
Financial Constraints and Consumers' Response to Cash Flow News: Direct Evidence from Federal Tax Return Filings

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Research Question

- Life-Cycle/Permanent Income Hypothesis:
 - Households should not respond to expected cash flows.
 - Has been tested empirically.
 - Households should respond to cash flow news (where “news” is defined as deviation from the expected cash flow)
 - Has largely NOT been tested empirically.
 - Allows for differentiating between alternative hypotheses to the LCPIH

Research Question (Continued)

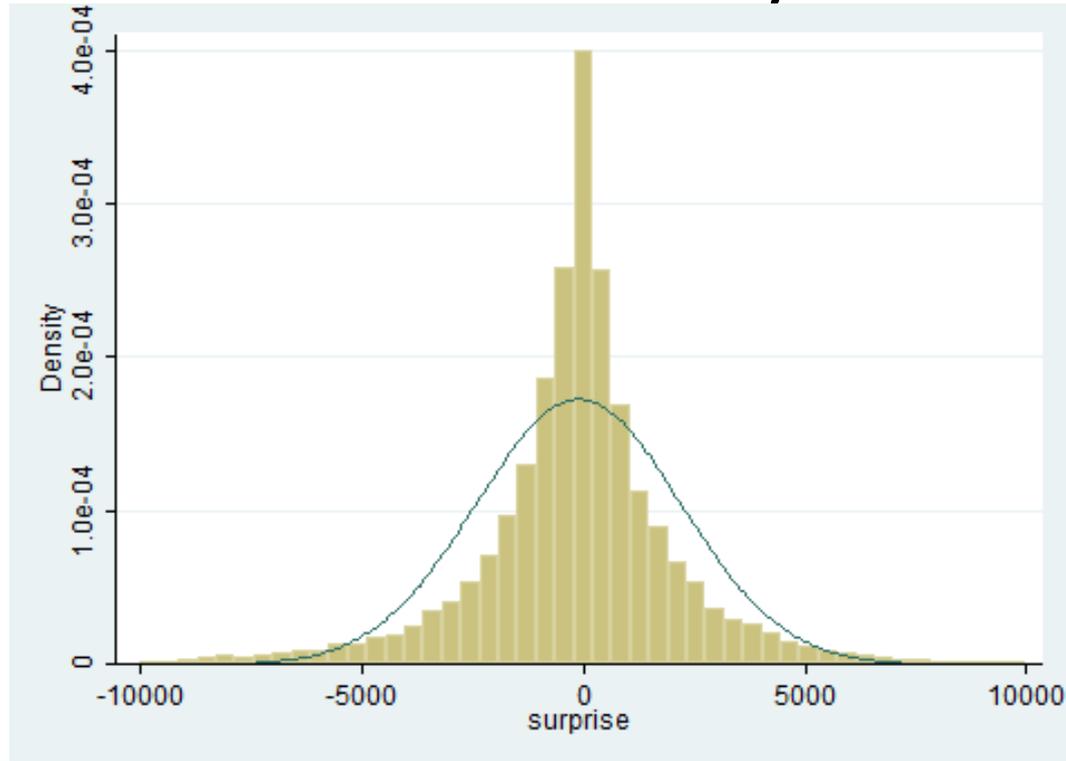
- Financial constraints:
 - Households show excess sensitivity because they are financially constrained, and are unable to smooth consumption (Zeldes 1989).
- Myopia:
 - Households are current income spenders, they consume cash when it arrives, irrespective of what is expected in the future (Flavin 1984).
- The point of our paper is to test for financial constraints and myopia at the same time.

Empirical Setting

- Annual tax return filing in the United States.
- We observe the date in which households file their taxes, and thus learn what exactly their tax refund will be.
- We use deviations from the prior year's return as our measure of “cash flow news”
- We observe the consumption response to the news and cash flow events.

Empirical Setting (Continued)

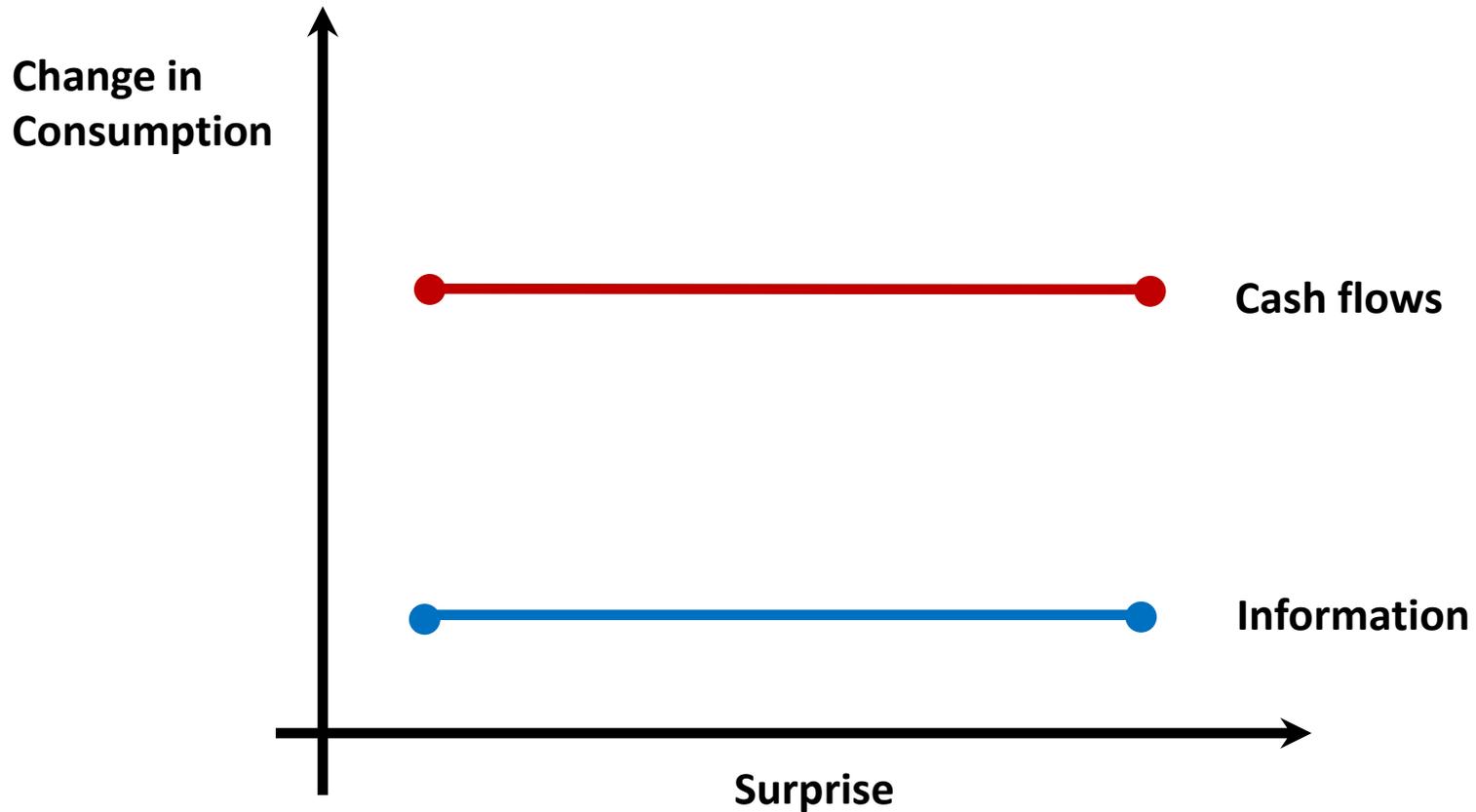
- Is prior year's tax return a good proxy for the expectation of the current year's tax return?



