672	123420	102717	

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S75: Effects on in-home digital percentage change across geographic regions

	Dependent Variable: Percentage Change (%)								
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountain	Southwest	Far West	
$\mathbb{1}\{\geq 03 - 19\}$	79.535*** (11.481)	62.974*** (6.377)	68.457*** (3.596)	83.182*** (5.274)	75.710*** (7.180)	93.194*** (11.237)	81.972*** (4.616)	93.542*** (6.458)	
$\mathbb{1}\{\geq 04 - 11\}$	60.509*** (15.697)	71.638*** (7.890)	84.366*** (5.148)	113.546*** (7.522)	103.484*** (10.289)	85.223*** (14.994)	72.744*** (7.311)	30.335*** (8.208)	
Adjusted R ²	0.166	0.195	0.131	0.152	0.136	0.130	0.129	0.132	
N	29998	118529	256379	130479	65832	27672	123420	102717	

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

In-home Non-digital

Table S76: Effects of initial lockdown and stimulus payments on zip code level in-home non-digital spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-58.075*** (1.286)	-48.287*** (1.413)	-68.533*** (2.182)	-36.780*** (1.277)	-38.866*** (1.835)	-34.553*** (1.770)
$1\{\geq 04 - 11\}$	192.403*** (2.831)	139.761*** (2.582)	246.650*** (4.989)	135.663*** (1.783)	130.363*** (2.486)	141.125*** (2.557)
Adjusted R ²	0.302	0.218	0.335	0.119	0.122	0.116
N	1085064	557739	527325	1085064	557739	527325

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S77: Effects on in-home non-digital dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountain	Southwest	Far West
$1\{\geq 03 - 19\}$	-39.551*** (5.059)	-65.282*** (3.672)	-73.296*** (2.464)	-63.783*** (3.611)	-42.230*** (3.947)	-18.750*** (5.244)	-54.163*** (3.460)	-39.213*** (3.125)
$1\{\geq 04 - 11\}$	158.402*** (10.327)	242.202*** (9.941)	182.634*** (4.507)	260.140*** (9.351)	164.790*** (8.371)	115.148*** (9.209)	188.623*** (6.537)	132.781*** (5.283)
Adjusted R ²	0.338	0.374	0.269	0.357	0.283	0.190	0.264	0.238
N	47585	151281	318850	159794	79531	35515	145829	147272

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S78: Effects on in-home non-digital percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountain	Southwest	Far West
$1\{\geq 03 - 19\}$	-35.908*** (6.559)	-31.495*** (3.520)	-49.622*** (2.373)	-33.958*** (3.500)	-26.130*** (4.881)	-13.638* (7.272)	-31.044*** (2.930)	-34.948*** (3.407)
$1\{\geq 04 - 11\}$	152.252*** (8.803)	150.221*** (4.608)	133.485*** (3.165)	183.377*** (5.146)	139.433*** (6.846)	79.335*** (9.250)	116.547*** (4.614)	95.254*** (4.436)
Adjusted R ²	0.138	0.133	0.108	0.133	0.117	0.095	0.113	0.104
N	47585	151281	318850	159794	79531	35515	145829	147272

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.8 Other Non-food Shopping Spening

Total

Table S79: Effects of initial lockdown and stimulus payments on zip code level other non-food shopping spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-173.994*** (2.817)	-115.334*** (2.541)	-275.578*** (6.125)	-23.030*** (0.286)	-20.193*** (0.372)	-27.944*** (0.436)
$\mathbb{1}\{\geq 04 - 11\}$	248.597*** (3.737)	187.981*** (3.454)	350.571*** (8.032)	27.530*** (0.335)	27.891*** (0.439)	26.922*** (0.514)
Adjusted R ²	0.147	0.132	0.160	0.147	0.148	0.147
N	2174008	1371125	802883	2174008	1371125	802883

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S80: Effects on other non-food shopping dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-95.433*** (7.168)	-126.214*** (5.801)	-168.373*** (5.035)	-208.816*** (8.200)	-111.444*** (6.350)	-158.763*** (12.740)	-249.245*** (10.677)	-214.127*** (8.872)
$\mathbb{1}\{\geq 04 - 11\}$	122.444*** (8.426)	140.271*** (6.183)	305.031*** (7.550)	268.181*** (10.679)	193.032*** (11.436)	126.641*** (14.196)	389.154*** (13.632)	224.251*** (9.796)
Adjusted R ²	0.116	0.115	0.141	0.142	0.123	0.144	0.170	0.175
N	108286	309646	655304	363466	209048	68541	243154	218766

