Income, Liquidity, and the Consumption Response to the 2020 Economic Stimulus Payments

Scott R. Baker, R.A. Farrokhnia, Steffen Meyer, Michaela Pagel, and Constantine Yannelis

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  - In order to deal with a crisis, policy makers have to understand what is happening on the ground
  - Are fiscal stimulus payments in the current environment as effective as in the past?

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- The CARES Act also expanded unemployment insurance for many workers

Transaction-Level Bank Account Data

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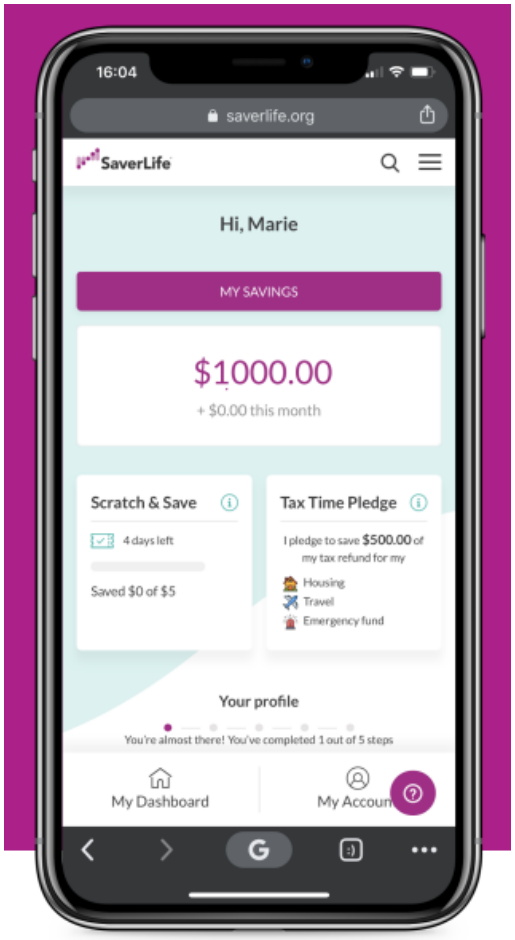

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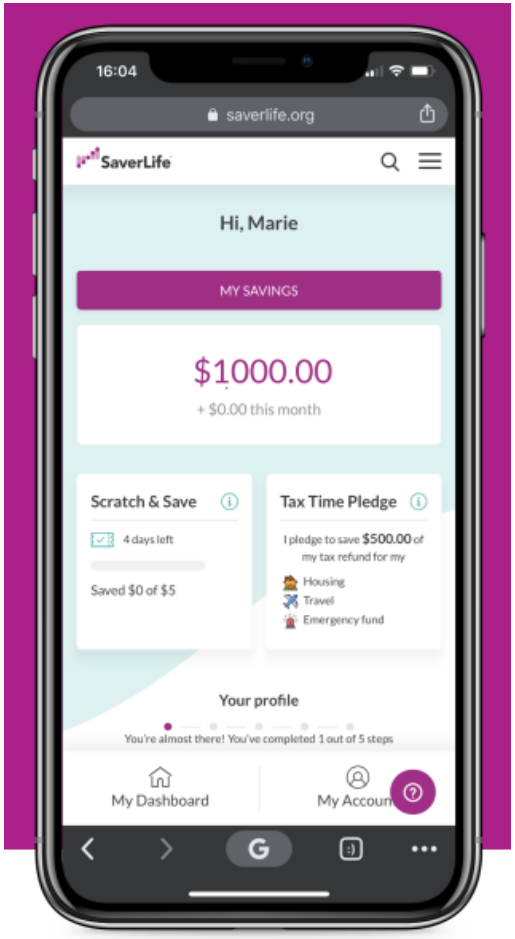

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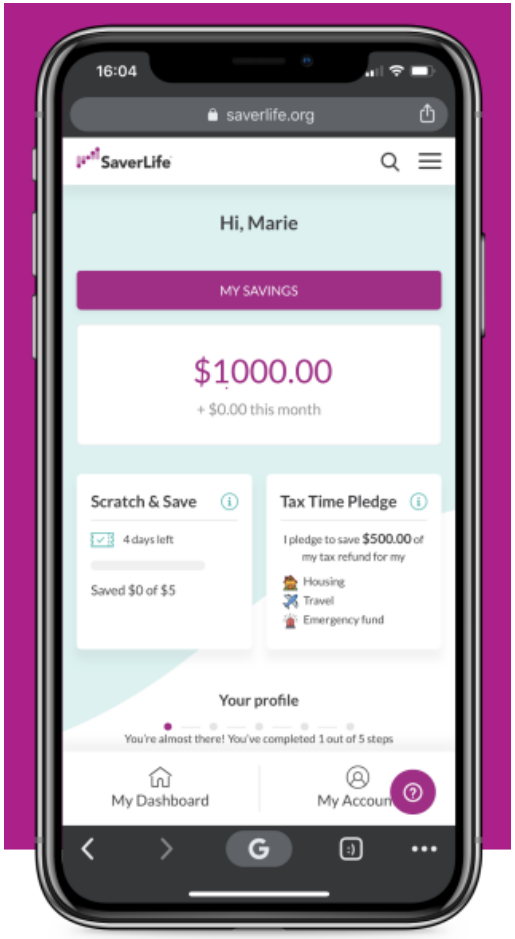
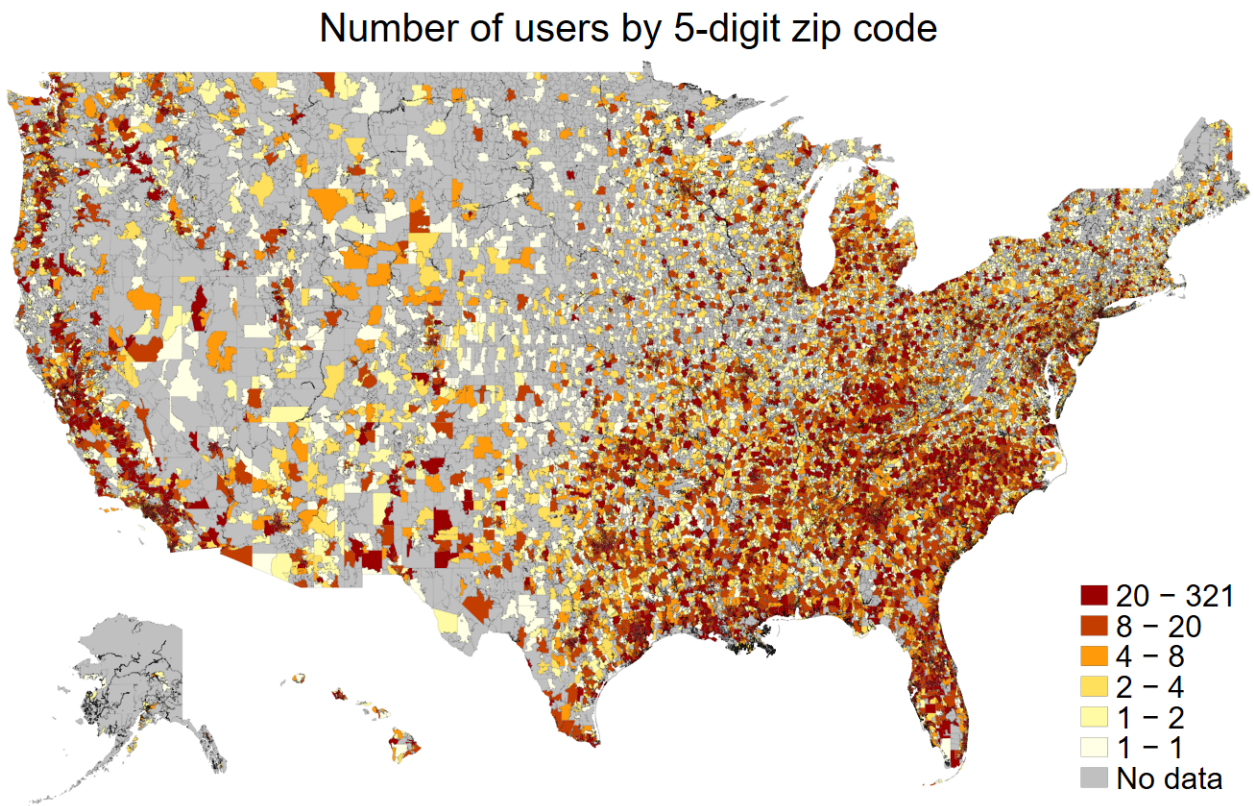