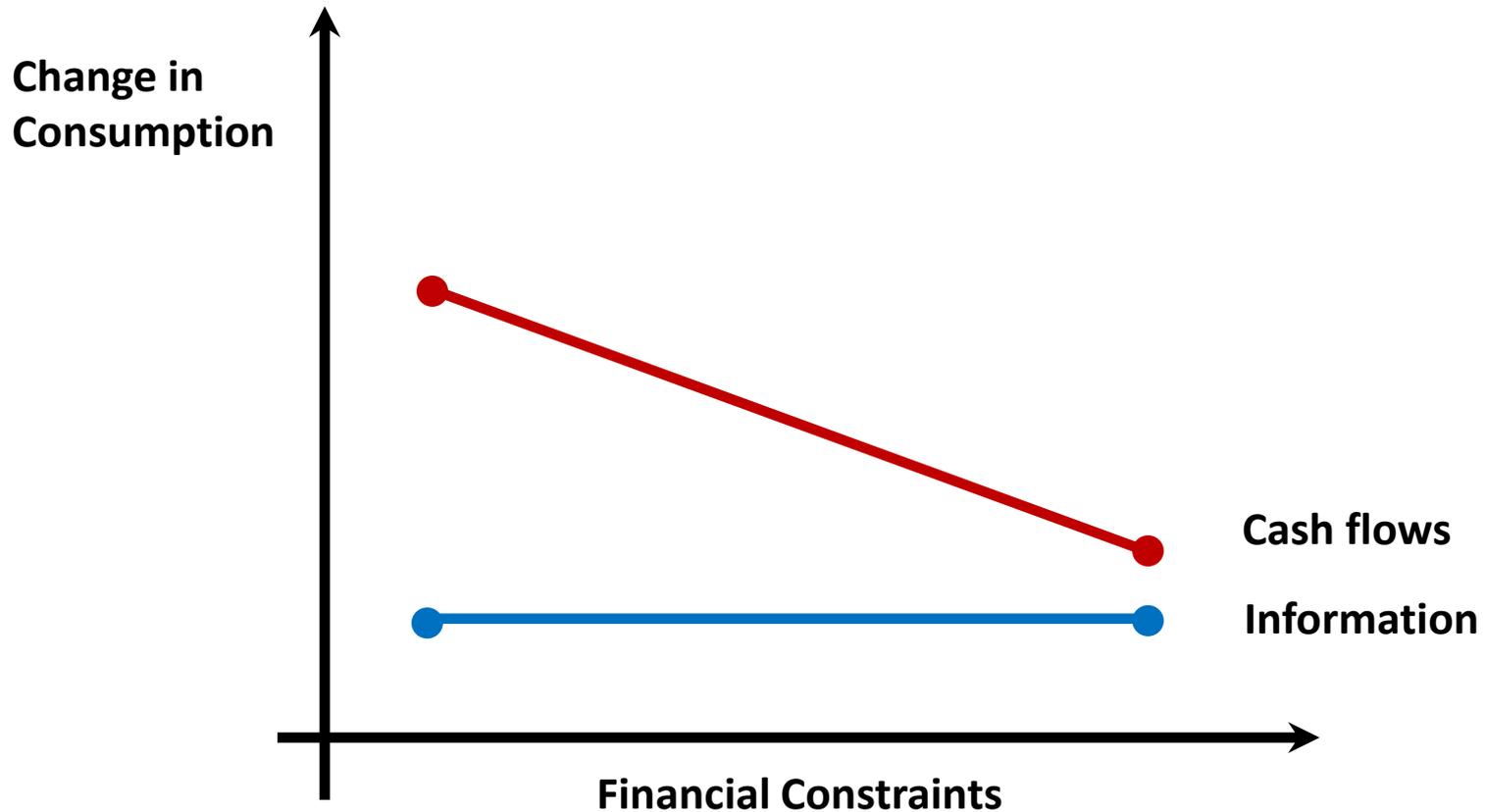
Theoretical Predictions

	Rational	Myopic
Low Financial Constraints	Respond to news of unanticipated cash flows (change)	Respond to news of anticipated cash flows (amount)
High Financial Constraints	Respond to cash flows	Respond to cash flows

Key Result: Reaction of Consumption



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Literature

- Sensitivity of consumption to cash flow decreases with wealth (Zeldes 1989)
- Households show sensitivity to tax refunds, tax rebates (Souleles 1998, Johnson, Parker, Souleles 2005, Agarwal, Liu, Souleles 2007, Shapiro and Slemrod 1995, 2003, 2009)
 - Sensitivity increases with financial constraints
- Sensitivity to paycheck / social security payments (Stephens 2003, 2006)
 - Sensitivity increases with financial constraints
- Agarwal and Qian (2013) use Singapore data to test the consumption response to stimulus
 - Find strong response following the announcement and following the disbursement
 - Use foreigners as control group

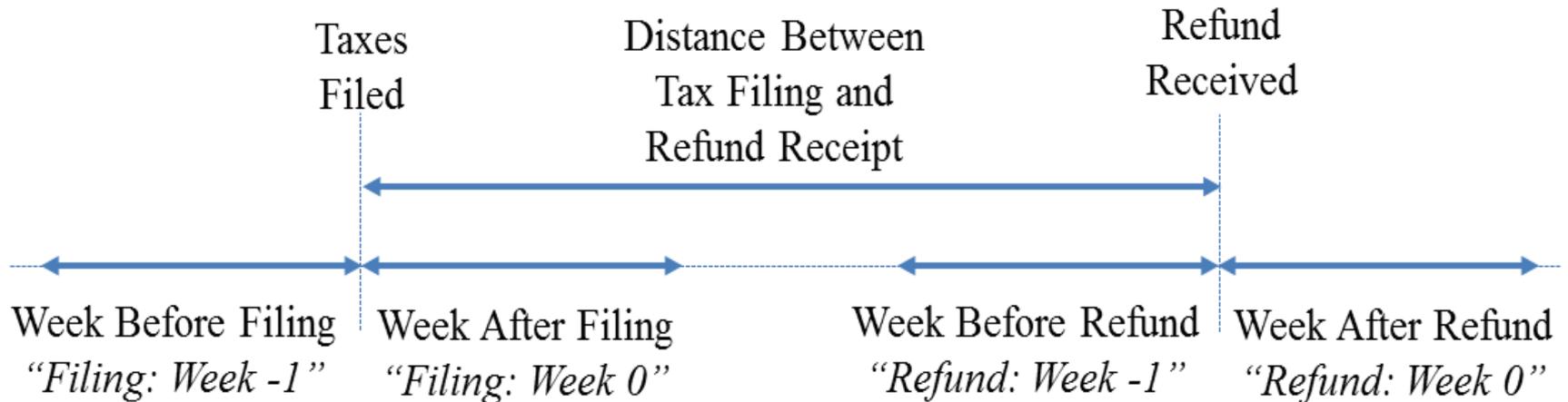
Empirical Setting

- Tax refund event has two dates:
 - Tax return filing: Information acquisition about tax refund
 - Identified as tax preparation fees (e.g., TurboTax)
 - Tax refund receipt: Actual cash flow is received
 - Identified as IRS direct payment
- We measure the consumption response around these two dates

Specification

- Dependent Variable: Daily dollar spending for Restaurant, Retail, and Grocery
- Include date and household fixed-effect

$$y_{it} = \beta_0 + \beta_1 * Filing\ Dummies_{it} + \beta_2 * Refund\ Dummies_{it} + Date\ FE_t + Household\ FE_i + \varepsilon_{it}$$



Data

- Bank statements and credit card statements of over 500,000 households from an information aggregation service
- Households enter their bank and credit card account information
- The online service pulls their information automatically
- Data consists of credit card and bank statements (no balances)
 - Caveat: Cannot categorize checks
- Date range: Jan 2011–Jun 2011, Jan 2012–Jun 2012

Measuring Financial Constraints

- Income
 - Sum of all income electronic deposits
- Financial slack
 - Proxied by the “net bank balance”
 - Assumes borrowers receive 0.6% in bank interest and pay 20% in credit card interest

$$\text{net bank balance} = \frac{0.5 * (\text{Jan. bank interest} + \text{Feb. bank interest})}{0.006/12} - \frac{0.5 * (\text{Jan. credit card interest} + \text{Feb. credit card interest})}{0.20/12}$$

Summary Statistics

	Obs	Mean	Std Dev
Refund Amount	28,155	\$3,153	\$2,771
Surprise (= Refund Amount - Lag(Refund Amount))	28,155	(\$117)	\$2,437
Days between filing and refund	28,155	10.8	8.4
Monthly Income	19,308	\$5,614	\$10,822
Monthly Bank Interest	26,917	\$167.52	\$2,555.16
Monthly Credit Card Interest (Unconditional)	28,155	\$13.96	\$52.16
Monthly Credit Card Interest (Conditional on paying interest)	5,574	\$70.49	\$98.78
Unconditional Restaurant Amount	10,304,730	\$6.19	\$16.76
Unconditional Retail Amount	10,304,730	\$17.48	\$57.59
Unconditional ATM Amount	10,304,730	\$8.24	\$61.80
Unconditional Credit Card Purchases Amount	10,304,730	\$56.16	\$158.13
Restaurant Amount (Conditional on non-zero values)	2,755,109	\$23.16	\$25.65
Retail Amount (Conditional on non-zero values)	2,555,616	\$70.49	\$98.17
ATM Amount (Conditional on non-zero values)	478,383	\$177.41	\$228.59
Credit Card Purchase Amount (Conditional on non-zero values)	4,115,217	\$140.62	\$225.24

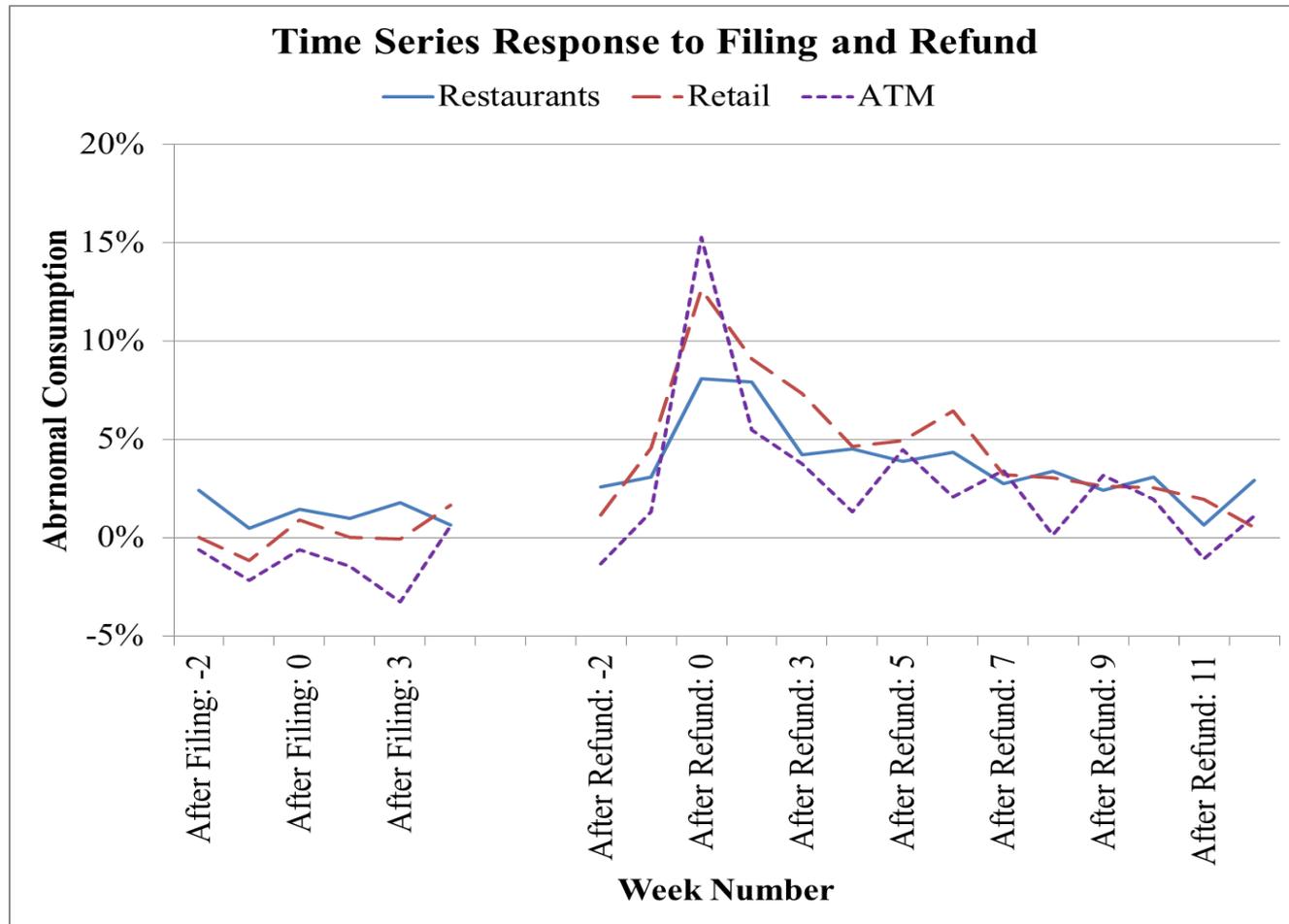
Consumption Reaction to Filing and Refund Events (amount)