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S81: Effects on other non-food shopping percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-28.115*** (1.551)	-26.893*** (0.825)	-20.355*** (0.498)	-27.974*** (0.713)	-17.858*** (0.917)	-23.164*** (1.703)	-16.789*** (0.724)	-27.437*** (0.874)
$\mathbb{1}\{\geq 04 - 11\}$	29.179*** (1.756)	25.053*** (0.889)	31.083*** (0.590)	29.073*** (0.850)	23.851*** (1.167)	19.129*** (1.997)	26.849*** (0.887)	23.723*** (0.978)
Adjusted R ²	0.140	0.131	0.144	0.165	0.139	0.146	0.140	0.146
N	108286	309646	655304	363466	209048	68541	243154	218766

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Personal Care and Cosmetics

Table S82: Effects of initial lockdown and stimulus payments on zip code level personal care and cosmetics spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-14.319*** (1.365)	-5.902*** (1.464)	-20.029*** (2.050)	-12.938*** (1.881)	-10.506*** (3.021)	-14.588*** (2.400)
$1\{\geq 04 - 11\}$	55.941*** (1.901)	37.198*** (1.989)	67.893*** (2.800)	75.386*** (2.693)	68.283*** (4.308)	79.916*** (3.445)
Adjusted R ²	0.137	0.133	0.139	0.136	0.145	0.130
N	318170	126574	191596	318170	126574	191596

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S83: Effects on personal care and cosmetics dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-17.461*** (6.400)	-18.871*** (6.361)	-12.014*** (2.145)	-16.439*** (3.924)	5.390* (3.037)	3.226 (5.461)	-27.281*** (3.171)	-4.889* (2.917)
$1\{\geq 04 - 11\}$	34.985*** (5.878)	62.190*** (5.316)	69.623*** (3.897)	61.987*** (5.600)	47.527*** (6.464)	31.805*** (7.217)	46.058*** (3.495)	31.449*** (3.562)
Adjusted R ²	0.160	0.107	0.142	0.105	0.146	0.118	0.165	0.134
N	8204	36810	109023	41322	16827	8290	60816	36898

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S84: Effects on personal care and cosmetics percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-40.387*** (11.700)	-13.242** (5.362)	-12.497*** (3.246)	-10.621* (5.698)	5.132 (8.067)	8.752 (11.876)	-24.371*** (3.687)	-4.588 (6.061)
$1\{\geq 04 - 11\}$	79.715*** (16.394)	79.779*** (7.160)	90.009*** (4.627)	80.200*** (7.934)	85.262*** (12.029)	55.695*** (16.870)	53.920*** (5.947)	53.684*** (7.883)
Adjusted R ²	0.149	0.141	0.136	0.128	0.149	0.138	0.122	0.143
N	8204	36810	109023	41322	16827	8290	60816	36898

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Auto Dealers

Table S85: Effects of initial lockdown and stimulus payments on zip code level auto dealers spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-148.110*** (2.473)	-100.657*** (2.273)	-230.318*** (5.350)	-21.407*** (0.278)	-18.700*** (0.363)	-26.096*** (0.421)
$\mathbb{1}\{\geq 04 - 11\}$	176.803*** (2.830)	138.323*** (2.747)	241.582*** (5.952)	22.423*** (0.321)	23.153*** (0.422)	21.192*** (0.486)
Adjusted R ²	0.146	0.132	0.157	0.153	0.151	0.156
N	2161833	1363697	798136	2161833	1363697	798136

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S86: Effects on auto dealers dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-75.202*** (5.991)	-98.484*** (5.024)	-150.578*** (4.532)	-169.396*** (6.849)	-98.843*** (5.700)	-130.759*** (10.547)	-217.269*** (9.556)	-180.625*** (7.903)
$\mathbb{1}\{\geq 04 - 11\}$	83.970*** (6.175)	100.126*** (4.819)	220.674*** (5.762)	193.932*** (7.821)	137.375*** (8.596)	83.286*** (11.486)	260.245*** (10.242)	161.170*** (7.900)
Adjusted R ²	0.122	0.121	0.139	0.141	0.124	0.153	0.160	0.179
N	107072	306815	653282	361579	208003	68079	242159	217018