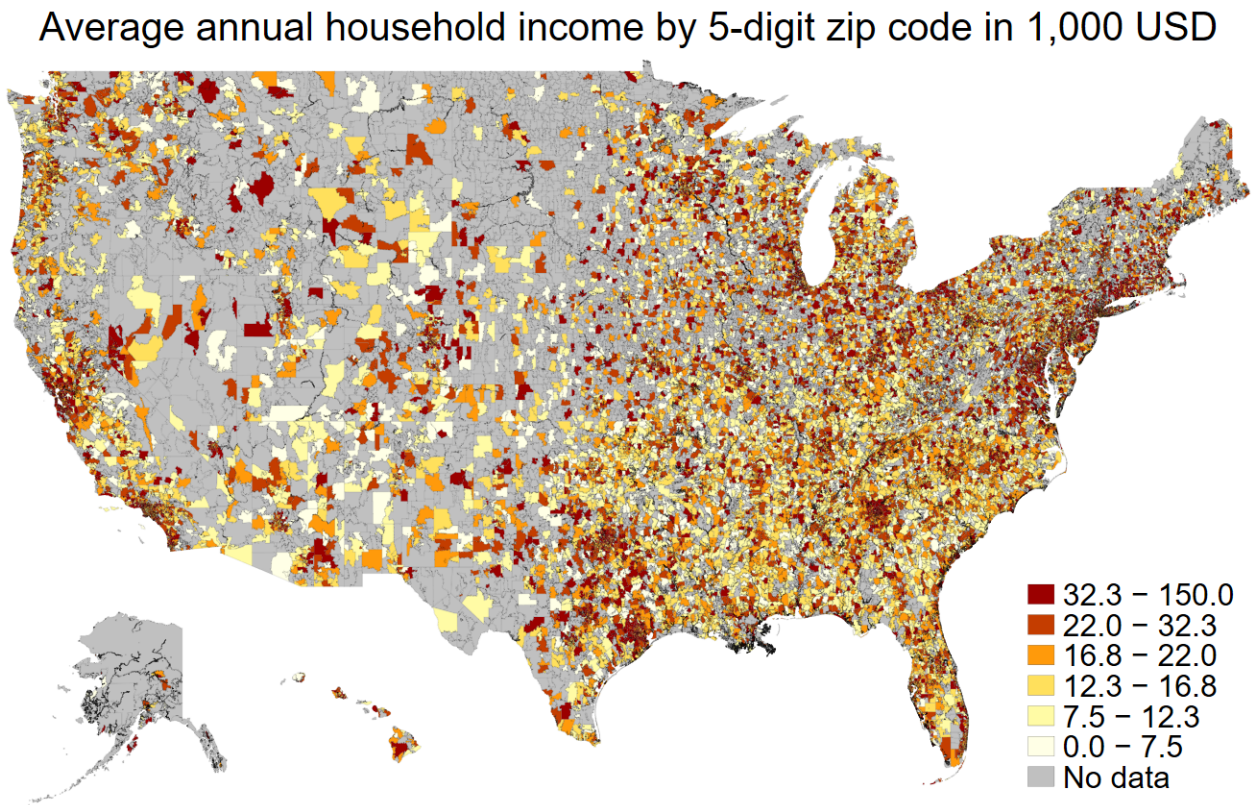
Data Coverage

- From August 2016 to August 2020, we observe bank-account transactions for a sample of 90,844 users
- We observe demographic data such as gender, age, self-reported annual income, and zip code



Two Advantages of Our Data in this Setting

- The Non-profit Fintech targets low-income individuals/households all over the US
- Our data can be updated very frequently (right now, we observe transactions as of August 23rd)



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- We take the usual steps to clean the data of users for which we likely observe incomplete records (observing at least 5 transactions per month, credible spending, payroll or other recurring income)

Data: Summary Statistics and Representativeness

			Percentiles				
	Mean	Standard Deviation	10%	25%	50%	75%	90%
Age	37.53	11.04	25.00	30.00	35.00	44.00	52.00
Male	0.21	0.41	0.00	0.00	0.00	0.00	1.00
Self-Reported Annual Income	29,798.03	32,774.12	450.00	6,000.00	20,000.00	42,500.00	65,000.00
Number of Linked Accounts	2.38	2.41	1.00	1.00	2.00	3.00	4.00
Number of Monthly Transactions	70.36	64.42	10.00	26.00	59.00	98.00	141.00
Monthly Payroll Income	2,080.57	3,893.35	4.62	40.00	1,000.00	2,648.92	5,155.05
Stimulus Income	1789.03	765.81	1,200	1,200	1,700	1,700	3,400
Monthly Food Spending	405.19	716.10	33.02	101.52	256.95	525.45	924.39
Groceries	210.25	367.60	14.06	40.56	110.03	255.99	504.52
Restaurants	235.92	540.13	20.53	54.31	135.07	285.37	520.47
Pharmacies	54.07	180.21	5.14	11.66	26.97	59.21	114.62
Shopping	865.29	114931.68	33.53	101.00	253.85	528.03	971.23
Observations	25210141						

Means in the Consumer Expenditure Survey Data

Age	51.09	Monthly Food Spending	708.83
Male	0.47	Groceries	372.01
Annual Income	78,321.16	Restaurants	288.25
Monthly Payroll Income	5,129.75	Shopping	1,178.83

Empirical Approach: Income, Spending, and Responses to Stimulus Payments

- We want a high speed, dynamic and timely diagnosis of how households' incomes was impacted and how they adjusted their spending, when they began to respond, and who responded the fastest and strongest

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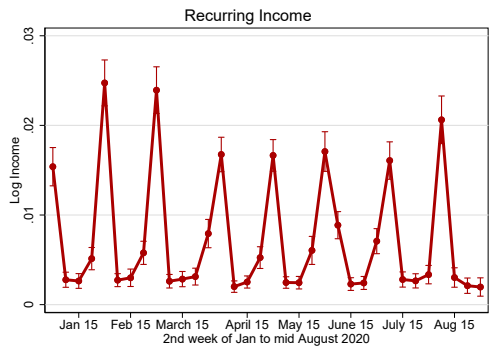
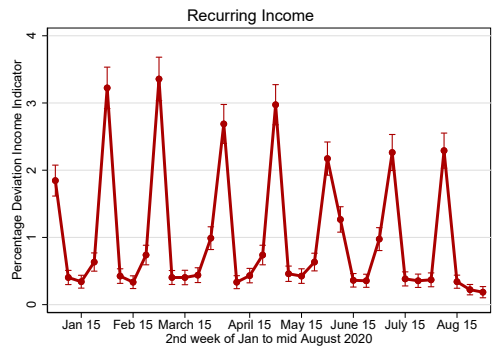
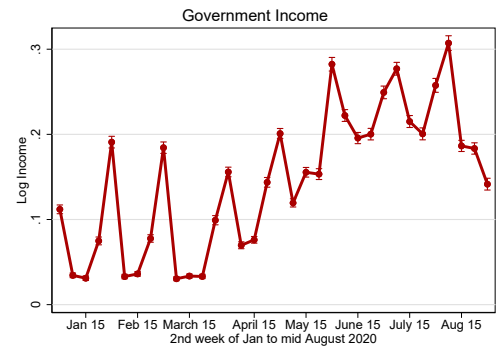
- We also look at income and spending relative to individuals' personal histories
- We cluster standard errors at the individual level

Results: Income

- We see decreases in the amount and likelihood of payroll and other recurring income as well as increases in government income