Dependent variable:

	Daily \$ spent on ...			
	Restaurants	Retail	ATM	Total Credit Card
	(1)	(2)	(3)	(4)
Filing: Week -2	0.15***	-0.00	-0.05	1.68***
Filing: Week -1	0.03	-0.20	-0.18	1.19***
Filing: Week 0	0.09	0.16	-0.05	6.53***
Filing: Week 1	0.06	-0.00	-0.12	1.28**
Filing: Week 2	0.11*	-0.01	-0.27	0.64
Filing: Week 3	0.04	0.29*	0.05	0.48
Refund: Week -2	0.16***	0.20	-0.11	0.98**
Refund: Week -1	0.19***	0.80***	0.11	0.95*
Refund: Week 0	0.50***	2.21***	1.26***	0.78
Refund: Week 1	0.49***	1.59***	0.45**	1.62***
Refund: Week 2	0.26***	1.28***	0.31*	2.06***
Refund: Week 3	0.28***	0.81***	0.11	0.94**
Obs	10,304,730	10,304,730	10,304,730	10,304,730
Adj. R2	0.093	0.062	0.077	0.130
Unconditional mean	\$6.19	\$17.48	\$8.24	\$56.16
Filing: Week 0 / Unconditional mean		0.9%	-0.6%	11.6%
Refund: Week 0 / Unconditional mean		12.6%	15.3%	1.4%

- Fixed effects: Household, date
- Dummied for weeks 4-11 following refund

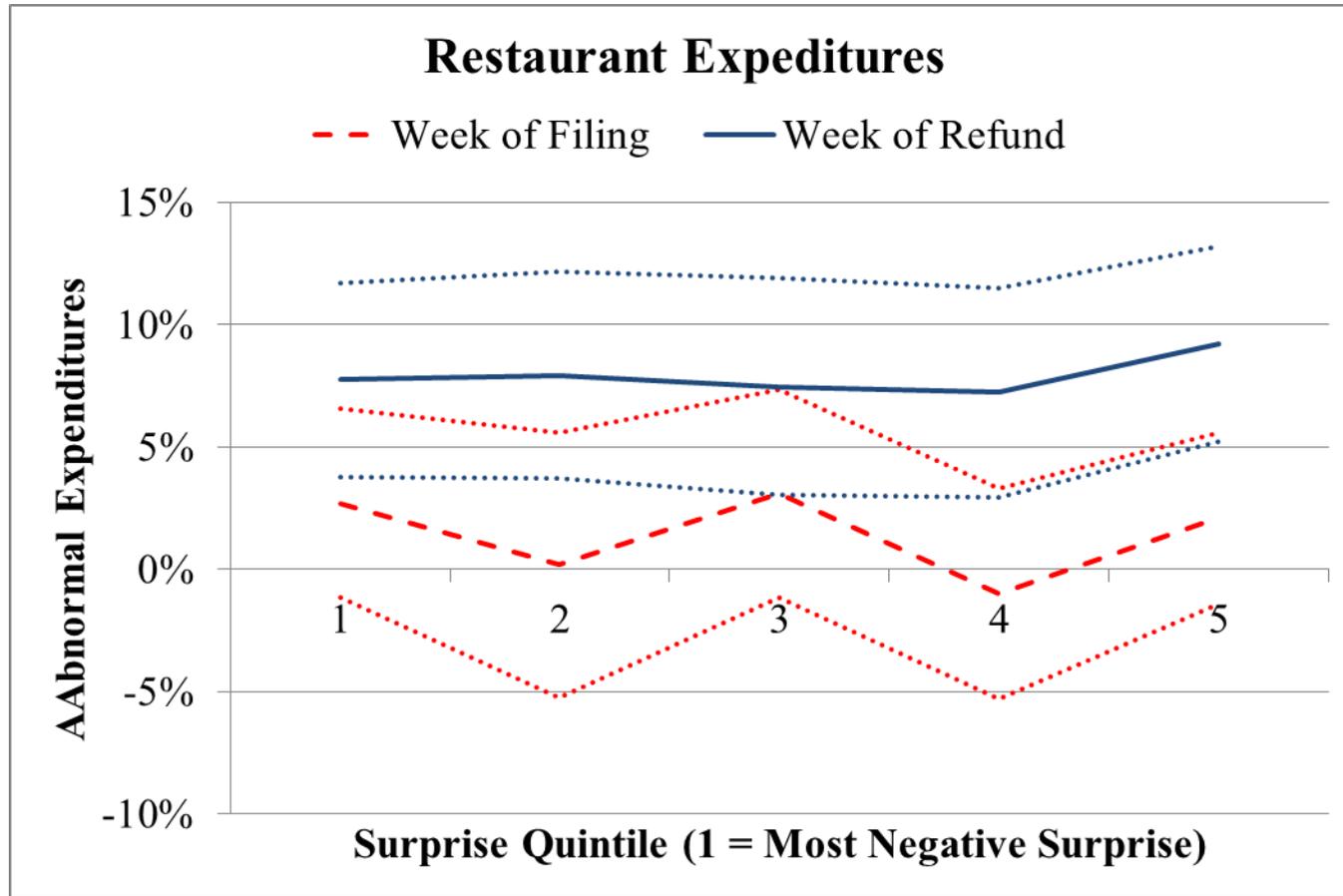
Consumption Reaction to Filing and Refund Events (amount)



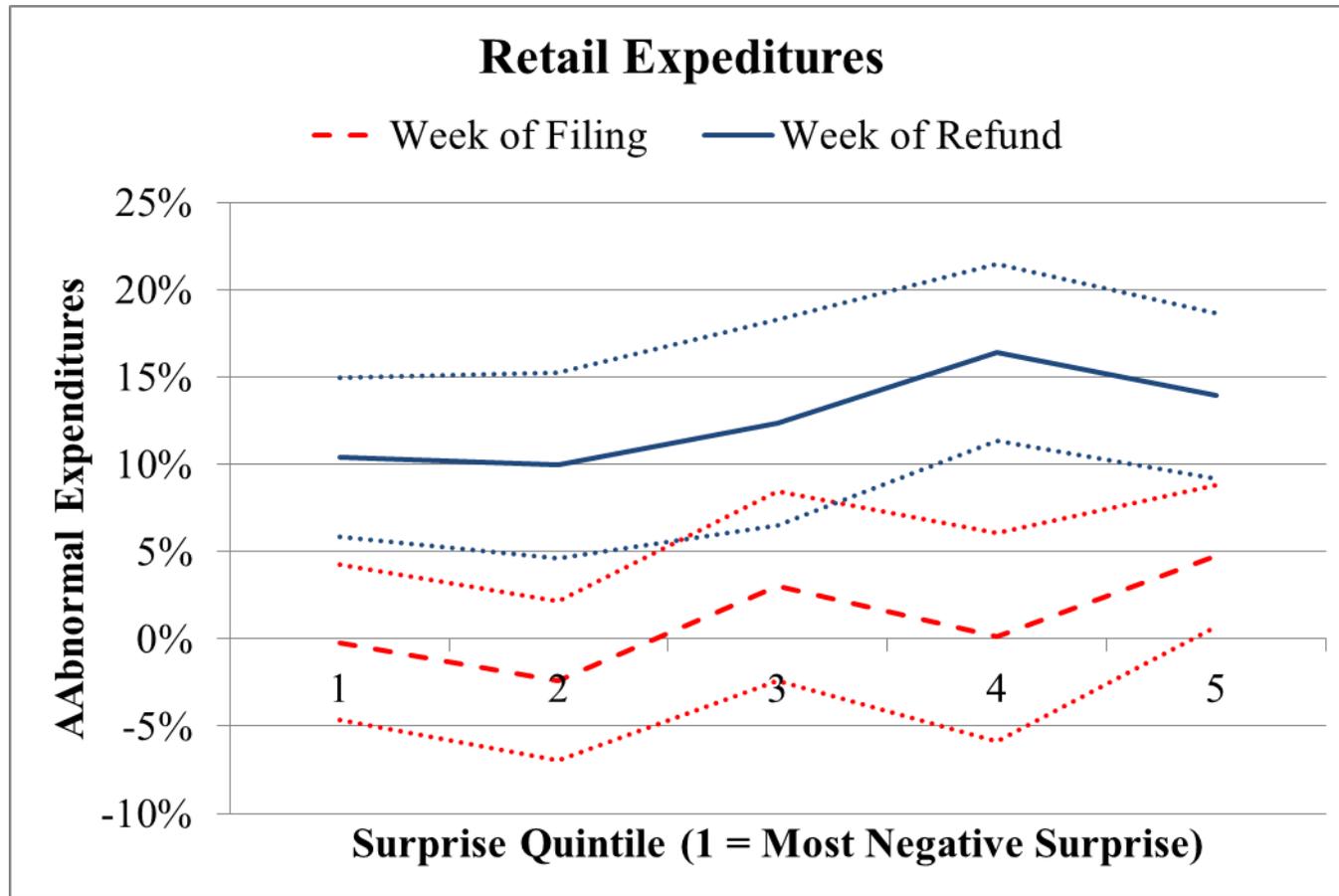
Myopia?