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S87: Effects on auto dealer percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-25.427*** (1.477)	-24.079*** (0.812)	-19.635*** (0.481)	-25.409*** (0.697)	-16.786*** (0.901)	-20.631*** (1.646)	-16.254*** (0.711)	-25.322*** (0.850)
$\mathbb{1}\{\geq 04 - 11\}$	23.311*** (1.681)	20.364*** (0.847)	25.447*** (0.566)	24.235*** (0.806)	19.252*** (1.105)	15.255*** (1.938)	21.178*** (0.866)	19.126*** (0.941)
Adjusted R ²	0.143	0.140	0.148	0.169	0.145	0.150	0.143	0.152
N	107072	306815	653282	361579	208003	68079	242159	217018

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Auto

Table S88: Effects of initial lockdown and stimulus payments on zip code level auto spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-23.370*** (2.249)	-13.467*** (2.508)	-32.687*** (3.660)	-45.986*** (3.532)	-44.462*** (5.139)	-47.420*** (4.861)
$\mathbb{1}\{\geq 04 - 11\}$	78.466*** (2.650)	56.444*** (3.020)	97.968*** (4.172)	126.917*** (5.029)	126.602*** (7.635)	127.197*** (6.648)
Adjusted R ²	0.088	0.076	0.093	0.107	0.113	0.100
N	501453	235157	266296	501453	235157	266296

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S89: Effects on auto dollar change across geographic regions

	Dependent Variable: Spending Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-24.084** (10.312)	-19.202** (8.289)	-20.513*** (3.294)	-52.417*** (8.529)	-12.042 (9.075)	-6.976 (8.235)	-27.953*** (5.097)	-4.106 (6.214)
$\mathbb{1}\{\geq 04 - 11\}$	80.684*** (11.401)	58.057*** (8.058)	67.664*** (3.873)	128.889*** (9.414)	89.262*** (11.154)	32.874*** (9.470)	87.335*** (6.757)	58.448*** (6.639)
Adjusted R ²	0.087	0.073	0.063	0.067	0.067	0.059	0.166	0.090
N	14529	43998	168476	71525	32730	18626	94141	57516

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S90: Effects on auto percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-81.455*** (23.746)	-26.440** (13.156)	-51.635*** (5.747)	-48.024*** (10.797)	-21.324 (13.347)	-30.355 (18.429)	-48.735*** (7.219)	-44.162*** (11.641)
$\mathbb{1}\{\geq 04 - 11\}$	189.207*** (30.011)	114.608*** (15.927)	102.755*** (8.740)	200.444*** (14.036)	165.923*** (18.985)	15.641 (27.618)	144.594*** (11.108)	89.341*** (14.143)
Adjusted R ²	0.128	0.129	0.101	0.116	0.107	0.087	0.093	0.106
N	14529	43998	168476	71525	32730	18626	94141	57516

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Used Goods and Pawn Stores

Table S91: Effects of initial lockdown and stimulus payments on zip code level used goods and pawn stores spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	10.111*** (1.745)	8.629*** (2.040)	11.581*** (2.825)	12.002*** (2.763)	12.023*** (3.944)	11.981*** (3.871)
$1\{\geq 04 - 11\}$	101.536*** (3.155)	85.649*** (3.906)	115.573*** (4.792)	119.888*** (4.660)	116.071*** (6.890)	123.261*** (6.323)
Adjusted R ²	0.116	0.107	0.122	0.131	0.139	0.124
N	378128	184384	193744	378128	184384	193744

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S92: Effects on used goods and pawn stores dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	5.012 (7.275)	-10.007** (3.986)	15.136*** (3.068)	0.277 (3.981)	11.877** (4.721)	0.181 (6.910)	15.932*** (4.780)	7.041** (3.427)
$1\{\geq 04 - 11\}$	38.291*** (10.770)	31.367*** (5.467)	107.089*** (5.500)	80.481*** (7.577)	89.638*** (9.876)	63.913*** (10.321)	152.035*** (7.869)	72.301*** (9.044)
Adjusted R ²	0.160	0.125	0.098	0.098	0.094	0.083	0.160	0.126
N	9039	28459	119000	57899	30302	17544	70205	45805

