A TEST OF CONSUMPTION SMOOTHING AND LIQUIDITY CONSTRAINTS: SPENDING RESPONSES TO PAYING TAXES AND RECEIVING REFUNDS

by Baugh, Ben-David, Park and Parker.

Discussant: Annette Vissing-Jorgensen, University of California Berkeley

Objective: To understand why households tend to increase consumption when receiving a predictable income increase

• Rational explanation: People prefer to smooth consumption but find it costly to do so: Liquidity constraints.
• Behavioral explanations: Inattention, simple rules (e.g., spend your income).

Novelty: To study tax payments due to test whether response to refunds and payments is symmetric.

• Rational explanation predicts asymmetric response to predictable Y up and Y down: C up if Y up (liq constraint), C flat if Y down (no constraint on saving).
• Behavioral explanations predict symmetric response.
Data: From online account aggregator

- 2.7 million households from July 2010 to May 2015. Daily banking data (checking, savings, debit card) and credit card data.

- Drop 93% of data due to unlinked credit cards. 84% of sample has no credit card.

- Sample 1:
  Require known tax filing date (via payment to e.g. H&R Block).
  11,138 households.

  Sample 2:
  Don’t require known tax filing date.
  80,747 households.

- 94% receive refund.
  This is very high – in the population only 70% get a refund (according to the IRS). Help us understand why the sample is different along this central dimension.
Findings consistent with rational model w/liquidity constraints

1. Asymmetric response.

**Figure 3:** The response of consumption spending to refund and payment

- (a) Cumulative response to refund as pct of refund, baseline sample
- (b) Cumulative response to payment as pct of payment, baseline sample
2. Higher response to refunds for less liquid households.
Findings perhaps inconsistent with rational model w/liquidity constraints

3. Even liquid hh’s and hh’s with credit cards don’t spend until arrival of refund.
   - Either uncertainty about refund is substantial
   - Or behavioral factors are present.

Suggestion: Would be informative to show whether fact 3 holds for people who repeatedly get very similar refunds.
Main comment: I don’t think this is all about rational consumers with liquidity constraints. There’s a large behavioral aspect.

Liquidity constraints should be small in this context, except for the 20% of people claiming the Earned Income Tax Credit (you can’t get this paid out early):

If you are a rational consumer who wants to smooth and effectively spend your refund ahead of time you can, for free, with low effort:

- Just withhold less. No need to borrow.
- Smoothing is free: By withholding less you avoid making a free loan to the government.
- So, this is not a great context to argue for substantial liquidity constraints: It’s a context where you actually can borrow against an expected future income increase (withhold less).
People don’t withhold less. Why not? The majority of people *plan* to always get refunds while a smaller fraction plans to never get a refund. It’s a choice.

- People are not passively sitting around all year liquidity constrained waiting to spend their refund.

National Foundation for Credit Counseling (NFCC) survey:

1. I intentionally plan to always receive a refund each year **56%**
2. I intentionally plan to never receive a refund **28%**
3. I have not given it any thought **16%**

https://graceworksdebtcounseling.org/reasons-to-stop-receiving-an-income-tax-refund/

- Consistent with this, about half of households in Michigan tax panel always receive a refund (Jones 2012).
- And the majority of people do change withholding when their tax situation changes: After 3 years, 61% of those with a change in dependents adjust their withholding (Jones 2012).
Planning to always receive a refund is counter to the rational model unless:

- It’s difficult to figure out what you’ll owe, and
- Having to make an unexpected payment has dire consequences.

Not plausible:

- W-4 withholding forms help figure out taxes even if you have several jobs.
  And you can adjust withholding for mortgage interest.
- Most people don’t have large amounts of unpredictable capital gains or self-employment income.
- The penalty for late payment is modest (as long as you file on time):
  0.5% of unpaid taxes per month.
People’s choices suggest they are not very worried about uncertain payments:
  
  - If so, they should file early to have time to save by April 15, but they don’t.

  - You should on average see consumption going up on the filing date (news dates) as most uncertainty is resolved, but you don’t.
This all suggests that a lot of people choose to get refunds for behavioral reasons. Which?

1. They voluntarily over-withhold as a commitment to save so they have enough to buy something they need/want or can pay off debt from buying that item earlier.

“People like refunds because they view them as psychologically easy ways to save”, Thaler (1994)

Given their preferences, over-withholding may actually facilitate smoothing by preventing overspending in early years (you get caught up once per year).

- Consistent with refund receivers needed a commitment to save:
  Households with refunds have Consumption close to Income
  Avg consumption=$63.98/day. Avg income=$66.56/day.
2. Getting a refund feels better than getting a trickle of extra income each month. Spending some of the refund is exciting (it’s a substantial amount at once). A good time to enjoy some luxury consumption from your hard-earned income.