- We show that while households show a stronger consumption response according to the size of the refund, they show almost no response to the news, large or small

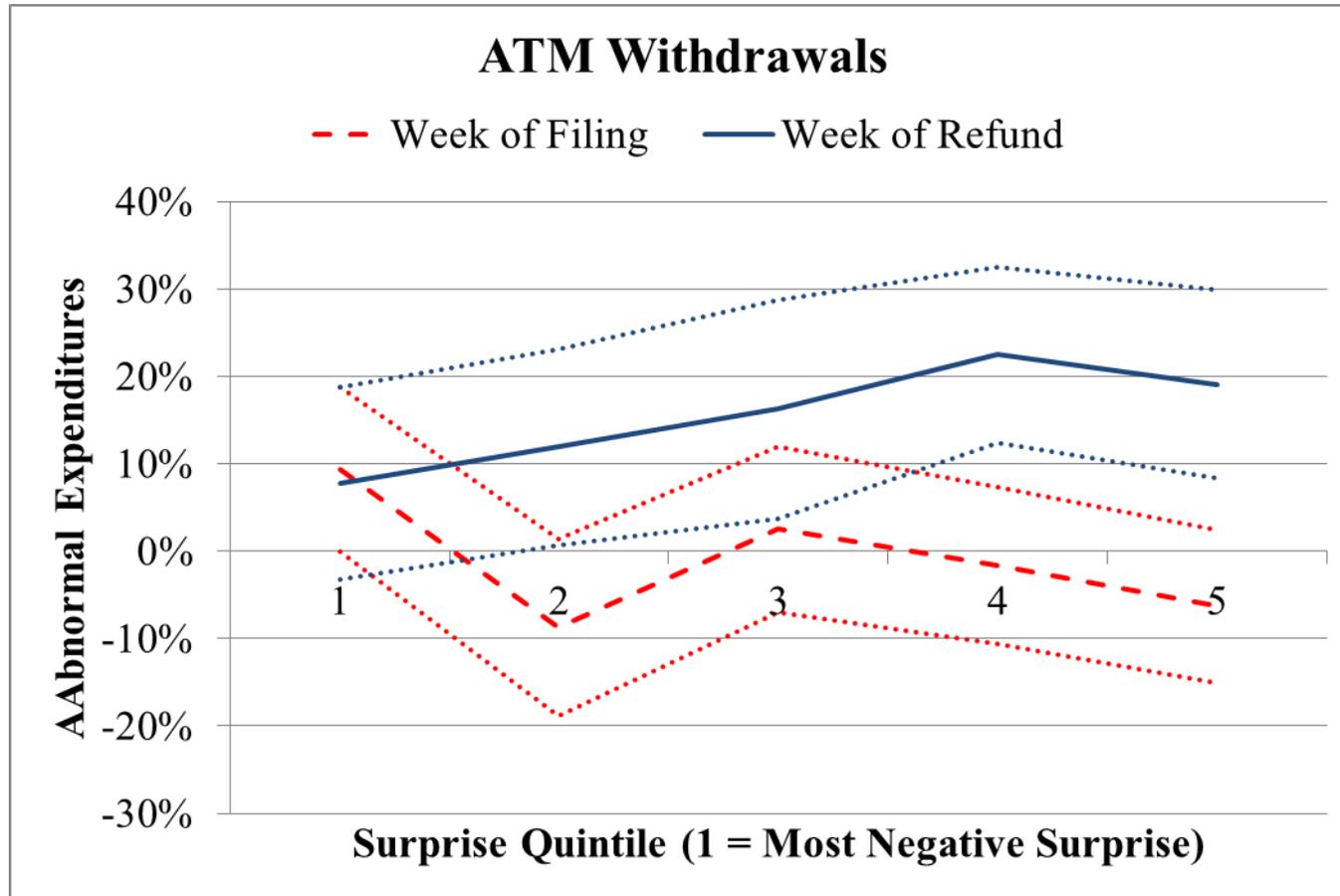
Surprise Doesn't Matter



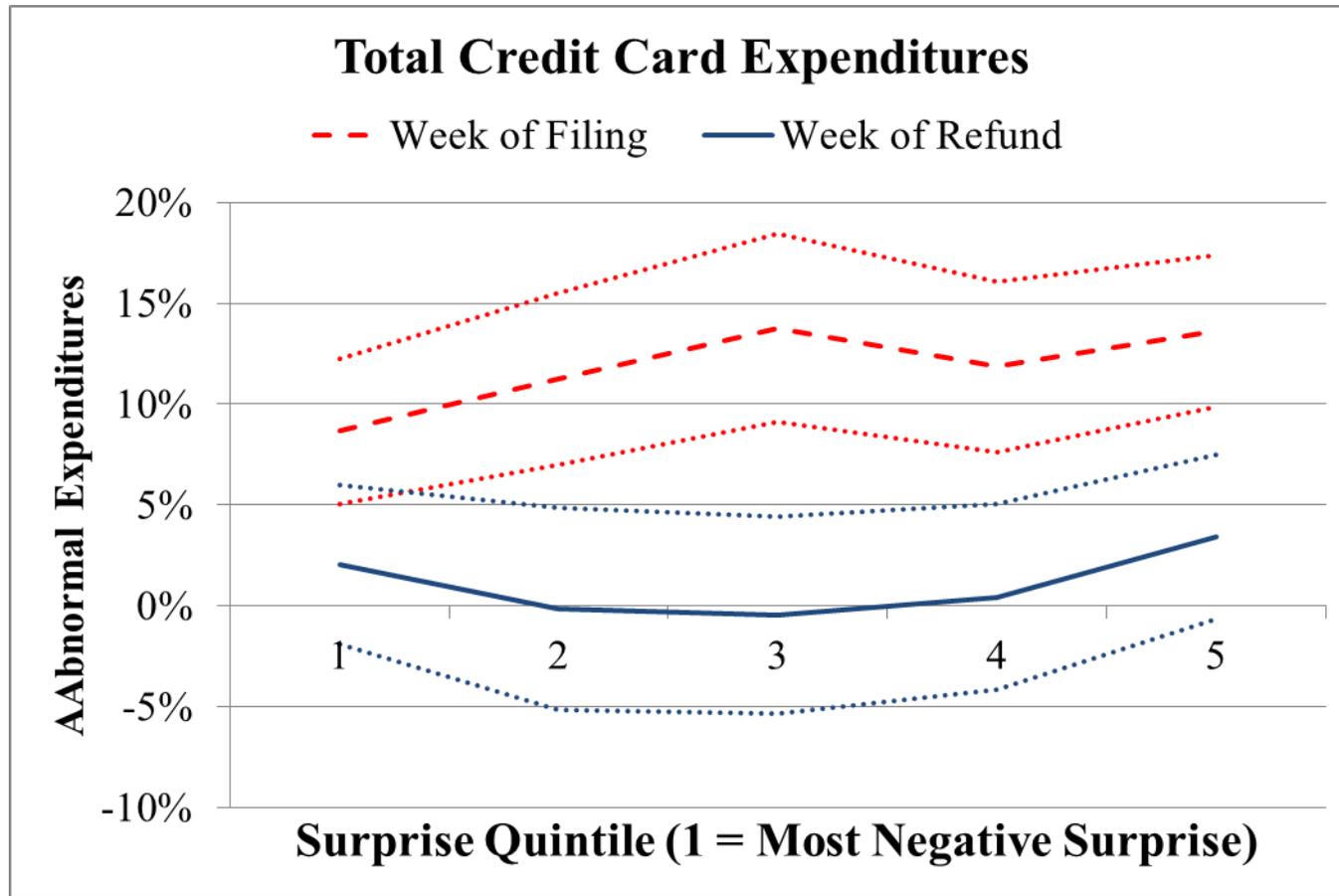
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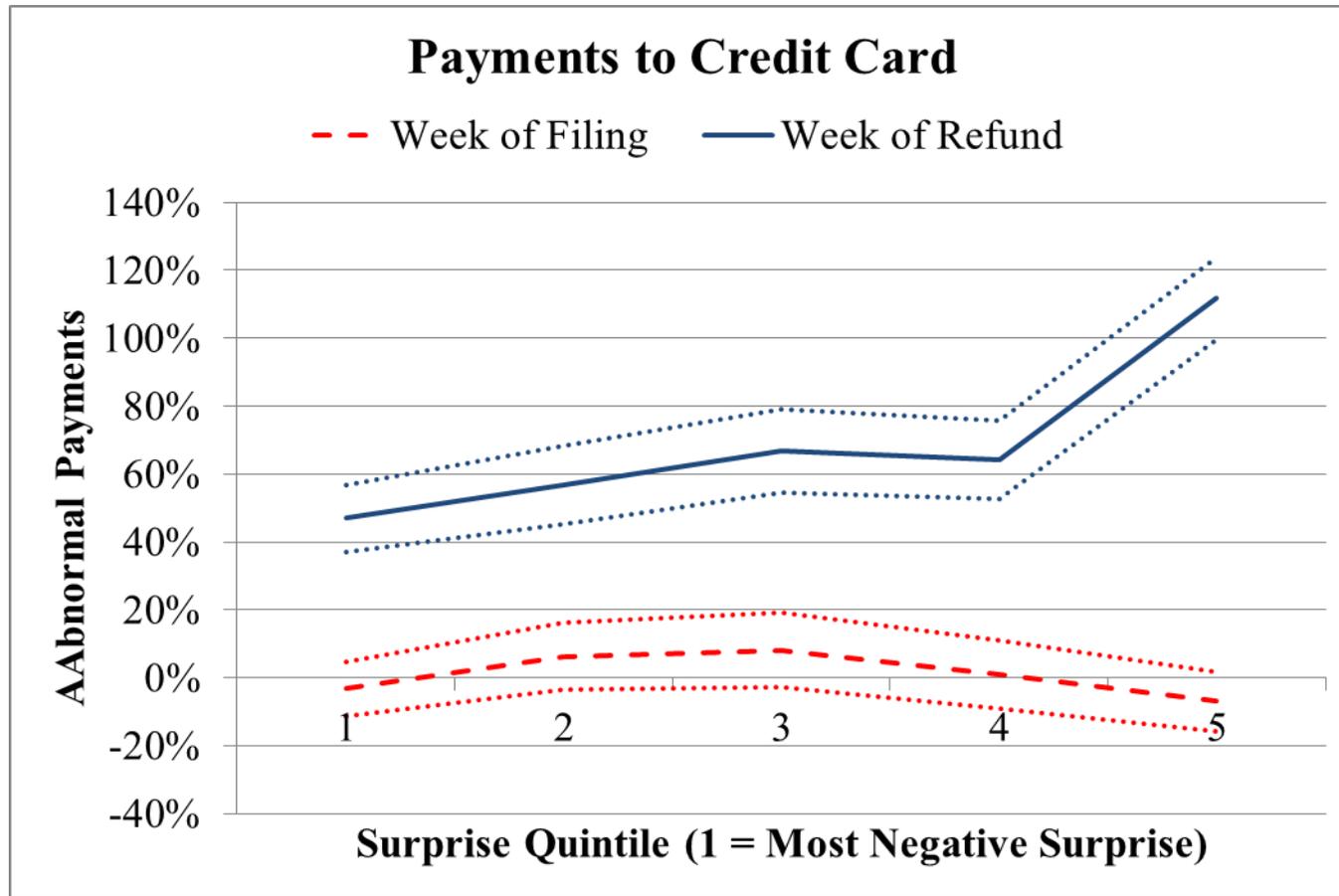
