Initial Impacts Of the Pandemic on Consumer Behavior: Evidence from Linked Income, Spending, and Savings Data

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Fall in Aggregate Spending and Rise in Aggregate Savings

![Graph showing fall in aggregate spending and rise in aggregate savings](image)

**Source:** Bureau of Economic Analysis.

- This paper explores linkages between household spending, income, savings.
Introduction

- Which factors drive the joint movements in spending and savings?
  - I.e., Shut-downs and health risks, income losses, role of transfers
  - Use bank account data on household spending, income and savings

- Results are useful for understanding causes and dynamics of recession:
  - supply (shutdowns) vs. demand (spillovers)
  - current vs. future dynamics
  - inflation vs. deflation

- Policy implications for fiscal stimulus
Data Description

- JPMCI household-by-day bank account data for 8 million customers
  - Detailed credit and debit card spend
  - Liquid asset balances
  - Labor income and employer information from direct deposit inflows

Key advantages of data:

- Links HH spending, income and savings.
- Individual covariates, e.g. zipcode, industry of employment.
- Large sample size, wide geographic coverage, spans income spectrum.
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- Q: How does the distribution of spending and saving evolve?
Result 1: Spending recovers faster for low income households

- Large and pervasive initial declines.
- Faster recovery in spending for lower income households.
- Similar patterns in lower-income sectors.
Higher income households tend to live in cities

- Cities had greater disease burden, more restrictive shut-downs

**Answer: Income levels not proxying for location**

- Similar coefficients with and without zip fixed effects
Rise in Liquid Balances Mirror Drops in Spending
Result 2: Stronger Growth in Balances For Lower Income Quartile

- Stronger growth for low income households *implies* reduced liquid wealth inequality.
Summary and Preliminary Interpretations

Key Results:

1. Large and pervasive initial spending decline:
   - Too large to be explained by job losses alone.

2. Divergent patterns by income emerge mid-April:
   - Spending recovers faster for lower income households.
   - Savings grows faster for lower income households.

What explains these patterns in spending and savings?

- One potential explanation: Government income support.
Estimated changes in income and spending

Simulated income using statutory provisions of the CARES Act, information from the CPS and the unemployment insurance calculator in Ganong, Noel and Vavra (2020).
Estimated changes in income and spending

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Implications

- Aggregate spending rebounded, but still below pre-pandemic levels
- Government income support partially driving spending recovery & savings growth
- Phasing out stimulus too quickly may transform supply-side recession into a broader recession due to declines in income and demand.
Future Work

- **Research questions:**
  - Role of direct vs. indirect spillover effects for business cycle dynamics?
  - Role of fiscal transfers for stabilizing consumption?

- **Future work:**
  - Tracing out individual joint income-spending-savings dynamics directly
  - Estimating MPC using total spending data (debit, credit, cash, other).
  - Estimating composition effects (luxuries vs necessities, durables vs. non-durables).
Aggregate Credit Card Spend (Year over Year)

YoY % change in spending

Percent change in credit card spending

End of week

Feb-01  Mar-07  Apr-11  May-16

National emergency declared, March 13
EIP payments from Treasury, April 15

2020
Aggregate Credit Card Spend (Levels)

Average credit card spending per household

- National emergency declared, March 13
- EIP payments from Treasury, April 15

Average spending ($)
% Credit Card Spend by Income Quartiles

YoY % change credit card in spending by income quartile

Percent change in spending

Income Quartile
- 1 (lowest)
- 2
- 3
- 4 (highest)

National emergency declared, March 13
EIP payments from Treasury, April 15
$ Credit Card Spend by Income Quartiles

Average total credit card spending per household by income quartile

- EIP payments from Treasury, April 15
- National emergency declared, March 13

End of week

Income Quartile

1 (lowest)  2  3  4 (highest)
Spending Changes by Industry of Employment

- Smaller spending decline, faster recovery for grocery sector workers.
- Larger spending decline, slower recoveries in higher-income sectors.
Further Split of Spending Changes by Industry and Income

(a) Quartile 1

- Smaller differences across industries, controlling for income quartiles.

(b) Quartile 4

- Large differences within industry, across income quartiles.