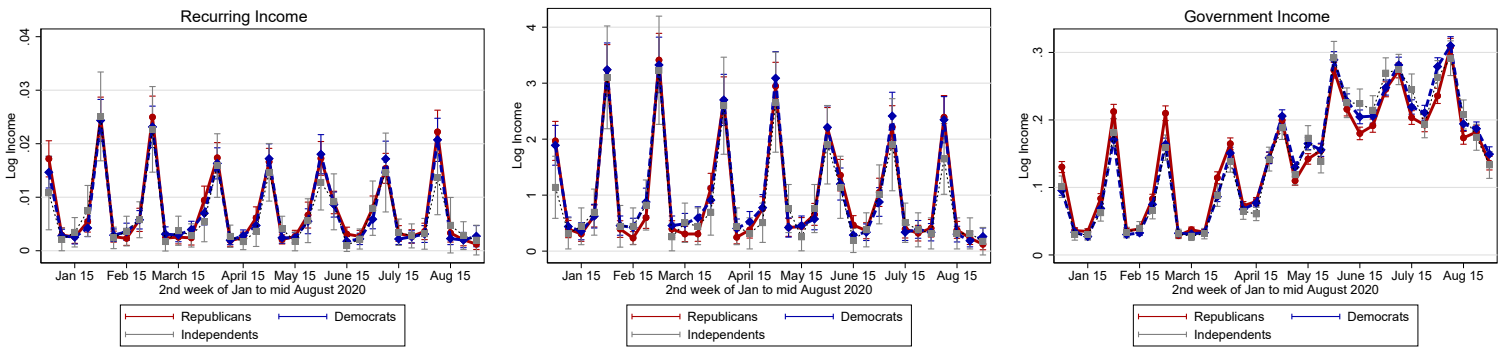
Heterogeneity: Some Evidence for Differences by Gender and Education

	(1) Log Payroll Income	(2) Log Payroll Income	(3) Ind Payroll Income	(4) Ind Payroll Income	(5) Log Govt Income	(6) Log Govt Income	(7) Ind Govt Income	(8) Ind Govt Income
shelter × male	0.0250***		0.0776**		-0.00591		-0.0371	
	(0.00937)		(0.0334)		(0.00699)		(0.0465)	
pandemic × male		0.0346***		0.0725***		-0.00929*		-0.109***
		(0.00746)		(0.0257)		(0.00557)		(0.0358)
R^2	0.410	0.410	0.421	0.421	0.312	0.312	0.333	0.333
shelter × college	0.0360***		0.180***		0.0123		0.00213	
	(0.0135)		(0.0512)		(0.0112)		(0.0747)	
pandemic × college		0.0163		0.109***		0.0124		-0.0952
		(0.0116)		(0.0421)		(0.00970)		(0.0617)
R^2	0.442	0.441	0.429	0.428	0.274	0.276	0.300	0.300
Week-by-Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓	✓	✓

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

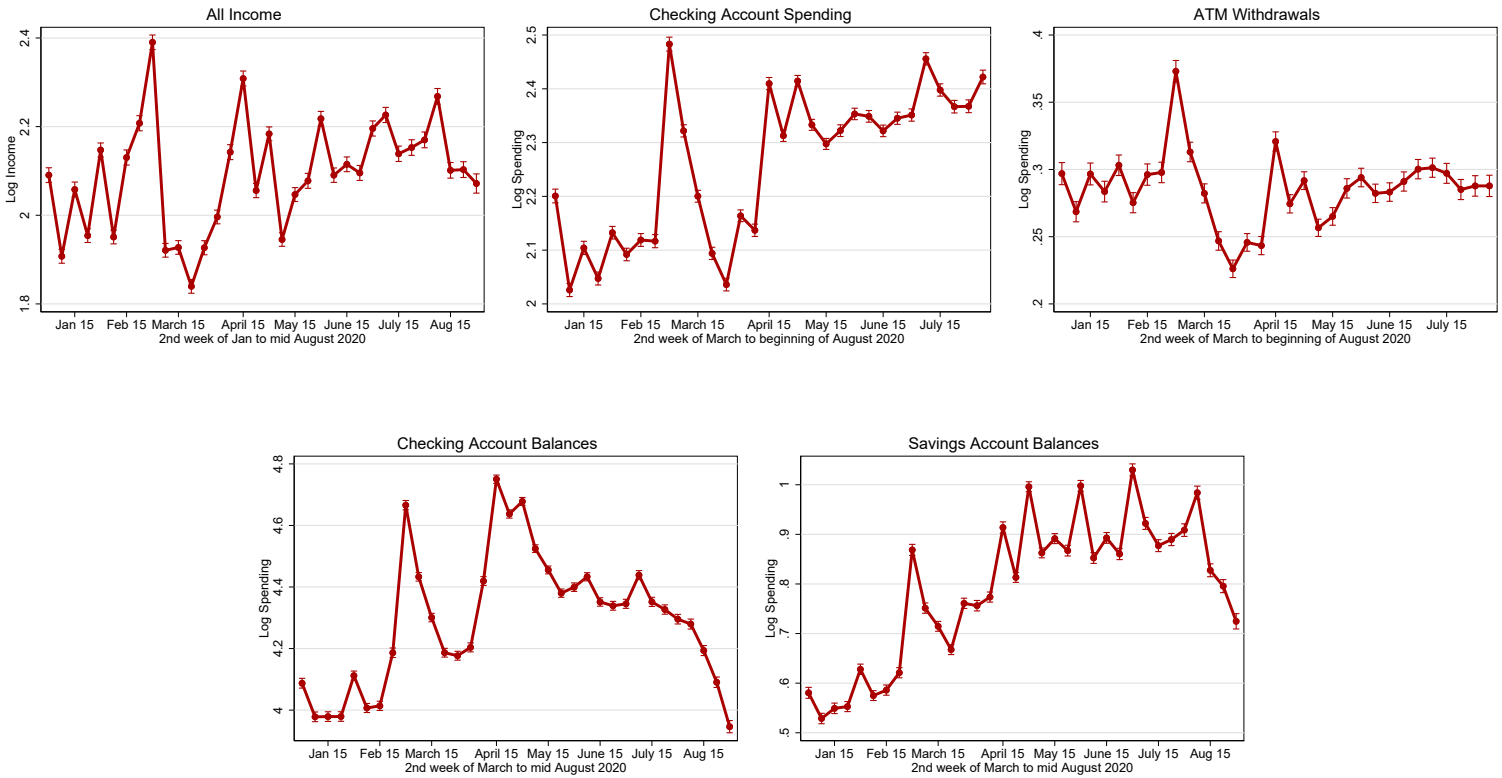
Heterogeneity: No Evidence for Differences by Partisanship

