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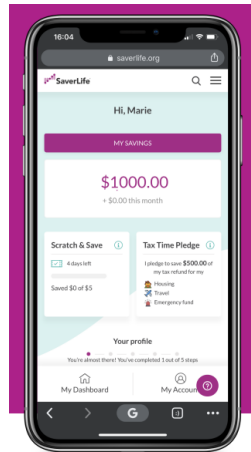
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  - In order to deal with a crisis, policy makers have to understand what is happening on the ground
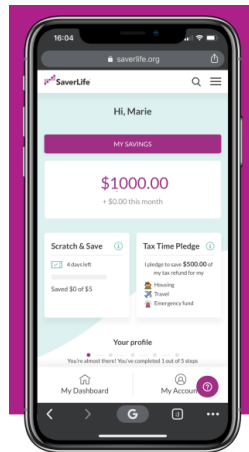 - Are fiscal stimulus payments in the current environment as effective as in the past?

Transaction-Level Bank Account Data

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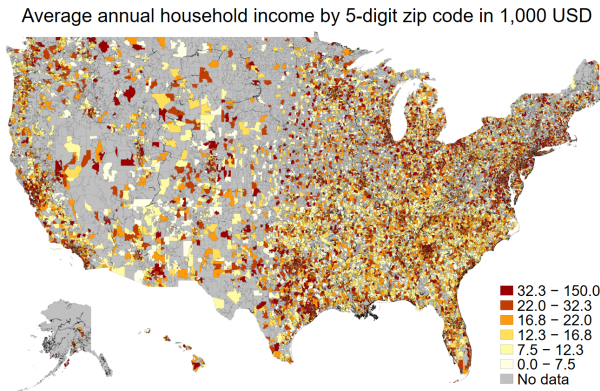▶ We were able to run a survey between mid May and mid July 2020 and received around 1,011 unique responses
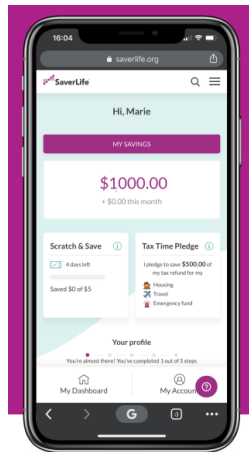
Data Coverage

▶ 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

Number of users by 5-digit zip code

20 − 321
8 − 20
4 − 8
2 − 4
1 − 2
1 − 1
1 − 1
No data
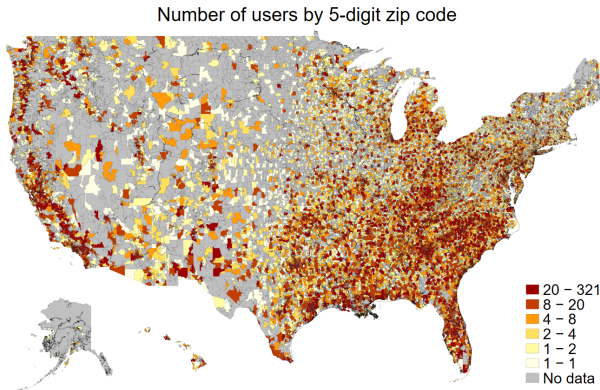
Two Advantages of Our Data in this Setting

▶ The Non-profit Fintech targets low-income individuals/households all over the US

▶ Our data can be updated very frequently

Average annual household income by 5-digit zip code in 1,000 USD

32.3 − 150.0
22.0 − 32.3
16.8 − 22.0
12.3 − 16.8
7.5 − 12.3
0.0 − 7.5
No data

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- For each transaction in the data, we observe the time stamp, the amount, and a category (such as Groceries and Supermarkets or Pharmacies), parent category (such as ATM or Payroll), and grandparent category (such as Shopping and Food)
- 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

	Mean	Standard Deviation	Percentiles				
			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