- Suggests household income groups, rather than industry of employment, matters for understanding spending patterns.
Role of physical location

<table>
<thead>
<tr>
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<th>(1)</th>
<th>(2)</th>
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<th>(5)</th>
<th>(6)</th>
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</thead>
<tbody>
<tr>
<td>Income Q2</td>
<td>−0.053*** (0.004)</td>
<td>−0.054*** (0.004)</td>
<td>−0.062*** (0.002)</td>
<td>−0.058*** (0.001)</td>
<td>−0.055*** (0.003)</td>
<td>−0.054*** (0.002)</td>
<td>−0.063*** (0.011)</td>
<td>−0.064*** (0.010)</td>
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<tr>
<td>Income Q3</td>
<td>−0.119*** (0.004)</td>
<td>−0.124*** (0.004)</td>
<td>−0.142*** (0.002)</td>
<td>−0.132*** (0.001)</td>
<td>−0.132*** (0.003)</td>
<td>−0.127*** (0.002)</td>
<td>−0.129*** (0.011)</td>
<td>−0.127*** (0.010)</td>
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<tr>
<td>Income Q4</td>
<td>−0.223*** (0.004)</td>
<td>−0.221*** (0.004)</td>
<td>−0.246*** (0.002)</td>
<td>−0.224*** (0.001)</td>
<td>−0.238*** (0.003)</td>
<td>−0.226*** (0.002)</td>
<td>−0.273*** (0.011)</td>
<td>−0.271*** (0.010)</td>
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<tr>
<td>Constant</td>
<td>0.037*** (0.003)</td>
<td>−0.020*** (0.001)</td>
<td>−0.005** (0.002)</td>
<td>0.070*** (0.008)</td>
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<table>
<thead>
<tr>
<th>Geography FE</th>
<th>NO</th>
<th>YES</th>
<th>NO</th>
<th>YES</th>
<th>NO</th>
<th>YES</th>
<th>NO</th>
<th>YES</th>
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<tr>
<td>Observations</td>
<td>65,675</td>
<td>65,675</td>
<td>65,675</td>
<td>65,675</td>
<td>24,923</td>
<td>24,923</td>
<td>3,587</td>
<td>3,587</td>
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<tr>
<td>Adjusted R²</td>
<td>0.042</td>
<td>0.249</td>
<td>0.301</td>
<td>0.580</td>
<td>0.265</td>
<td>0.595</td>
<td>0.159</td>
<td>0.306</td>
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</tbody>
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Significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. 

Back
Change in Distribution of Liquid Asset Balances ($)

Average daily balances per household

National emergency declared, March 13
EIP payments from Treasury, April 15

Feb-01  Mar-07  Apr-11  May-16
End of week

10th percentile  25th percentile  Mean  Median  75th percentile
Change in Distribution of Liquid Asset Balances (%)
Large dollar rise in liquid balances by highest income quartile, reflecting scale effects.
Growth of Balances by Industry of Employment

Year-over-year % change in average daily balances per household

- Feb-01
- Mar-07
- Apr-11
- May-16

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- Clothing and Department stores
- Government
- Manufacturing
- Education
- Grocery, Drugstore, Discount stores
- Professional
- Finance and Insurance
- Health Care
## Decomposition of Total Liquid Balances by Income Groups

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Initial Balances</th>
<th>Share of Initial Balances</th>
<th>Increase in Balances</th>
<th>Share of Increase in Balances</th>
<th>Final Balances</th>
<th>Share of Final Balances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
<td>$3.3B</td>
<td>12.6%</td>
<td>$0.8B</td>
<td>15.2%</td>
<td>$4.1B</td>
<td>13.0%</td>
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<tr>
<td>Quartile 2</td>
<td>$4.1B</td>
<td>15.5%</td>
<td>$1.1B</td>
<td>19.2%</td>
<td>$5.1B</td>
<td>16.2%</td>
</tr>
<tr>
<td>Quartile 3</td>
<td>$6.1B</td>
<td>23.1%</td>
<td>$1.4B</td>
<td>25.9%</td>
<td>$7.5B</td>
<td>23.6%</td>
</tr>
<tr>
<td>Quartile 4</td>
<td>$12.9B</td>
<td>48.8%</td>
<td>$2.2B</td>
<td>39.7%</td>
<td>$15.0B</td>
<td>47.2%</td>
</tr>
<tr>
<td>Total</td>
<td>$26.4B</td>
<td>100.0%</td>
<td>$5.5B</td>
<td>100.0%</td>
<td>$30.2B</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

- Lower income households driving more of the aggregate increase in balances than expected from initial shares.
- Poor are increasing savings relative to rich during the pandemic.
- Reflects a decline in liquid wealth inequality.
Rise in Liquid Balances Mirror Drops in Spending

Average daily balances per household

- February 01
- March 07
- April 11
- May 16

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