- But not very tightly estimated



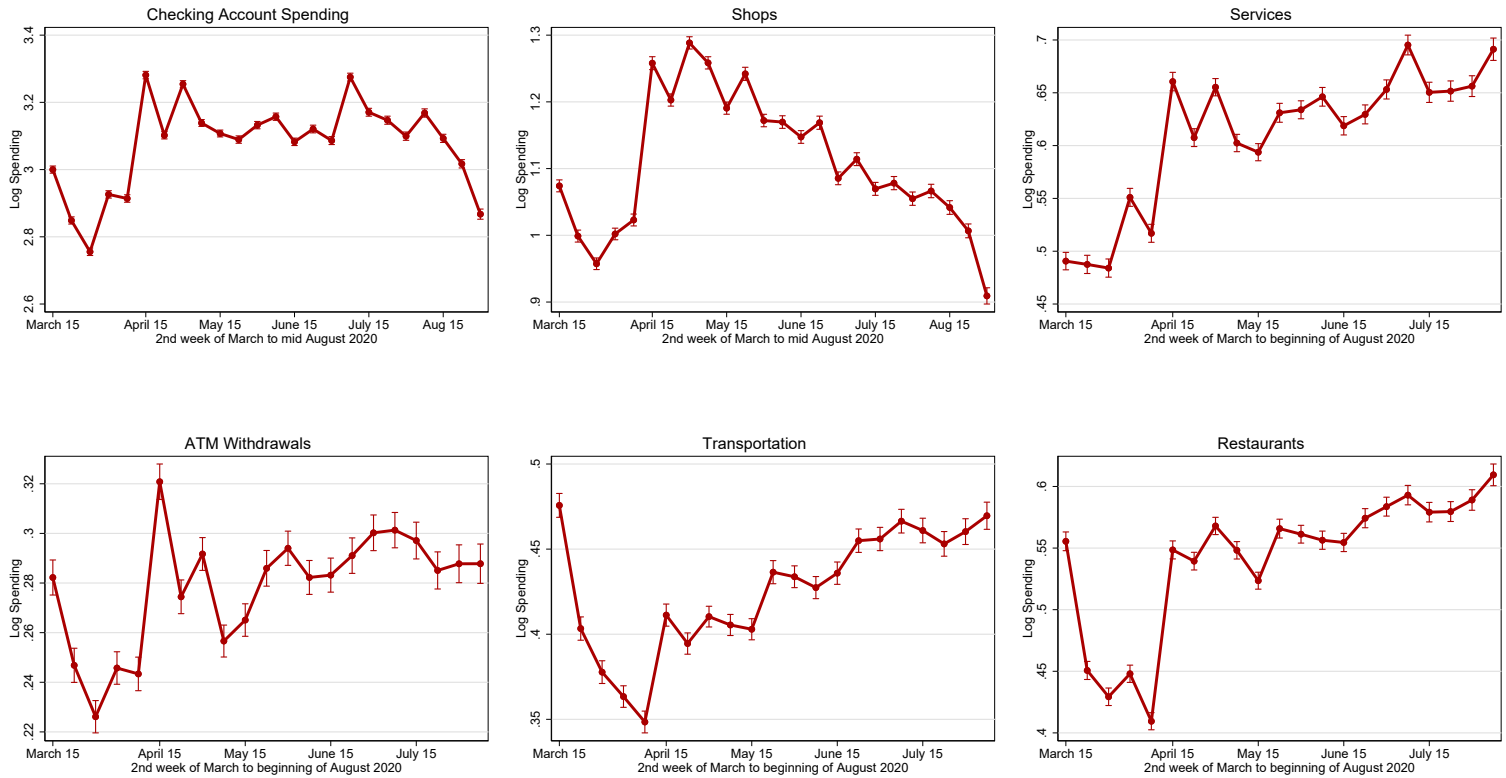
Results: From Income to Spending and Saving

- There was a spike in income and spending when many people received tax refunds in February, then a fall in income and spending and then an increase mostly driven by government transfer payments



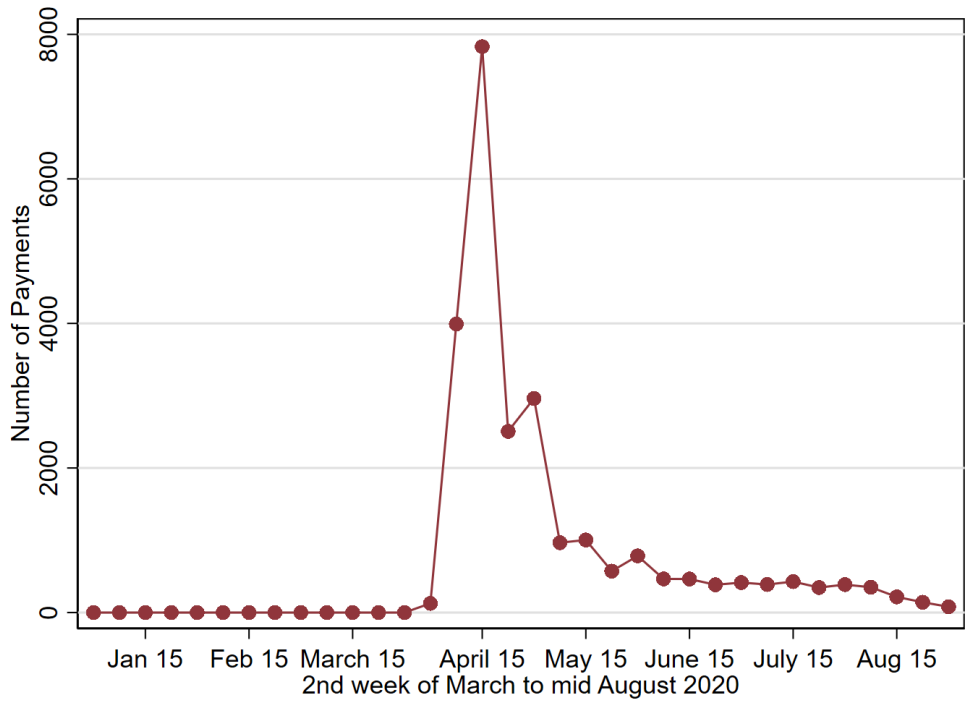
Results: Spending

- All checking-account spending increased to stockpile needed home goods and also in anticipation of the inability to patronize retailers, then declined sharply, then increased for stimulus check recipients, no differences for sheltered versus non-sheltered states



Results: Stimulus Check Receipt

- Starting April 9, 2020 individuals in the sample received the stimulus check payments



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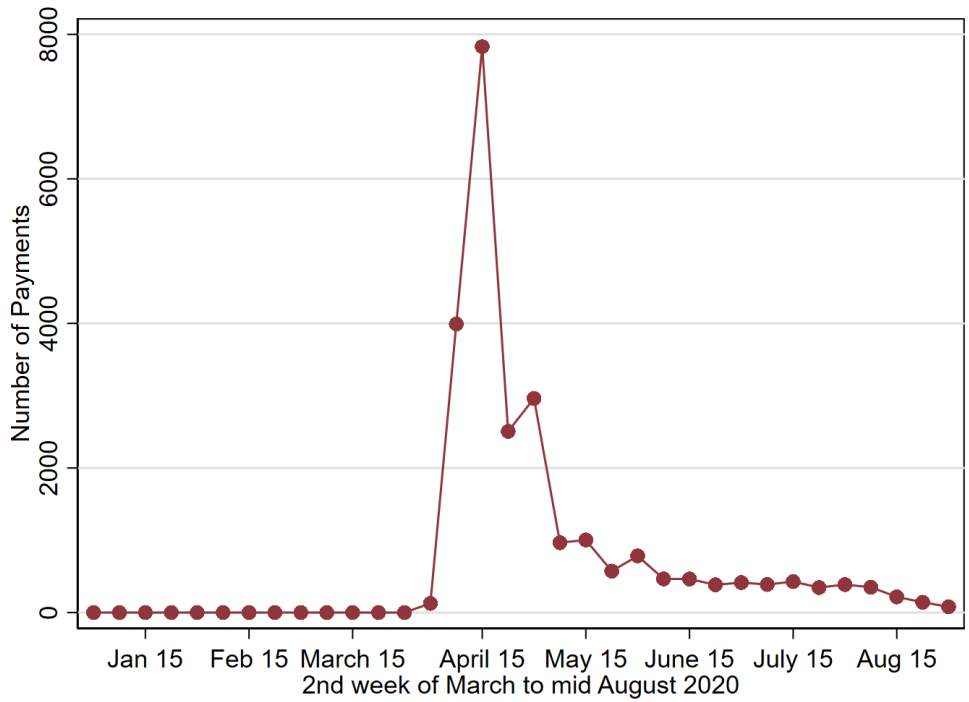
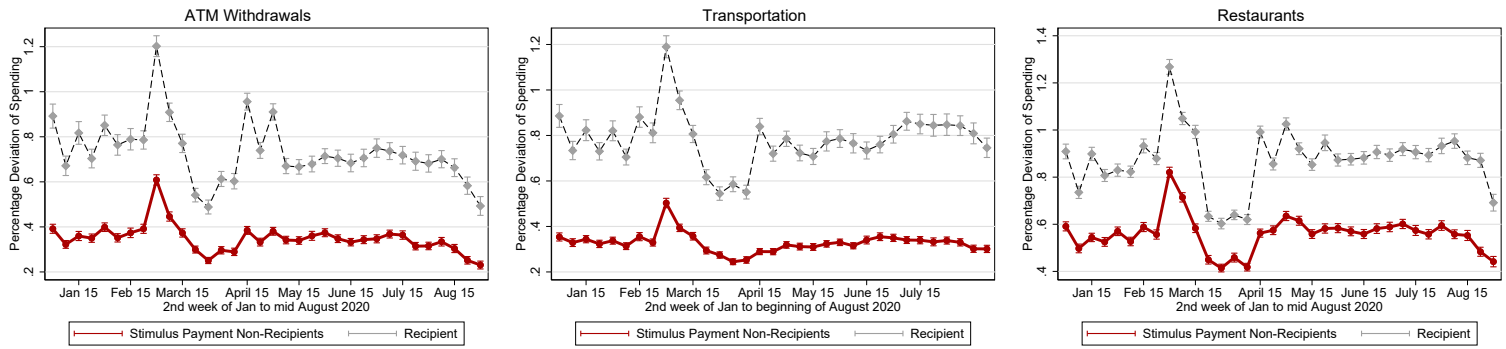
- Starting April 9, 2020 individuals in the sample received the stimulus check payments
- Overall, about 60% of individuals in our sample received a stimulus check