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S93: Effects on used goods and pawn stores percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-6.555 (20.589)	-21.937* (11.663)	21.189*** (4.831)	-4.934 (7.743)	9.695 (9.957)	-6.340 (11.934)	22.948*** (5.482)	8.660 (8.781)
$1\{\geq 04 - 11\}$	66.530* (34.838)	101.891*** (16.723)	124.723*** (8.093)	101.032*** (12.585)	116.050*** (16.481)	70.446*** (17.929)	154.232*** (9.969)	92.030*** (15.343)
Adjusted R ²	0.178	0.154	0.129	0.131	0.127	0.101	0.124	0.135
N	9039	28459	119000	57899	30302	17544	70205	45805

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.9 Finance Spending

Total

Table S94: Effects of initial lockdown and stimulus payments on zip code level finance spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-775.464*** (11.316)	-489.050*** (9.700)	-1163.787*** (22.356)	-38.025*** (0.653)	-35.613*** (0.931)	-41.296*** (0.880)
$\mathbb{1}\{\geq 04 - 11\}$	923.597*** (14.358)	727.005*** (12.820)	1184.250*** (28.497)	62.169*** (0.855)	68.161*** (1.224)	54.224*** (1.138)
Adjusted R ²	0.377	0.323	0.395	0.141	0.135	0.146
N	1670577	958054	712523	1670577	958054	712523

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S95: Effects on finance dollar change across geographic regions

	Dependent Variable: Spending Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-453.322*** (31.485)	-829.654*** (31.526)	-733.128*** (20.610)	-778.259*** (30.314)	-542.099*** (29.191)	-485.186*** (36.143)	-1031.536*** (36.673)	-908.187*** (33.358)
$\mathbb{1}\{\geq 04 - 11\}$	546.890*** (36.001)	556.139*** (25.078)	1182.689*** (32.488)	969.229*** (39.842)	627.359*** (36.734)	542.260*** (42.889)	1296.828*** (41.960)	791.638*** (33.209)
Adjusted R ²	0.328	0.381	0.352	0.515	0.346	0.320	0.303	0.307
N	80507	247810	516314	250674	131882	49594	202204	192967

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S96: Effects on finance percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-37.512*** (3.216)	-41.497*** (1.816)	-35.680*** (1.161)	-40.459*** (1.895)	-37.292*** (2.457)	-36.089*** (3.788)	-30.165*** (1.424)	-47.015*** (1.777)
$\mathbb{1}\{\geq 04 - 11\}$	64.407*** (4.201)	45.915*** (2.032)	74.033*** (1.512)	76.831*** (2.515)	51.289*** (3.266)	45.418*** (5.679)	57.151*** (2.194)	49.754*** (2.174)
Adjusted R ²	0.132	0.138	0.135	0.146	0.128	0.121	0.144	0.130
N	80507	247810	516314	250674	131882	49594	202204	192967

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Financial Services

Table S97: Effects of initial lockdown and stimulus payments on zip code level financial services spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-760.931*** (11.265)	-479.203*** (9.686)	-1137.023*** (22.095)	-37.312*** (0.635)	-35.092*** (0.902)	-40.276*** (0.867)
$1\{\geq 04 - 11\}$	904.882*** (14.256)	711.014*** (12.757)	1157.895*** (28.093)	61.277*** (0.834)	67.159*** (1.189)	53.600*** (1.126)
Adjusted R ²	0.381	0.328	0.398	0.141	0.135	0.144
N	1627000	926965	700035	1627000	926965	700035

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S98: Effects on financial services dollar change across geographic regions

	Dependent Variable: Spending Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-446.758*** (31.730)	-821.922*** (31.347)	-712.364*** (20.463)	-772.772*** (30.321)	-537.574*** (29.489)	-463.808*** (34.903)	-1010.266*** (36.403)	-883.648*** (32.922)
$1\{\geq 04 - 11\}$	531.746*** (35.858)	536.492*** (24.944)	1164.560*** (32.122)	953.741*** (39.809)	614.599*** (36.752)	517.216*** (41.999)	1255.006*** (41.255)	775.897*** (33.015)
Adjusted R ²	0.337	0.395	0.350	0.521	0.352	0.330	0.307	0.318
N	77474	241118	505430	241644	127273	47872	198656	188826