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- ▶ 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) Ind 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*** (0.00937)		0.0776** (0.0334)		-0.00591 (0.00699)		-0.0371 (0.0465)	
pandemic × male		0.0346*** (0.00746)		0.0725*** (0.0257)		-0.00929* (0.00557)		-0.109*** (0.0358)
R^2	0.410	0.410	0.421	0.421	0.312	0.312	0.333	0.333
shelter × college	0.0360*** (0.0135)		0.180*** (0.0512)		0.0123 (0.0112)		0.00213 (0.0747)	
pandemic × college		0.0163 (0.0116)		0.109*** (0.0421)		0.0124 (0.00970)		-0.0952 (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
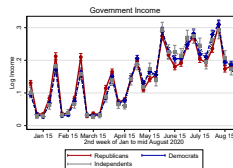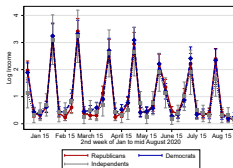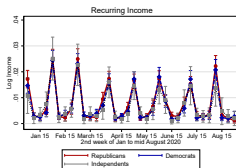
Results: Spending

▶ 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
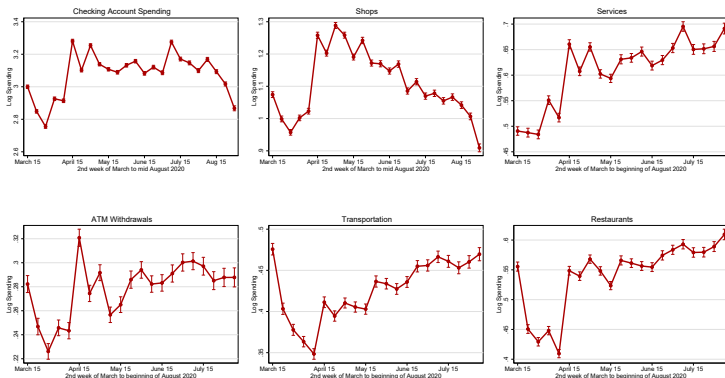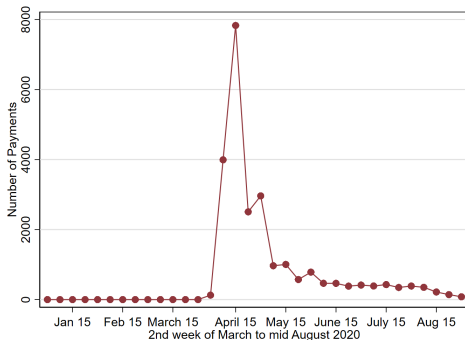
Results: Stimulus Check Receipt

▶ Starting April 9, 2020 individuals in the sample received the stimulus check payments
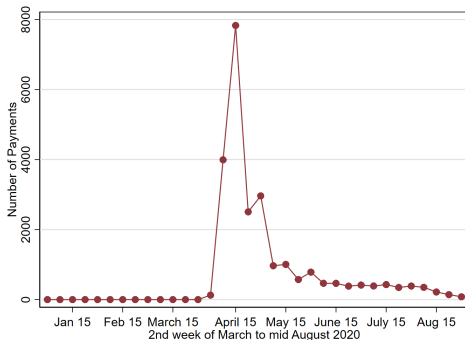
Results: Stimulus Check Receipt

▶ 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
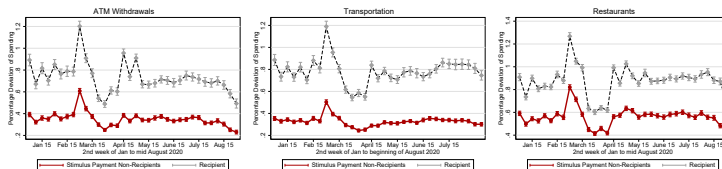
Results: Stimulus Check Receipt