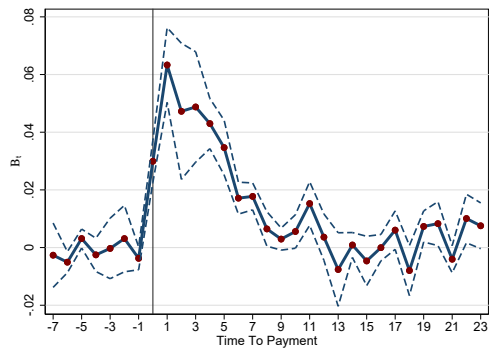
Results: Spending and Stimulus Checks

- Increases in spending are mostly driven by government transfers but the movement looks similar for recipients and non-recipients of stimulus checks

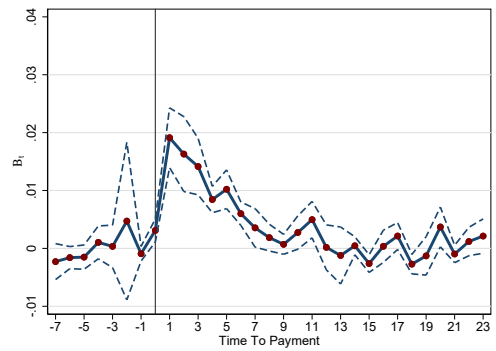


Results: Stimulus Check Receipt

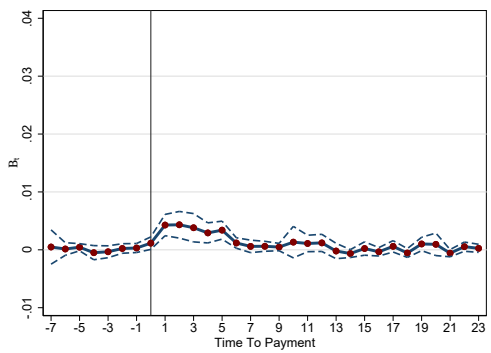
- Spending, especially on non-durables and less so on durables increased substantially in event study design in the few days after stimulus check receipt



all spending



non-durable goods



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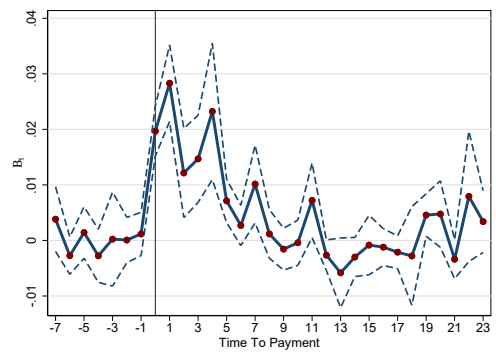
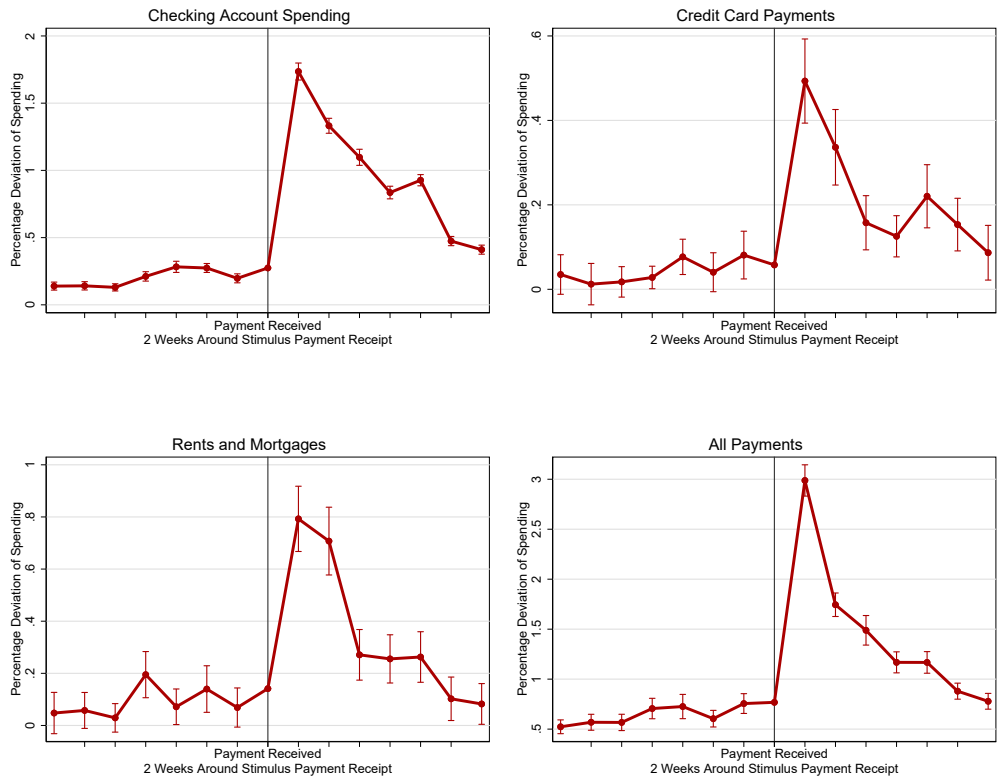


all payments

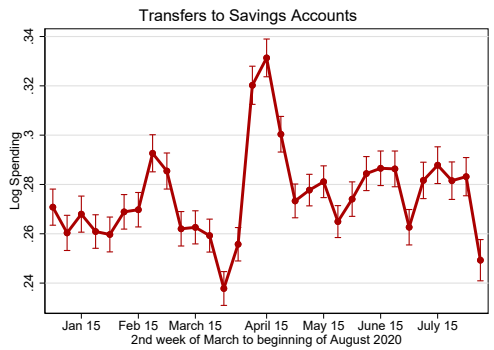
Results: Credit Card, Rent, and Mortgage Payments

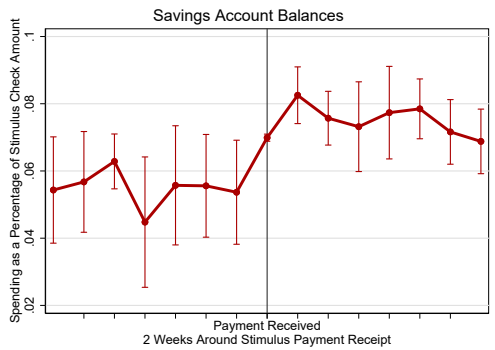
- Individuals appear to have delayed bill and rent payments and catch up with the funds from the stimulus checks