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S99: Effects on financial services percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-34.894*** (3.147)	-40.654*** (1.775)	-34.895*** (1.121)	-41.868*** (1.818)	-36.721*** (2.424)	-32.020*** (3.820)	-30.442*** (1.406)	-44.345*** (1.742)
$1\{\geq 04 - 11\}$	59.616*** (4.023)	42.265*** (1.979)	74.049*** (1.480)	78.529*** (2.440)	50.334*** (3.154)	48.250*** (5.573)	55.681*** (2.105)	48.200*** (2.175)
Adjusted R ²	0.133	0.137	0.134	0.149	0.126	0.115	0.144	0.127
N	77474	241118	505430	241644	127273	47872	198656	188826

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Charity

Table S100: Effects of initial lockdown and stimulus payments on zip code level charity spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-15.932*** (1.490)	-15.180*** (2.208)	-16.445*** (2.003)	-37.775*** (3.661)	-39.640*** (5.838)	-36.501*** (4.698)
$1\{\geq 04 - 11\}$	21.109*** (1.948)	16.918*** (2.612)	23.476*** (2.664)	49.644*** (5.234)	49.715*** (8.557)	49.604*** (6.612)
Adjusted R ²	0.143	0.143	0.143	0.149	0.165	0.139
N	202561	83010	119551	202561	83010	119551

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S101: Effects on charity dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-4.785 (7.425)	-26.210*** (5.411)	-14.618*** (2.460)	-13.318*** (4.036)	-21.238*** (6.202)	-33.208*** (9.866)	-19.114*** (3.615)	-6.511* (3.767)
$1\{\geq 04 - 11\}$	5.888 (8.448)	18.249** (7.116)	23.700*** (3.340)	23.735*** (5.270)	18.974** (8.830)	24.368*** (8.074)	27.407*** (4.835)	11.187*** (4.240)
Adjusted R ²	0.166	0.121	0.156	0.137	0.137	0.142	0.136	0.146
N	6381	19345	66175	27274	11413	5887	36211	29923

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S102: Effects on charity percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-4.542 (23.807)	-52.481*** (12.215)	-39.951*** (6.139)	-42.724*** (10.599)	-27.252** (12.944)	-72.490*** (20.872)	-35.511*** (8.555)	-23.691** (10.203)
$1\{\geq 04 - 11\}$	-7.266 (31.535)	33.046** (14.857)	62.350*** (9.126)	48.877*** (14.749)	61.986*** (23.076)	58.870** (29.501)	61.291*** (12.973)	27.746** (13.349)
Adjusted R ²	0.182	0.164	0.144	0.153	0.169	0.163	0.131	0.153
N	6381	19345	66175	27274	11413	5887	36211	29923

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.10 Personal Services

Table S103: Effects of initial lockdown and stimulus payments on zip code level personal services spending

	Dollar Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$\mathbb{1}\{\geq 03 - 19\}$	-130.514*** (2.116)	-90.951*** (2.194)	-165.939*** (3.407)	-73.247*** (0.933)	-67.626*** (1.463)	-78.279*** (1.185)
$\mathbb{1}\{\geq 04 - 11\}$	44.593*** (1.697)	30.275*** (2.030)	56.104*** (2.572)	27.074*** (1.113)	29.766*** (1.809)	24.910*** (1.383)
Adjusted R ²	0.137	0.108	0.151	0.125	0.129	0.118
N	856842	403201	453641	856842	403201	453641

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S104: Effects on personal services dollar change across geographic regions

	Dependent Variable: Dollar Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-80.938*** (6.338)	-124.113*** (6.117)	-131.467*** (3.834)	-144.310*** (6.323)	-85.389*** (5.778)	-112.084*** (8.041)	-176.433*** (6.547)	-106.272*** (4.154)
$\mathbb{1}\{\geq 04 - 11\}$	32.023*** (6.040)	50.791*** (5.263)	53.588*** (2.941)	66.949*** (5.411)	32.537*** (5.859)	-0.350 (7.692)	28.864*** (4.796)	31.706*** (3.531)
Adjusted R ²	0.116	0.122	0.126	0.104	0.125	0.120	0.203	0.105
N	30800	106773	268091	118643	57212	28243	127676	119789