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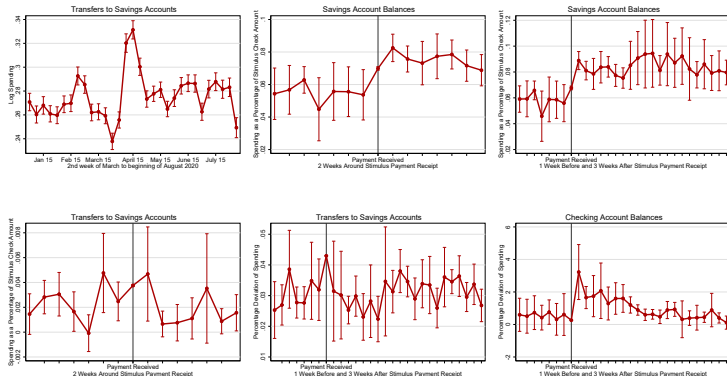

all spending

non-durable goods

durable goods
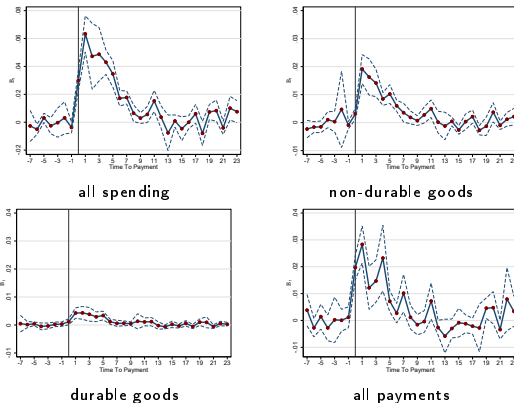
all payments

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
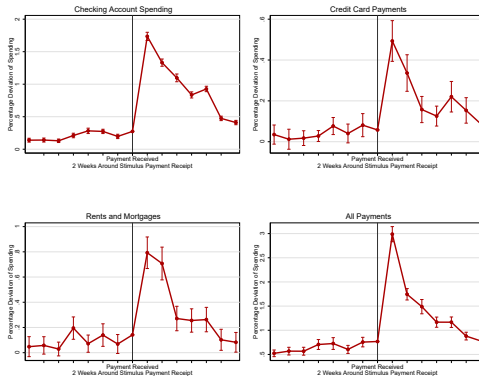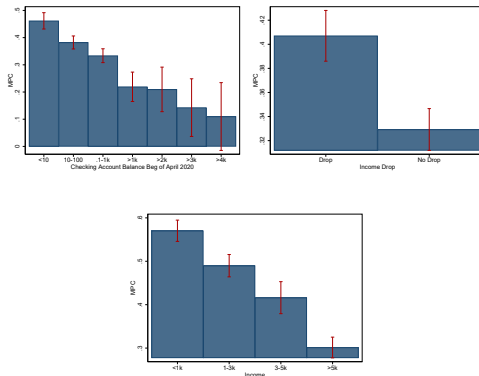
Results: Transfers to Savings Accounts

▶ In BEA/NIPA data, there was a massive increase in the personal savings rate but we find some mixed evidence there
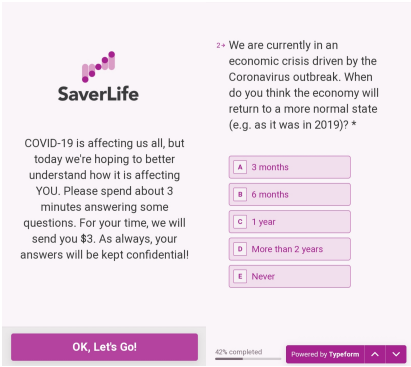
Results: Spending Increases after Stimulus Payments