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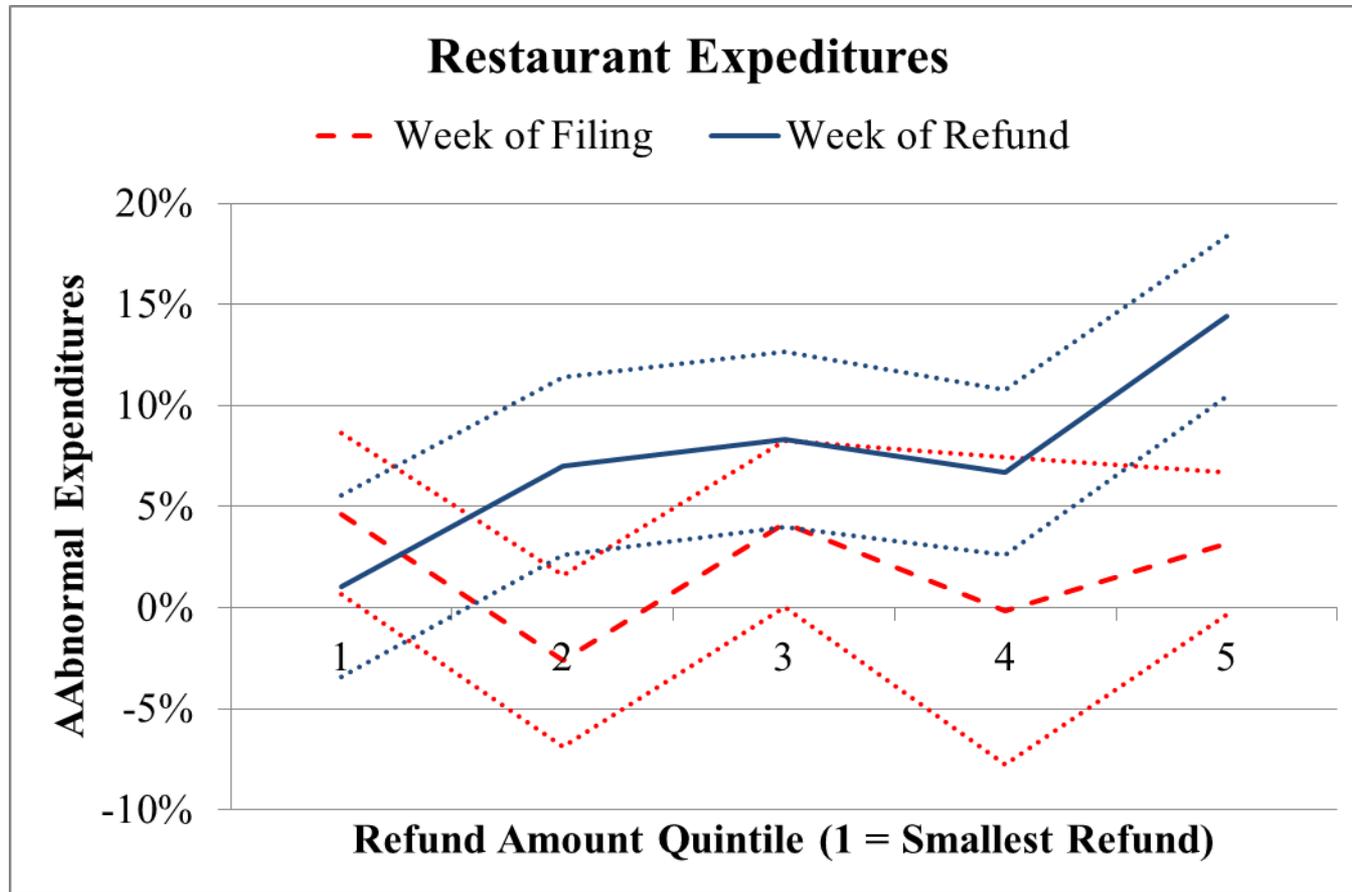
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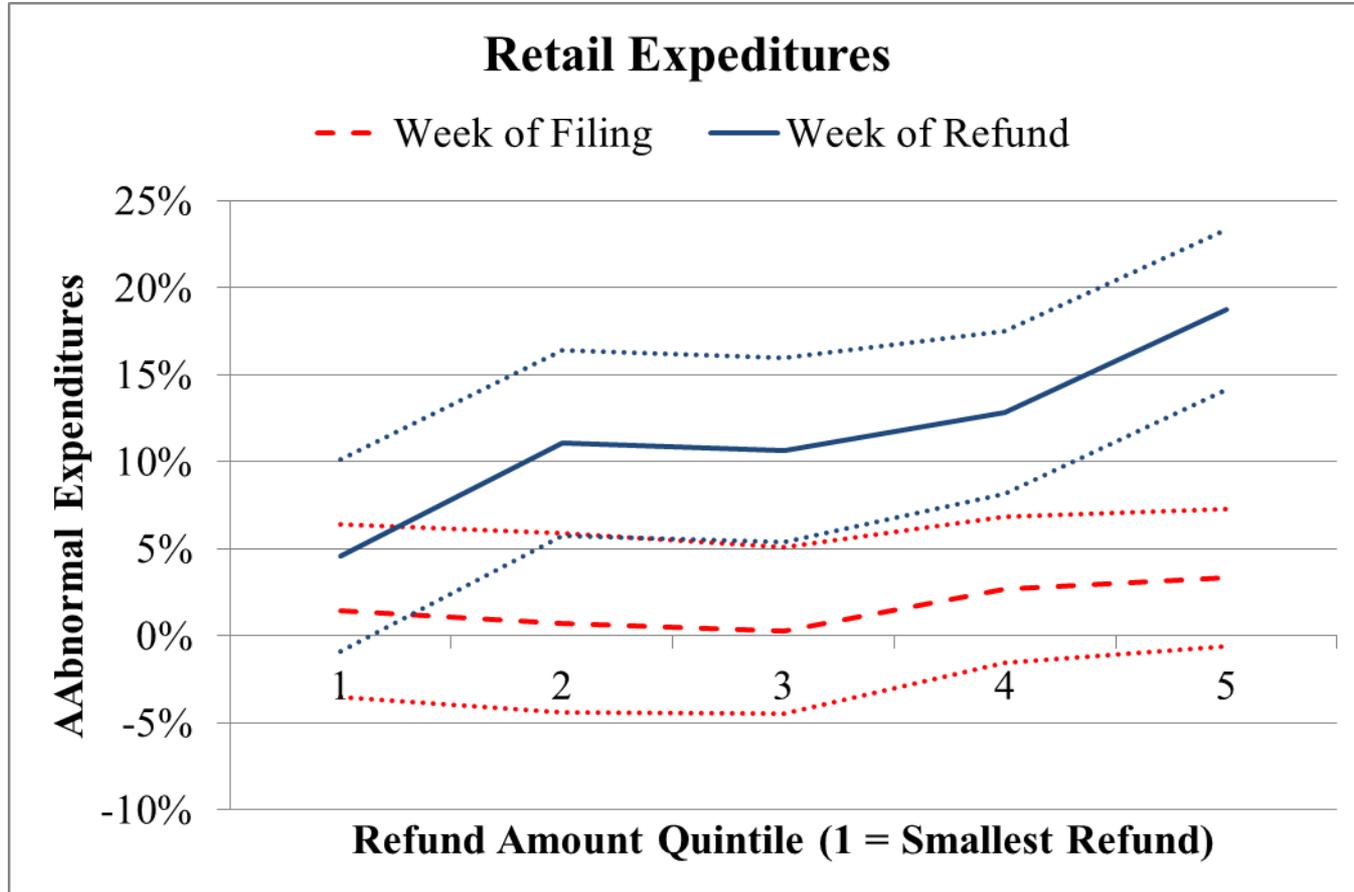
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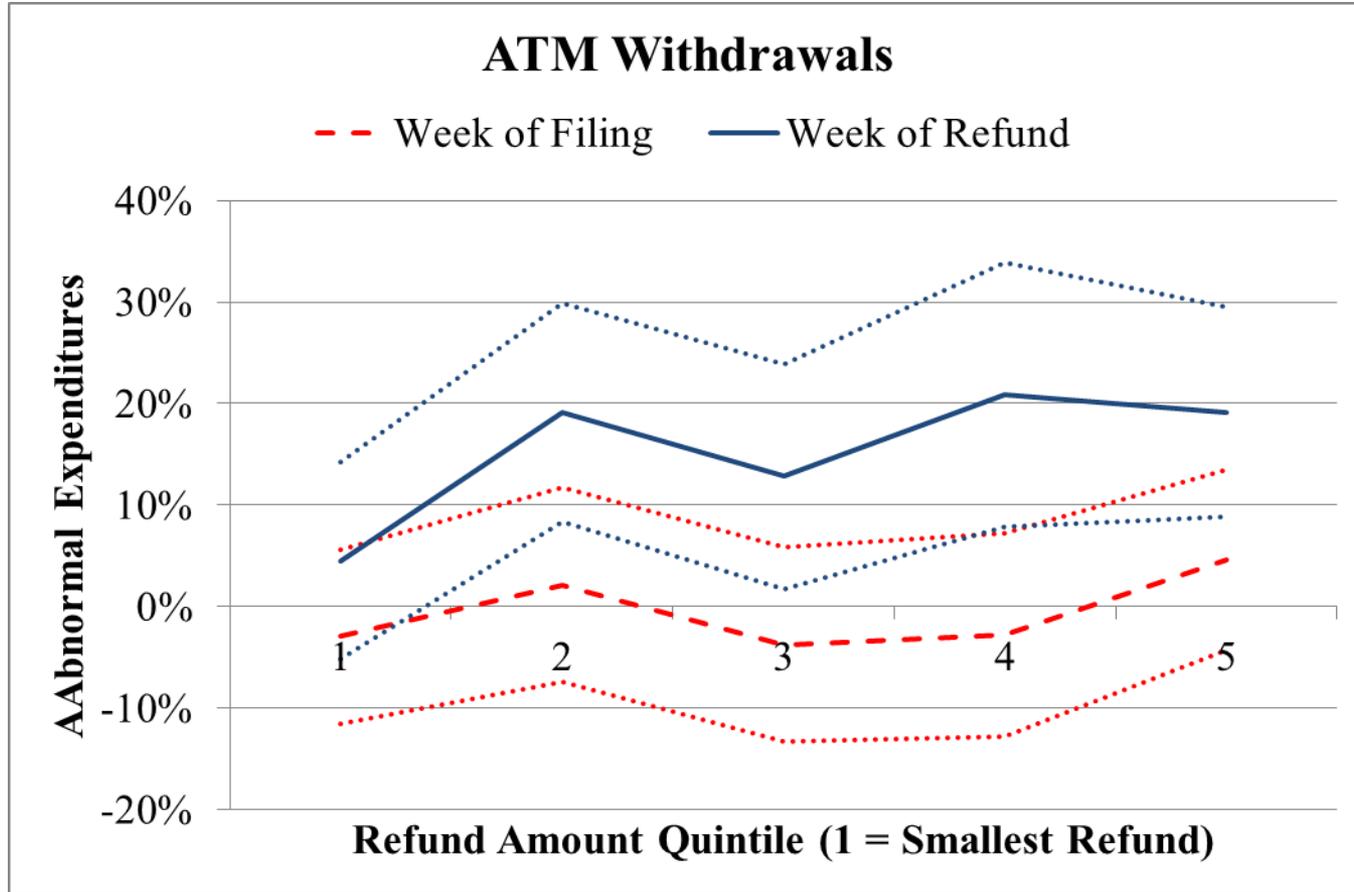
Refund Amount Matters



