APPENDIX

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A.1 Change in Spend by Payment Type



Figure A.1: Average Spending Changes on Credit Cards

The left panel plots the year-over-year percentage change in weekly credit card spending. The right panel plots the dollar change in weekly credit card spending.



Figure A.2: Average Spending Changes on Debit Cards

The left panel plots the year-over-year percentage change in weekly debit card spending. The right panel plots the dollar change in weekly debit card spending. Here we demarcate the date of the first EIP payments from Treasury. Over 50% total EIP payments were distributed by April 17 (see https://home.treasury.gov/news/press-releases/sm1025). Therefore, while the delivery of EIP payments was somewhat "staggered" over time, the majority were received close to this point in time.



Figure A.3: Average Changes in Cash Spending

The left panel plots the year-over-year percentage change in weekly cash withdrawals. The right panel plots the dollar change in weekly cash withdrawals. Cash withdrawals at ATMs using debit cards are reflected in the debit card series, so this series primarily reflects cash withdrawals with bank tellers.



Figure A.4: Average Spending Changes in Checks

The left panel plots the year-over-year percentage change in weekly spending via checks. The right panel plots the dollar change in weekly spending via checks.



Figure A.5: Average Total Spending Changes (Including Check Spending)

The left panel plots the year-over-year percentage change in weekly total spending (inclusive of spending via checks). The right panel plots the dollar change in weekly total spending (including spending via checks).

A.2 Spending by Payment Type, Split by Income Quartiles



Figure A.6: Credit card spending by income quartiles

Figure A.7: Debit card spending by income quartiles





Figure A.8: Cash spending by income quartiles

Cash withdrawals at ATMs using debit cards are reflected in the debit card series, so this series primarily reflects cash withdrawals with bank tellers.



Figure A.9: Check spending by income quartiles



Figure A.10: Total spending by income quartiles (Inclusive of Checks)

Table A.1: Decomposition of Total Spending Changes by Income Quartile

		Share of		Share of		Share of
	Initial	Initial	Decrease in	Decrease in	Final	Final
	Spending	Spending	Spending	Spending	Spending	Spending
Quartile 1	\$7.66B	17.8%	-\$0.89B	10.2%	\$6.78B	19.7%
Quartile 2	\$8.93B	20.8%	-\$1.30B	15.0%	\$7.63B	22.2%
Quartile 3	\$10.71B	24.9%	-\$2.14B	24.6%	\$8.57B	25.0%
Quartile 4	\$15.73B	36.5%	-\$4.37B	50.2%	\$11.36B	33.1%
Total	\$43.04B	100.0%	-\$8.70B	100.0%	\$34.34B	100.0%
Top Decile	\$7.58B	17.6%	-\$2394M	27.5%	\$5.19B	15.1%
Top One Percent	\$1.04B	2.4%	-\$409M	4.7%	\$0.63B	1.8%

Initial spending is computed as total spending in 2019 for the 11 weeks between March 15 and May 30. Final spending is computed as total spending over the same 11 "pandemic" weeks in 2020.

A.3 Spending by Industry of Employment



Figure A.11: Spending Changes Split by Industry of Employment

A.4 CPS and Chase Sample Income Comparison

Figure A.12: Comparison of income quartiles for Chase sample and CPS population



This figure compares average labor income by quartile in our analysis sample to those in the CPS. Since we only observe post-tax income in the Chase sample, we adjust the CPS income measure downwards to account for income and payroll taxes.

Industry	Total Monthly Pay	Average Monthly Pay	
Clothing/Dept Store	\$76,279,559	\$2,266	
Grocery/Drug/Discount Store	\$309,150,823	\$3,932	
Education	\$169,907,642	\$3,918	
Government	\$1,215,885,445	\$3,762	
Health Care	\$114,163,903	\$5,704	
Manufacturing	\$651,859,889	\$5,772	
Finance	\$344,412,048	\$5,423	
Professional	\$251,134,078	\$2,366	

Table A.2: Average Income by Industry of Employment

This table lists the average monthly income for individuals in the debit card sample (column 2) and credit card sample (column 3) that are employed in each industry.

A.5 Additional Results





This figure plots aggregate year over year growth in all commercial bank deposits, using data from the Fed Board of Governors Release H.8

A.6 Simulation of distribution of income changes

We simulate the changes in income for households using the March 2019 Current Population Survey Annual Social and Economic Supplement (CPS ASEC). We require average hourly earnings of at least the federal minimum wage and to avoid issues with eligibility for transfers we also require that earners are citizens. We cut the sample into weekly earnings quintiles and allow the unemployment rates to vary between quintiles and month. We calculate a separate unemployment rate for each quintile and year using the CPS merged to the Earner Study in the CPS. We merge to the earner study taken at least 8 month prior to the observation period where we measure unemployment. For 2019, we take the unemployment rates pooling across April, August and December. For 2019, we match to the April CPS only. To produce variation by month, we re-scale these unemployment rates so as to match the national unemployment rate in aggregate in each month, including among the unemployed those who were misclassified as absent from work for other reasons. We randomly assign individuals in the ASEC to unemployment at the rates described above.

If an unemployed worker receives unemployment benefits, we calculate their regular Unemployment Compensation (UC) according to the calculator used in Ganong, Noel, and Vavra (2020). In our simulation, a worker cannot receive regular UC if they have insufficient earnings history according to the rules of their state. Additionally we calculate a recipiency rate among monetarily eligibles, using the ratio of actual benefits paid out in DOL ETA Form 5159 to the implied value of benefits if every eligible person in our simulation was receiving benefits. For example in April 2020, we calculate that 55% of eligible benefits were paid out and assume that 55% of eligibles receive benefits. In 2020, we include the possibility of additional unemployment benefits from the CARES Act: both the \$600 weekly supplement (Federal Pandemic Unemployment Compensation) and the insurance for those with insufficient wage earnings to qualify for regular UC (Pandemic Unemployment Assistance). For both of these policies we use data on the rollout of these policies from the Hamilton Project (Nunn, Parsons, and Shambaugh 2020). An unemployed worker receives an additional \$600 in their UC at random, with the probability corresponding to the share of workers who live in a state that had rolled out FPUC at that time. An unemployed worker who is monetarily ineligible for benefits receives a total compensation of \$600 at random, with the probability corresponding to the share of workers who live in a state that had rolled out FPUC at that time and adjusting for the recipiency rate described above.

We additionally model Economic Impact Payments (EIPs) assuming that Adjusted Gross Income (which is used to determine EIP eligibility) is equal to household income in the CPS. We allow each CPS household at most one EIP, which is \$1200 plus \$500 per child in the household. We allow a household an economic impact payment if they have an income which is sufficiently low to receive the full payment: we do not model the phase out, instead we give a household no EIP if they would have received a reduced payment.

To calculate changes, we find the percentage change in expected income for each household with and without the transfers. We then average the expected changes over households within the income quartiles. The income quartile cutoffs are taken from the Chase sample (so exclude anyone with income below 12,000), and are calculated on household labor income, which we adjust for tax.