Some role for this:

[Image: Here's the No. 1 Thing Americans Do With Their Tax Refund]

43% Put the money in savings
36% Pay off debt
10% Put the money toward a vacation
6% Splurge on a luxury purchase
5% Make a major (necessary) purchase

Results exclude those who do not receive a tax refund.

Consistent with excess sensitivity NOT (only) being due to liquidity constraints:

Olafson and Pagel (RFS, 2018) in daily data document excess sensitivity to income payments (e.g. salary) on payday:

- Consumption is 30 to 80% higher on payday
- Higher even for households in the top income decile
- Higher even for households in the top liquidity tercile
- Higher even for households who recently received a large positive wealth shock
- Higher for all consumption categories (they drop rent and bill payments).

( Related earlier findings in weekly data in Stephens (2003) for social security checks and Stephens (2006) for paychecks. )
Table 2
The impact of payments on household spending by income quartiles

<table>
<thead>
<tr>
<th></th>
<th>(1) Total spending</th>
<th>(2) Groceries</th>
<th>(3) Fuel</th>
<th>(4) RMF</th>
<th>(5) Alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. First salary quartile</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$I(Payment_{it} &gt; 0)$</td>
<td>0.800***</td>
<td>0.679***</td>
<td>0.756***</td>
<td>0.560***</td>
<td>0.875***</td>
</tr>
<tr>
<td></td>
<td>(0.0088)</td>
<td>(0.0085)</td>
<td>(0.0124)</td>
<td>(0.0084)</td>
<td>(0.0162)</td>
</tr>
<tr>
<td>$I(Regularpayment_{it} &gt; 0)$</td>
<td>0.880***</td>
<td>0.768***</td>
<td>0.880***</td>
<td>0.599***</td>
<td>0.992***</td>
</tr>
<tr>
<td></td>
<td>(0.0135)</td>
<td>(0.0126)</td>
<td>(0.0195)</td>
<td>(0.0120)</td>
<td>(0.0243)</td>
</tr>
<tr>
<td>$I(Irregularpayment_{it} &gt; 0)$</td>
<td>0.727***</td>
<td>0.595***</td>
<td>0.653***</td>
<td>0.507***</td>
<td>0.814***</td>
</tr>
<tr>
<td></td>
<td>(0.0099)</td>
<td>(0.0097)</td>
<td>(0.0132)</td>
<td>(0.0100)</td>
<td>(0.0201)</td>
</tr>
<tr>
<td>$I(Salary_{it} &gt; 0)$</td>
<td>0.815***</td>
<td>0.722***</td>
<td>0.825***</td>
<td>0.548***</td>
<td>0.862***</td>
</tr>
<tr>
<td></td>
<td>(0.0151)</td>
<td>(0.0147)</td>
<td>(0.0231)</td>
<td>(0.0140)</td>
<td>(0.0307)</td>
</tr>
<tr>
<td><strong>D. Fourth salary quartile</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$I(Payment_{it} &gt; 0)$</td>
<td>0.350***</td>
<td>0.230***</td>
<td>0.418***</td>
<td>0.155***</td>
<td>0.430***</td>
</tr>
<tr>
<td></td>
<td>(0.0111)</td>
<td>(0.0092)</td>
<td>(0.0229)</td>
<td>(0.0096)</td>
<td>(0.0219)</td>
</tr>
<tr>
<td>$I(Regularpayment_{it} &gt; 0)$</td>
<td>0.343***</td>
<td>0.245***</td>
<td>0.530***</td>
<td>0.139***</td>
<td>0.467***</td>
</tr>
<tr>
<td></td>
<td>(0.0148)</td>
<td>(0.0121)</td>
<td>(0.0356)</td>
<td>(0.0127)</td>
<td>(0.0294)</td>
</tr>
<tr>
<td>$I(Irregularpayment_{it} &gt; 0)$</td>
<td>0.348***</td>
<td>0.208***</td>
<td>0.294***</td>
<td>0.160***</td>
<td>0.372***</td>
</tr>
<tr>
<td></td>
<td>(0.0152)</td>
<td>(0.0112)</td>
<td>(0.0206)</td>
<td>(0.0130)</td>
<td>(0.0301)</td>
</tr>
<tr>
<td>$I(Salary_{it} &gt; 0)$</td>
<td>0.405***</td>
<td>0.318***</td>
<td>0.513***</td>
<td>0.184***</td>
<td>0.690***</td>
</tr>
<tr>
<td></td>
<td>(0.0106)</td>
<td>(0.0097)</td>
<td>(0.0231)</td>
<td>(0.0105)</td>
<td>(0.0259)</td>
</tr>
</tbody>
</table>
Now, how do we think of households with tax payments due?

- They chose NOT to have a refund.
- Perhaps because they don’t have an over-consumption problem.