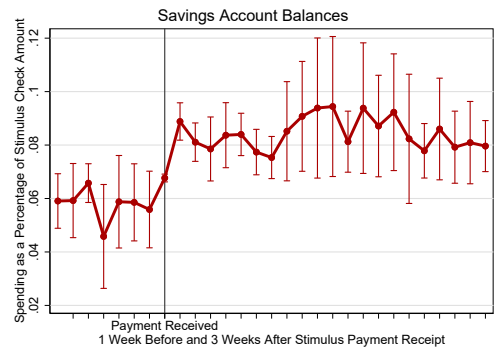


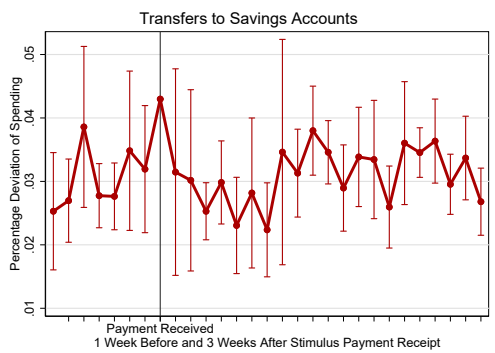
Results: Transfers to Savings Accounts

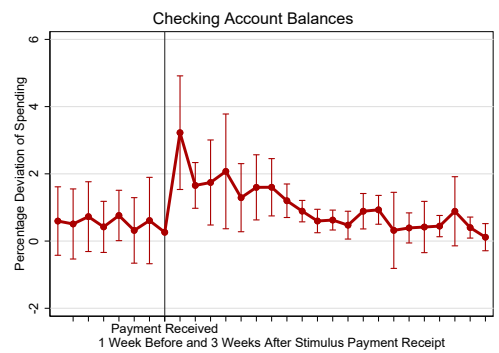
- In BEA/NIPA data, there was a massive increase in the personal savings rate but we find some mixed evidence there





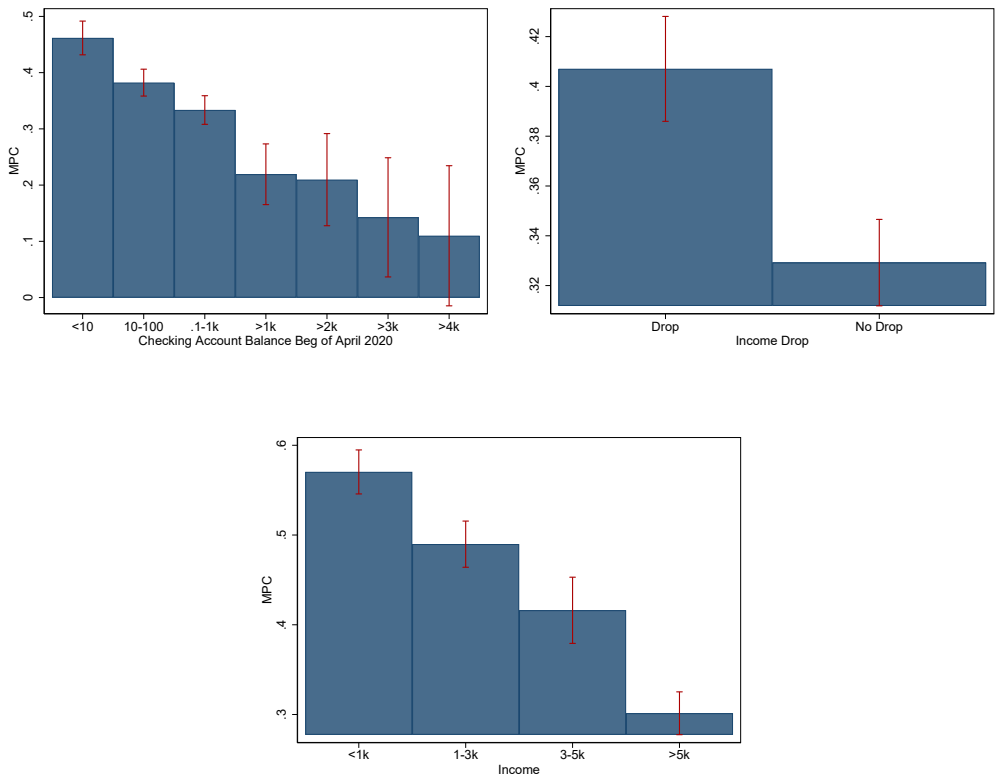






Results: Spending Increases after Stimulus Payments

- Largest increases by individuals with low account balances in the beginning of April (less heterogeneity by income drops or levels)



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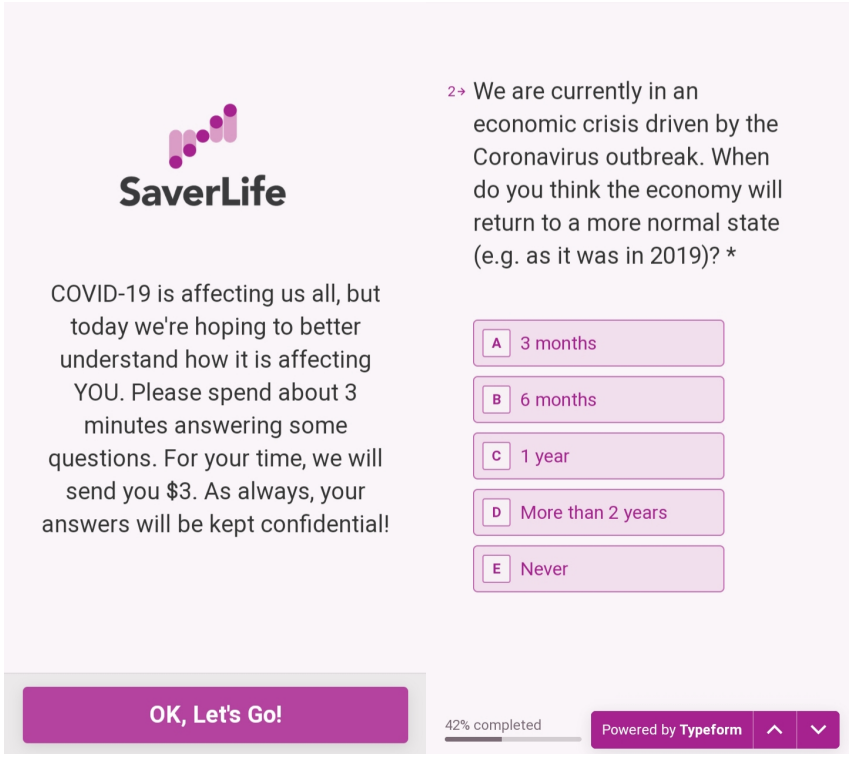