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

Table S105: Effects on personal services percentage change across geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$\mathbb{1}\{\geq 03 - 19\}$	-69.170*** (5.308)	-77.579*** (2.704)	-68.128*** (1.651)	-80.476*** (2.610)	-69.926*** (3.701)	-80.875*** (5.340)	-67.957*** (2.033)	-81.194*** (2.692)
$\mathbb{1}\{\geq 04 - 11\}$	14.920** (6.108)	23.741*** (3.056)	31.024*** (1.884)	39.737*** (3.184)	25.567*** (4.962)	12.299* (7.156)	20.174*** (2.634)	23.223*** (2.997)
Adjusted R ²	0.133	0.134	0.122	0.125	0.121	0.122	0.133	0.106
N	30800	106773	268091	118643	57212	28243	127676	119789

*** 0.01 **0.05 * 0.1

Note: The regressions include the zip-month fixed effects. The standard errors shown in the parenthesis are clustered at the zip code level.

B.11 Clothing and Accessories

Table S106: Clothing and accessories spending under COVID-19 pandemic

	Spending Change (\$)			Percentage Change (%)		
	All	Republican	Democratic	All	Republican	Democratic
$1\{\geq 03 - 19\}$	-324.618*** (6.157)	-177.429*** (4.127)	-471.633*** (11.146)	-56.691*** (0.674)	-53.564*** (1.035)	-59.813*** (0.863)
$1\{\geq 04 - 11\}$	261.294*** (5.472)	157.653*** (3.674)	360.322*** (9.869)	68.147*** (0.913)	72.282*** (1.390)	64.195*** (1.190)
Adjusted R ²	0.186	0.132	0.205	0.138	0.136	0.137
N	1015916	505099	510817	1015916	505099	510817

*** 0.01 **0.05 * 0.1

Note: The regressions use zip-month fixed effects. Standard errors shown in the parenthesis are clustered at zip-code level.

Table S107: Clothing and accessories spending difference by geographic regions

	Dependent Variable: Spending Change (\$)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountain	Southwest	Far West
$1\{\geq 03 - 19\}$	-252.130*** (21.278)	-461.892*** (24.917)	-304.582*** (9.010)	-445.548*** (23.317)	-247.786*** (19.276)	-138.111*** (12.274)	-327.233*** (12.278)	-201.671*** (9.375)
$1\{\geq 04 - 11\}$	185.896*** (15.832)	403.238*** (22.043)	254.768*** (7.226)	423.481*** (20.968)	221.734*** (16.358)	78.357*** (10.827)	142.248*** (7.464)	133.981*** (7.040)
Adjusted R ²	0.178	0.225	0.160	0.159	0.129	0.120	0.271	0.119
N	39656	138634	332507	141176	68878	29859	139292	126296

*** 0.01 **0.05 * 0.1

Note: The regressions use zip-month fixed effects. Standard errors shown in the parenthesis are clustered at zip-code level.

Table S108: Clothing and accessories percentage difference by geographic regions

	Dependent Variable: Percentage Change (%)							
	New England	Mideast	Southeast	Great Lakes	Plains	Rocky Mountains	Southwest	Far West
$1\{\geq 03 - 19\}$	-58.810*** (4.041)	-57.114*** (1.875)	-57.628*** (1.156)	-60.383*** (1.856)	-55.963*** (2.584)	-49.851*** (4.246)	-53.467*** (1.585)	-54.562*** (2.024)
$1\{\geq 04 - 11\}$	65.343*** (4.533)	69.791*** (2.209)	74.623*** (1.568)	92.707*** (2.647)	72.804*** (3.516)	49.417*** (6.016)	43.398*** (2.203)	49.318*** (2.629)
Adjusted R ²	0.156	0.150	0.133	0.142	0.143	0.108	0.145	0.112
N	39656	138634	332507	141176	68878	29859	139292	126296

*** 0.01 **0.05 * 0.1

Note: The regressions use zip-month fixed effects. Standard errors shown in the parenthesis are clustered at zip-code level.