Consistent with this:

Households with tax payments have Consumption<<Income

Avg consumption=$70.16/day. Avg income=$88.75/day.
But what about the authors’ arguments that the main finding is not about hh’s with refunds and payments being systematically different?

a) Bottom 20% by past refund-payment display same behavior.

Not that convincing: If they get a refund it may be unexpected so this doesn’t speak to what people do with expected income increases.

b) Households that have both refund and payment across years.

This doesn’t work out that well: These guys have little response to either refunds or payments so don’t confirm main finding of asymmetry. Some response when including people with unlinked credit cards.
Figure 5: The consumption responses for households that make payments in some years and receive refunds in other years.
c) Larger responses for more constrained households (those with lower interest income).

This is fully consistent with the behavioral story:
  o They are more constrained because they have a harder time saving.
  o They spend more relative to income in general and also out of refunds.

In the present context:
  o A sort on initial wealth is not a sort on who is able to smooth refund in this context – everyone can.
    It may instead be a sort on who is able to not over-consume.
Overall, I would re-pitch the paper:

- Split sample based on who qualify for substantial EITC based on their income or not. Show separate results.
- Then focus on those in the non-EITC sample: A pretty unique context with free borrowing against an expected future income increase.
  - Show that people don’t smooth refunds.
  - Argue that this is a big challenge for prior work arguing that excess sensitivity is due to liquidity constraints.
- Then consider tests for which behavioral factors can explain this, using lack of response to tax payments to help distinguish:
1. Inattention?
   o Predicts symmetric response. Rejected.
   o And the average refund is large (around $3,000) relative to most people’s income. After a few years they are likely to pay attention.

2. Commitment to save?
   o Consistent with lower net worth of those who choose refunds.
   o Do those who choose large refunds (relative to their income) spend “too much” on luxuries given their income? Vissing-Jorgensen (2017) shows that this correlates with consumer default, i.e., over-spending.
   o Are those who choose larger refunds more likely to repay debt?
     Yes, Caldwell, Nelson and Waldinger (in progress)

3. Higher utility from one splurge than gradual tickle of extra consumption?
   o Is luxury share in refund-spending period higher than in other periods?
Vissing-Jorgensen (2017), consumer credit losses at Mexican retail chain, by product:

Table 1. Loss rates by product category

<table>
<thead>
<tr>
<th>Product category</th>
<th>Pct. of sales</th>
<th>Excluding products with no default information (clothes, cell phone minutes)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pct. of sales</td>
<td>Pct. of loans</td>
<td>Loss rate</td>
<td>Principal loss rate</td>
<td>Interest rate charged</td>
<td>Lender return = (7) - (4)</td>
<td></td>
</tr>
<tr>
<td>Kitchen equipment, various hh. items</td>
<td>2.4%</td>
<td>3.5%</td>
<td>3.5%</td>
<td>11.5%</td>
<td>7.8%</td>
<td>3.7%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Electronics</td>
<td>40.6%</td>
<td>60.0%</td>
<td>60.2%</td>
<td>21.3%</td>
<td>13.8%</td>
<td>7.5%</td>
<td>27.6%</td>
</tr>
<tr>
<td>Mattresses, dining sets, other furniture</td>
<td>4.9%</td>
<td>7.2%</td>
<td>7.2%</td>
<td>11.3%</td>
<td>7.4%</td>
<td>3.8%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Living room and bedroom furniture</td>
<td>3.4%</td>
<td>5.1%</td>
<td>5.0%</td>
<td>11.1%</td>
<td>7.0%</td>
<td>4.1%</td>
<td>25.7%</td>
</tr>
<tr>
<td>Kids gear and toys, auto parts, bikes</td>
<td>5.5%</td>
<td>8.2%</td>
<td>8.3%</td>
<td>16.5%</td>
<td>11.1%</td>
<td>5.4%</td>
<td>24.9%</td>
</tr>
<tr>
<td>Appliances</td>
<td>9.2%</td>
<td>13.5%</td>
<td>13.4%</td>
<td>11.8%</td>
<td>7.4%</td>
<td>4.4%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Watches</td>
<td>0.6%</td>
<td>0.9%</td>
<td>0.9%</td>
<td>17.0%</td>
<td>11.6%</td>
<td>5.5%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Jewelry</td>
<td>0.7%</td>
<td>1.1%</td>
<td>1.1%</td>
<td>39.2%</td>
<td>27.7%</td>
<td>11.5%</td>
<td>25.2%</td>
</tr>
<tr>
<td>Glasses etc.</td>
<td>0.3%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>15.4%</td>
<td>10.3%</td>
<td>5.2%</td>
<td>25.0%</td>
</tr>
<tr>
<td>Cell phone minutes</td>
<td>1.8%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothes</td>
<td>30.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All above categories</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>18.2%</td>
<td>11.8%</td>
<td>6.4%</td>
<td>26.6%</td>
</tr>
</tbody>
</table>