User Survey After Stimulus Payments

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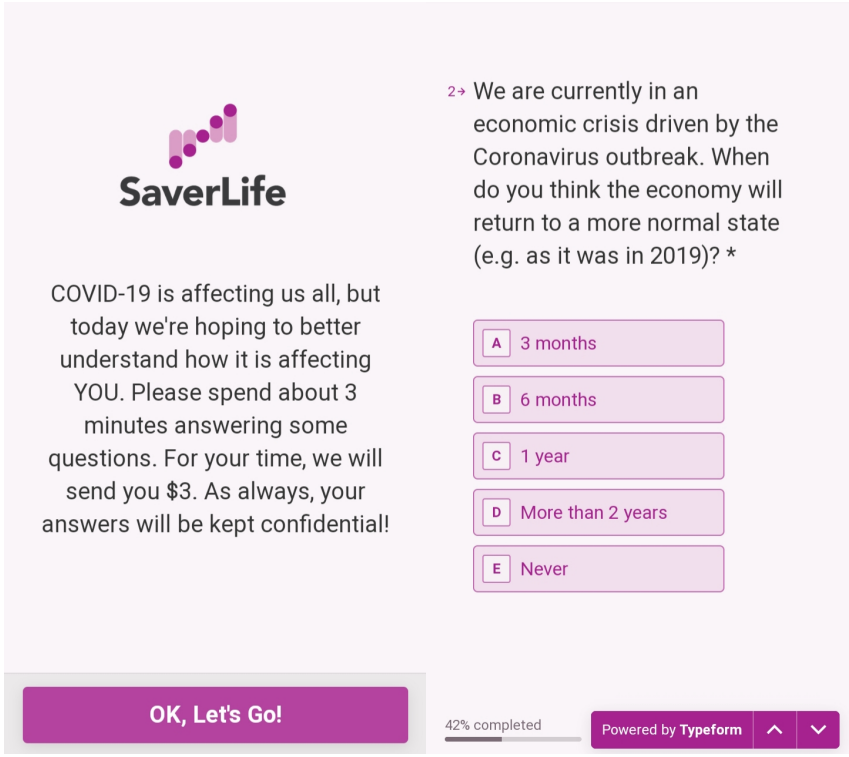
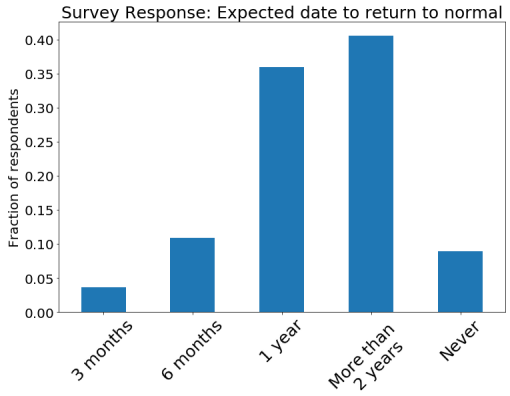
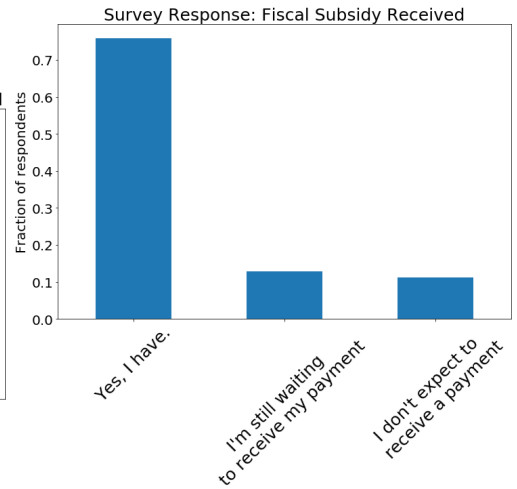
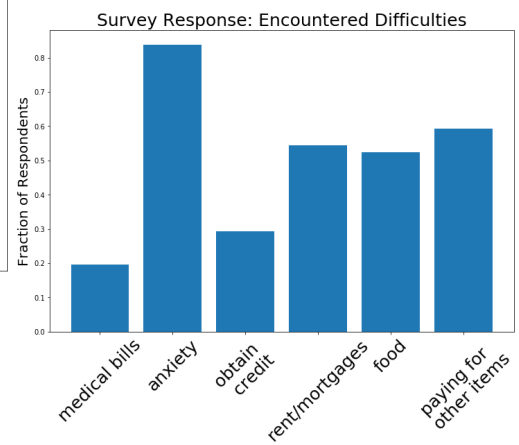
- We asked for stock market/unemployment/salary expectations as well as economic hardship, credit access, stimulus payment receipt, and what they will spend it on

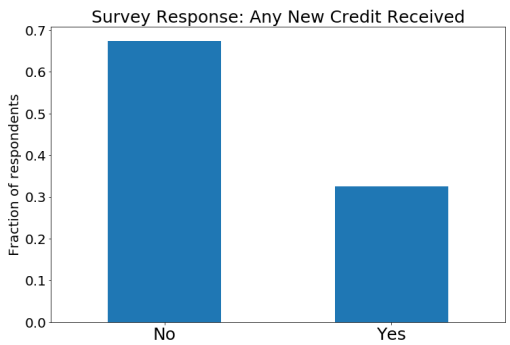


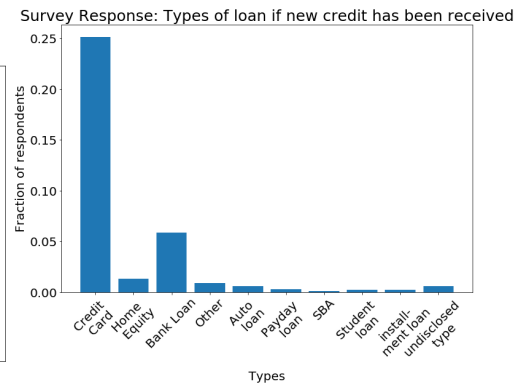
Survey Results: Crisis, Credit, and Partisanship