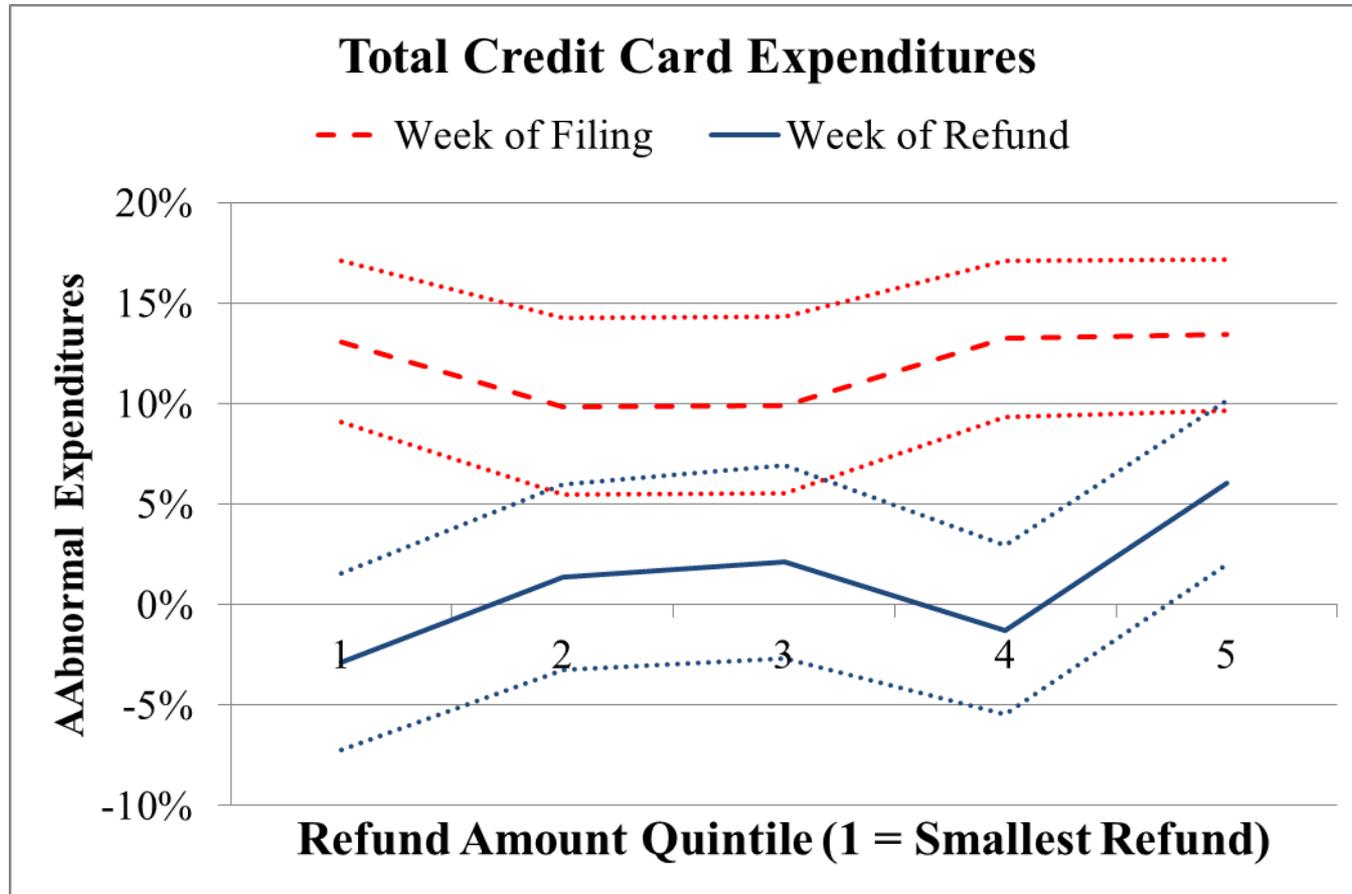
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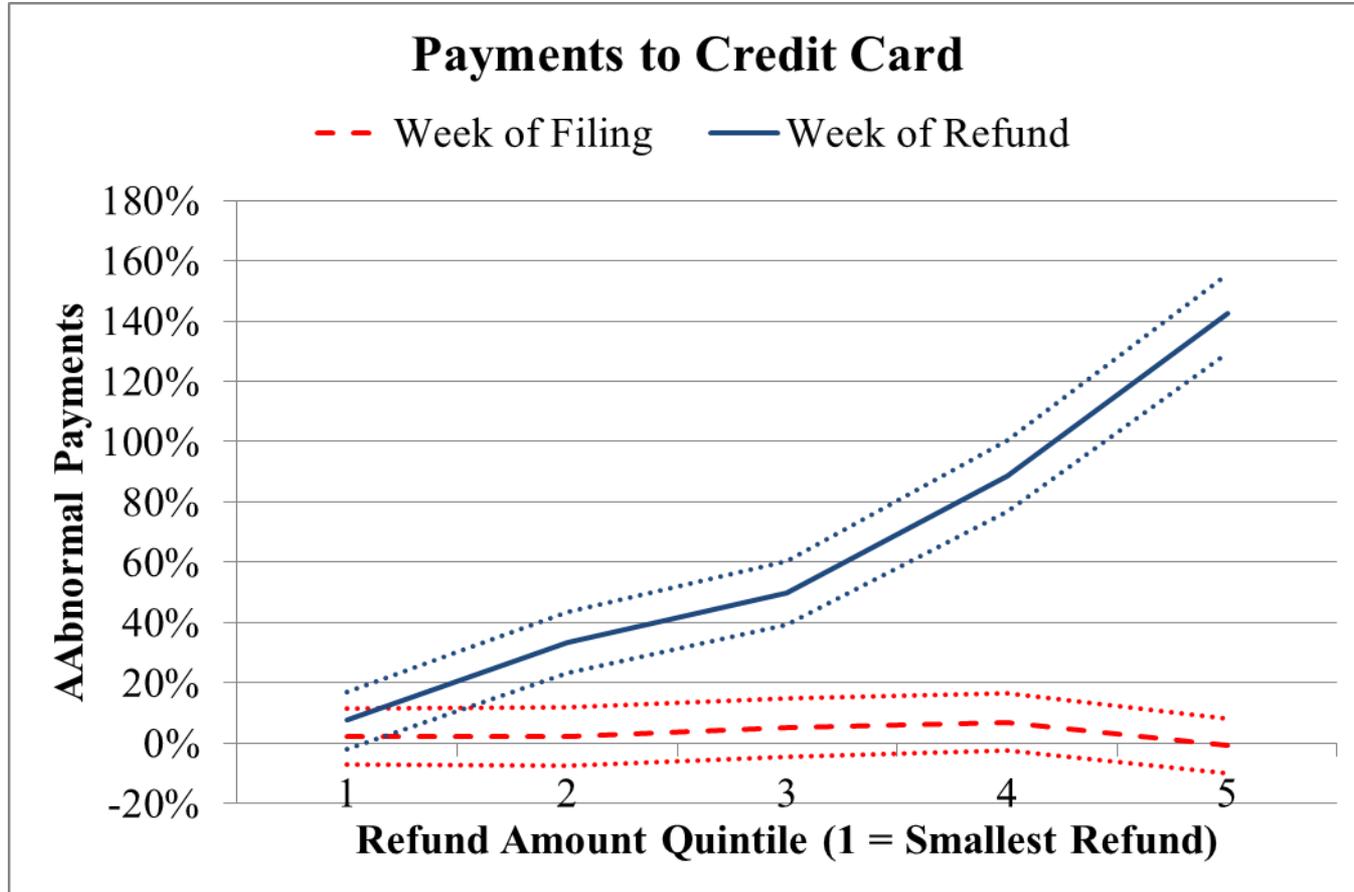
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