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

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
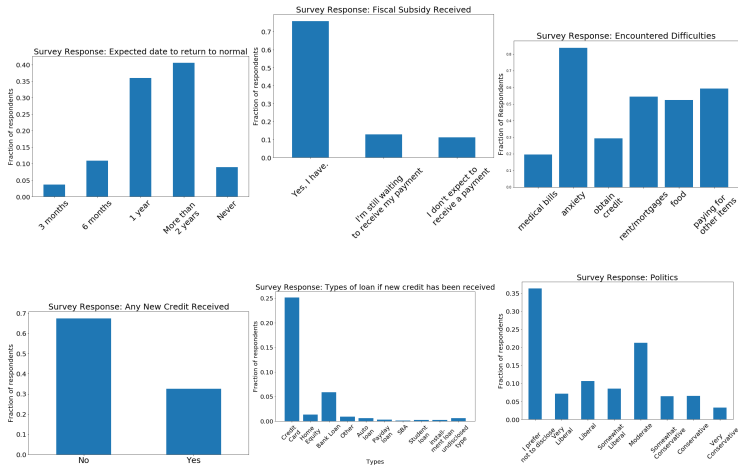
Survey Results: MPCs for Durables, Food, Payments, and Savings
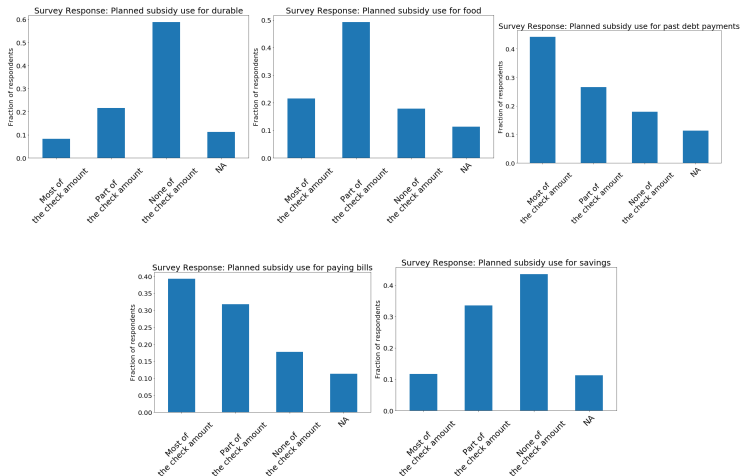
Survey Results: Interaction of Individual Responses With MPCs
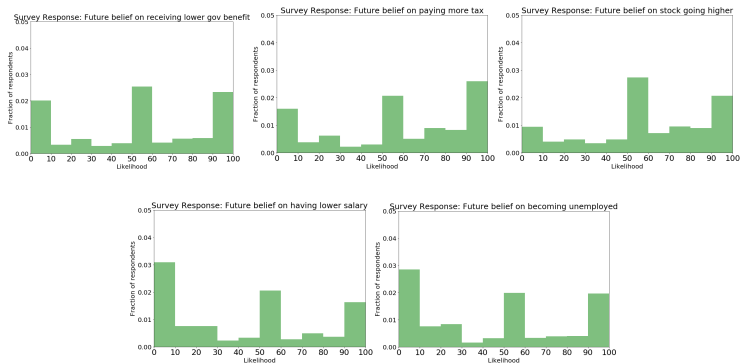
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	(1) Total payments	(2)	(3) Food	(4) Durables	(5) Total Spending
Post-Stimulus × Stimulus	-0.0304 (0.0218)	-0.00322 (0.00175)	0.0349 (0.0332)	0.0424* (0.0178)	0.471** (0.137)
Post-Stimulus × Past-bills-are-due	0.0219 (0.0288)				
Post-Stimulus × Plan-to-pay-bills		-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	✓	✓	✓	✓	✓

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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 2: Food small (restaurants)/services/hospitality), non-durable, depreciates immediately, (un)necessary, labor intensive $\Rightarrow$ shut down

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  - Sector 2: Food small (restaurants)/services/hospitality), non-durable, depreciates immediately, (un)necessary, labor intensive ⇒ shut down
  - Sector 3: Other sectors (admin, banking, tech, furniture, electronics, . . .), durable, depreciates slowly, unnecessary ⇒ not shut down

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The marginal propensity to repay debt out of income (or fiscal stimulus payments) is larger for agents in sector 2 than for agents in sector 1.

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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    - But sector 2 agents are the poorest agents with the highest MPC out of their income
  - Agents in sector 2 choose to accumulate more debt in period 2 planning to repay it with their stimulus payment
    - 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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