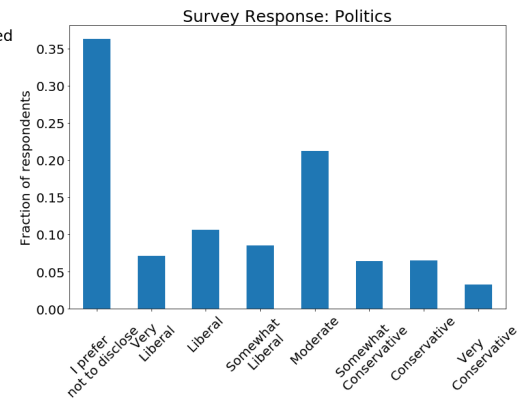




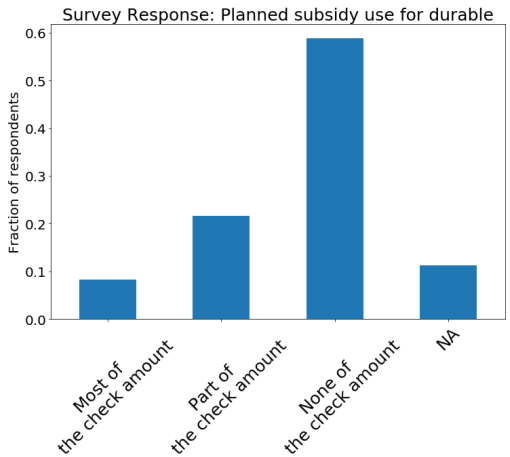


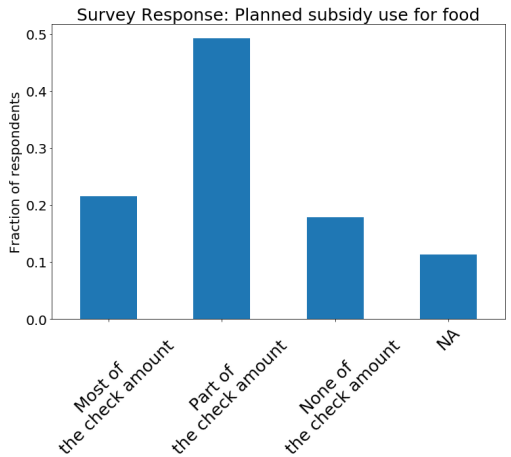


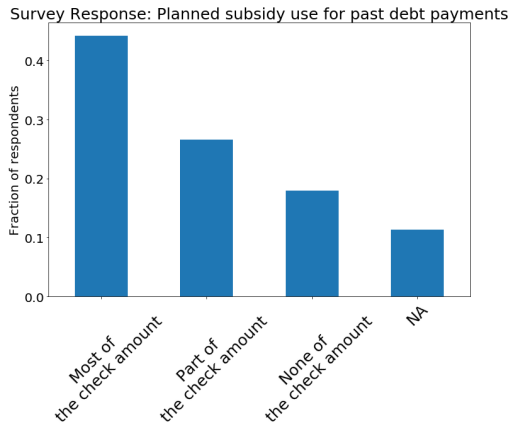


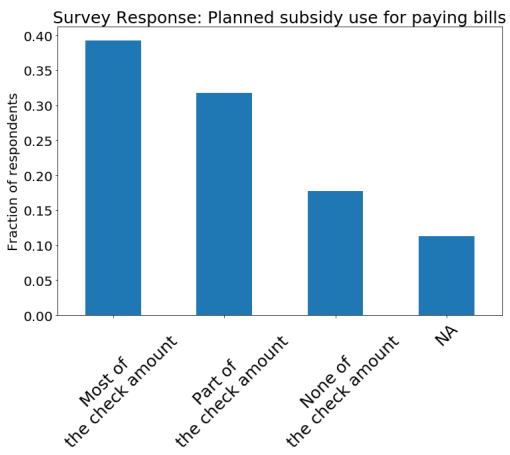


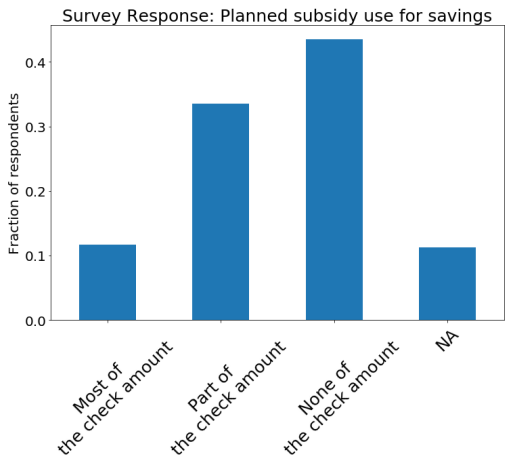
Survey Results: MPCs for Durables, Food, Payments, and Savings



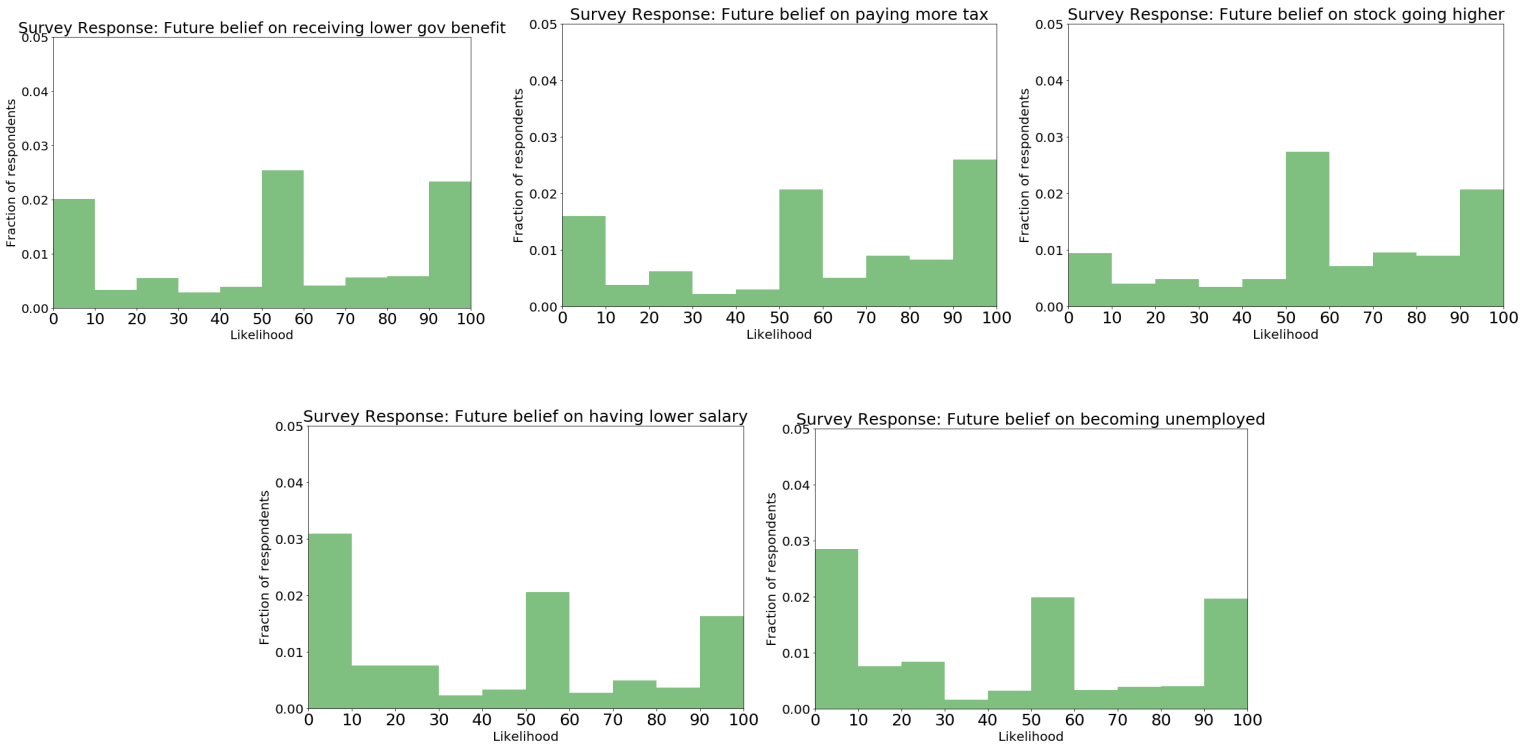








Survey Results: Interaction of Individual Responses With MPCs



Survey Results: Interaction of Individual Responses With MPCs

	(1) Total payments	(2)	(3) Food	(4) Durables	(5) Total Spending
Post-Stimulus × Stimulus	-0.0304	-0.00322	0.0349	0.0424*	0.471**
	(0.0218)	(0.00175)	(0.0332)	(0.0178)	(0.137)
Post-Stimulus × Past-bills-are-due	0.0219				
	(0.0288)				
Post-Stimulus × Plan-to-pay-bills		-0.0132			
		(0.0109)			
Post-Stimulus × Food			0.0442		
			(0.0480)		
Post-Stimulus × Durables				-0.0153	
				(0.0141)	
Post-Stimulus × Savings					-0.180***
					(0.0448)
R^2	0.029	0.029	0.050	0.017	0.083
Week-of-Year FE	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓

Standard errors in parentheses
* $p < .1$, ** $p < .05$, *** $p < .01$

Survey Results: Interaction of Individual Responses With MPCs

	(1)	(2)	(3)	(4)	(5)
	Total Spending				
Post-Stimulus × Stimulus	0.034	0.245**	0.232**	0.227	0.260**
	(0.102)	(0.0838)	(0.0899)	(0.133)	(0.0999)
Post-Stimulus × Exp-Longer-Crisis	0.261***				
	(0.117)				
Post-Stimulus × Exp-Unemployment		-0.155***			
		(0.0299)			
Post-Stimulus × Exp-Lower-Income			-0.115		
			(0.0862)		
Post-Stimulus × Exp-Higher-Taxes				-0.0464	
				(0.136)	
Post-Stimulus × Exp-Government-Income-Cut					-0.165**
					(0.0631)
R^2	0.162	0.162	0.162	0.162	0.162
Day-of-Year FE	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓

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Effects on Aggregate Consumption and Fiscal Multipliers

- We consider a simple three-sector model (similar to Guerrieri et al., 2020) to illustrate why the fiscal stimulus payments are less effective in the current environment (relative to the payments in response to the 2001 and 2008 economic slowdowns)

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  - Sector 3: Other sectors (admin, banking, tech, furniture, electronics, ...), durable, depreciates slowly, unnecessary $\Rightarrow$ not shut down

Effects on Aggregate Consumption and Fiscal Multipliers

- All sector s agents' preferences are represented by the utility function $\sum_{t=0}^{\infty} \beta^t U(c_t^s)$ where $U(c) = c^{1-\sigma}/(1-\sigma)$ and each agent is endowed with $\bar{n}_t^s > 0$ units of labor which are supplied inelastically

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- Frictionless economy, agents satisfy their Euler equations $U'(c_t^s) = \beta(1 + r_t) U'(c_{t+1}^s)$

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Corollary

The marginal propensity to consume in sector 1 out of income (or fiscal stimulus payments) is larger for agents in sector 2 than for agents in sectors 1 and 3.

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    - The stimulus payment goes to agents in sector 3 that have a less high marginal propensity to consume out of their income

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* We thank the CBS Fintech Initiative for providing access to data we used in this research project