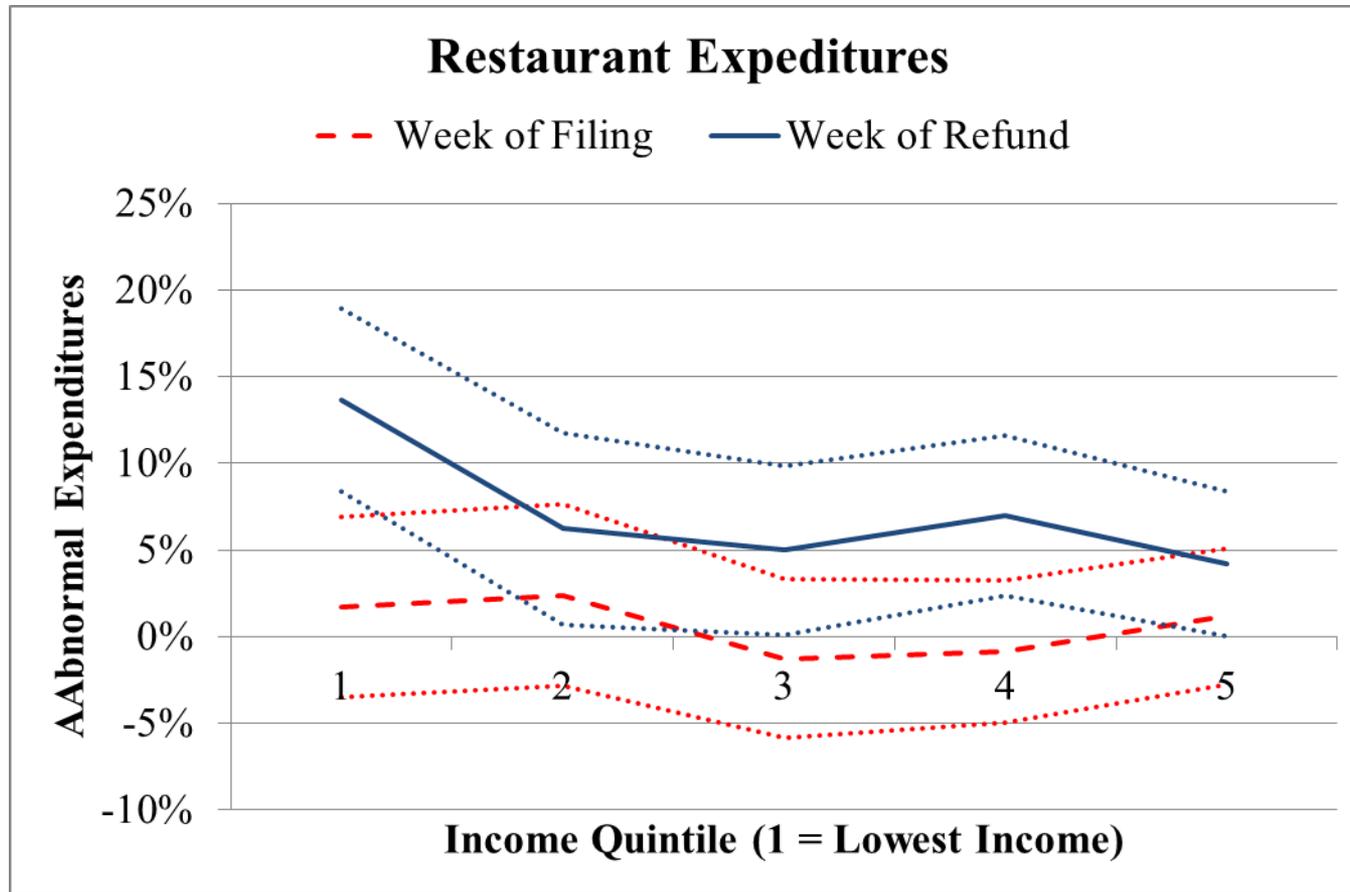
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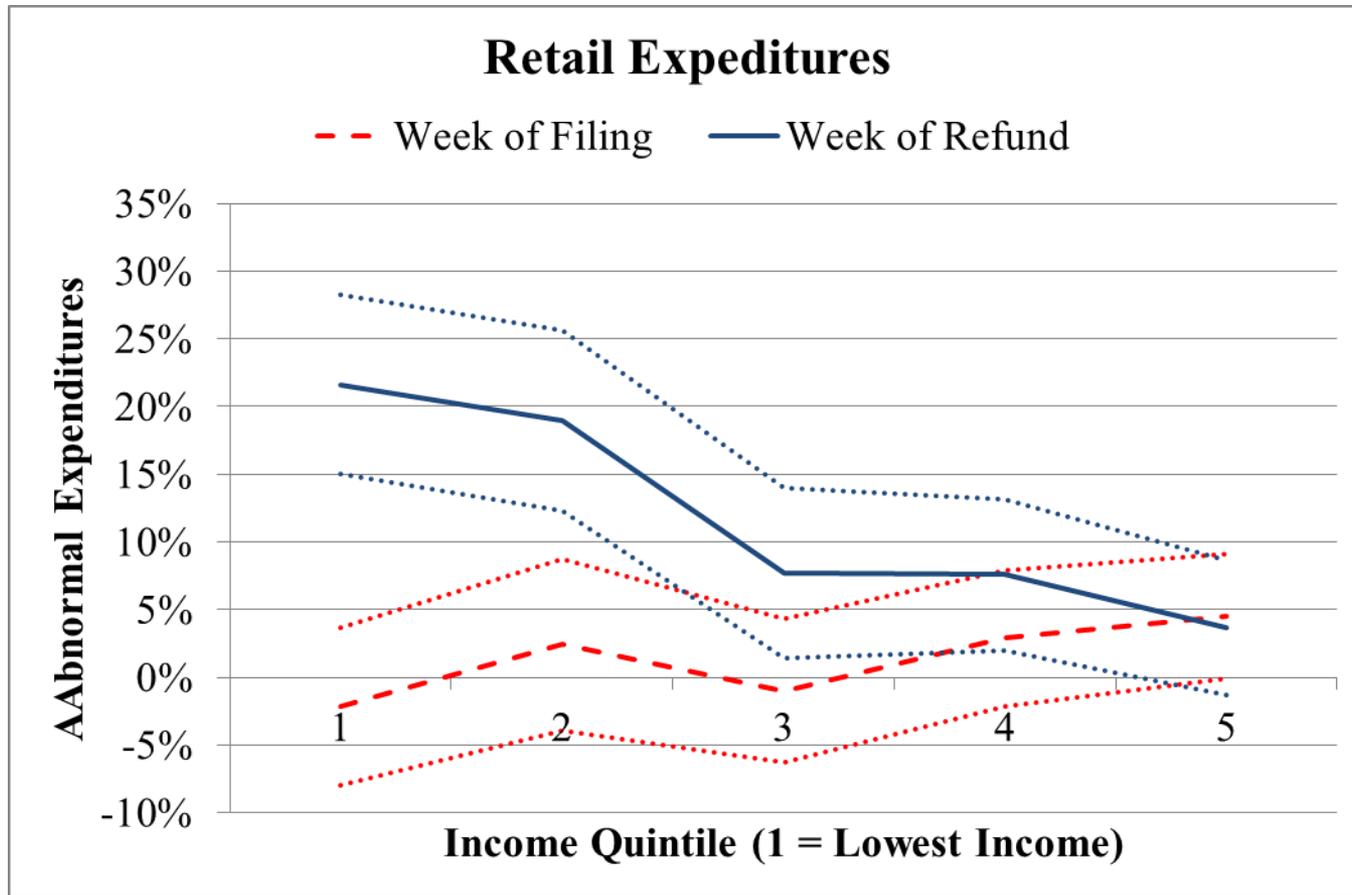
Financial Constraints?

- Households respond primarily to cash flows than to news
- An potential explanation is that this is because of financial constraints, and the average household in each refund quintile is financially constrained, therefore unable to respond to news
 - Previous research shows that unconstrained households show weak/no response at various cash flow events
 - We divide the sample by income and find that even for high income households the consumption response to cash > news
 - There is some statistically significant response for unconstrained households for news, so financial constraints play some, but limited role

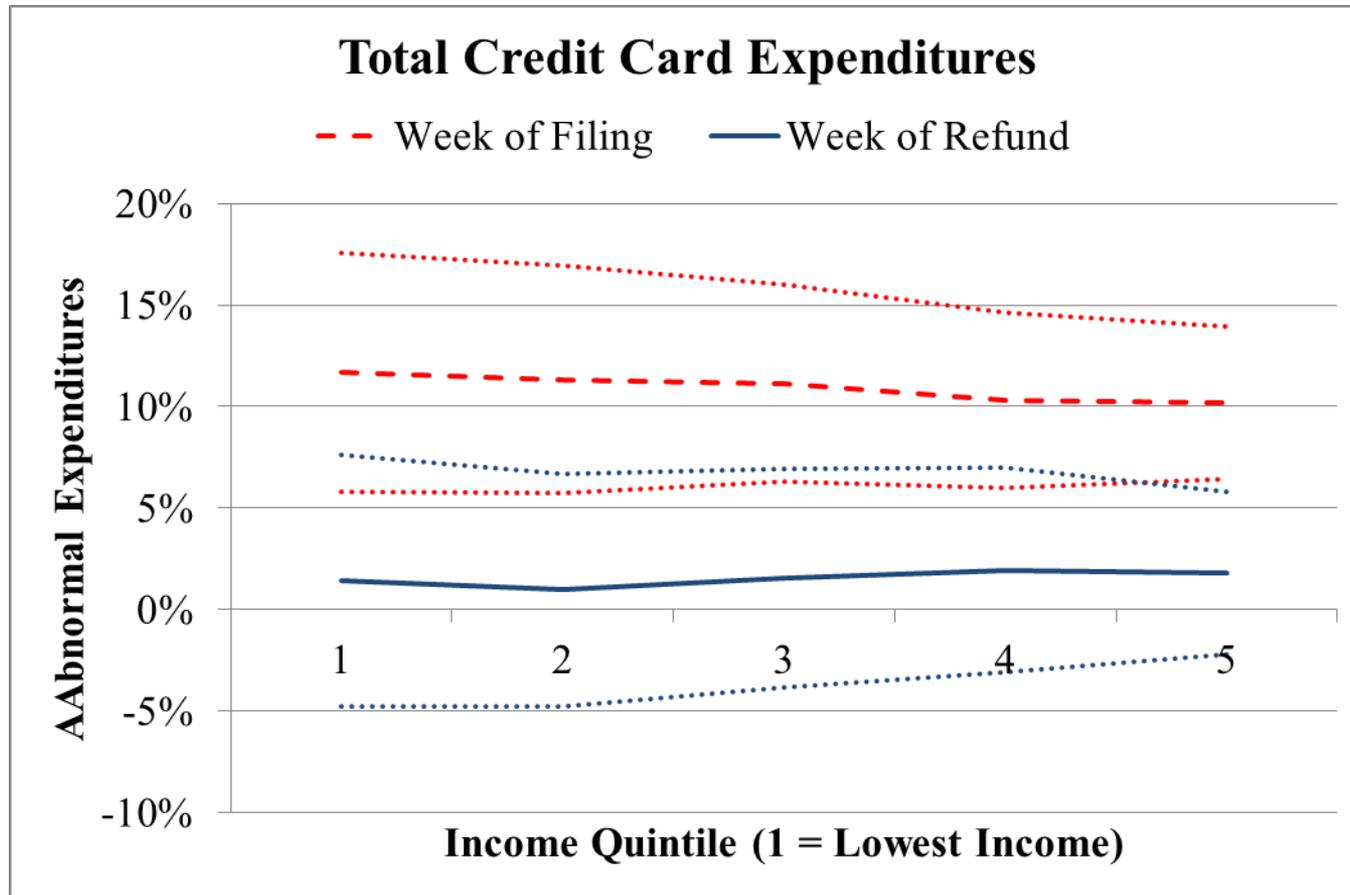
Restaurant Spending, per Income Group



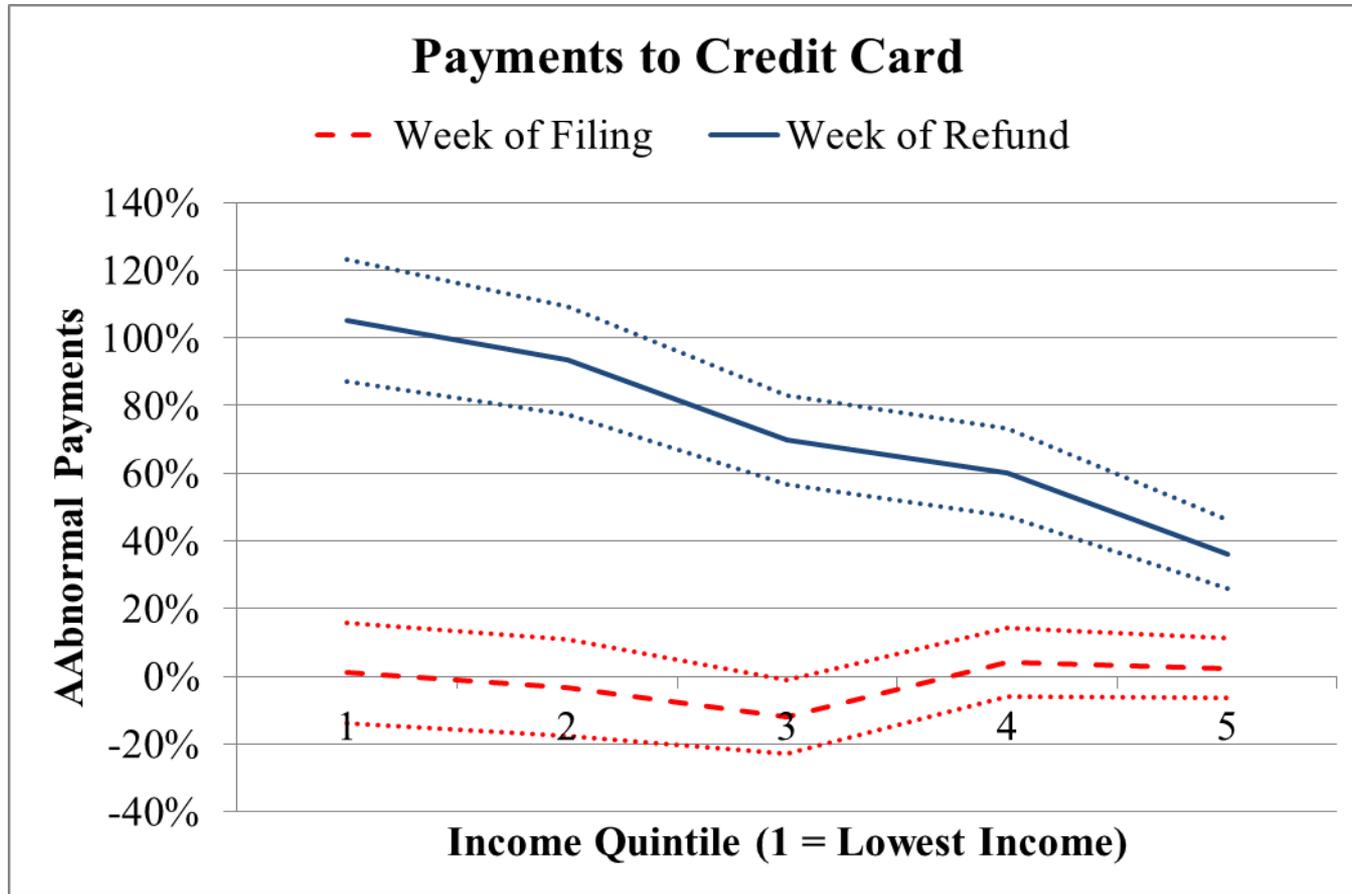
Retail Spending, per Income Group



Credit Card Spending, per Income Group



Credit Card Payments



Conclusion

- New empirical setting to measure the reaction of households to news vs. cash flow events
- Households show virtually no consumption response news event
 - Weak total reaction to news
 - Strong variation with refund size
- Financial constraints prevent households from consuming when they receive information
 - Wealthier households show less sensitivity
 - Credit card usage is concentrated around information date
- We find evidence that support both financial constraints and household myopia