

Explaining Consumption Excess Sensitivity with Near-Rationality

Evidence from Large Predetermined Payments

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How do HHs respond to large, predictable and salient cash flows?

- ▶ important for macro stimulus programs
- ▶ informative for micro consumption models, ranging from
 - ▶ basic PIH under certainty ($MPC^{pih} \approx 0$) to
 - ▶ hand-to-mouth behavior ($MPC^{htm} = 1$)

To answer this question I use

- ▶ repeated quasi-experiments from [Alaska Permanent Fund Dividend \(PFD\)](#) payments
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- ▶ [Consumer Expenditure Survey \(CE\)](#) for external validity

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Preview of Main Results

- ▶ Large average MPC $\sim 30\%$ for nondurables
- ▶ Heterogeneous MPCs concentrated among higher-income HHs
- ▶ Derive potential loss from not smoothing consumption
 - ▶ predicts MPC heterogeneity well
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Outline

1. Experiment and Data
2. Average Excess Sensitivity
3. MPC Heterogeneity and Near-Rationality
4. External Validity using the Consumer Expenditure Survey (if time)
5. Robustness (if time)
6. Conclusion

Alaska Permanent Fund Dividend (PFD) = annual payments from state's broadly-diversified wealth fund

Important characteristics of PFD for excess sensitivity tests:

1. *predetermined, regular, and salient*

- ▶ based on June numbers, announced in Sept., paid in October
- ▶ *highly predictable*: 5-year moving average of fund's income
- ▶ well covered by local media during the year

2. *nominally large and lump-sum*

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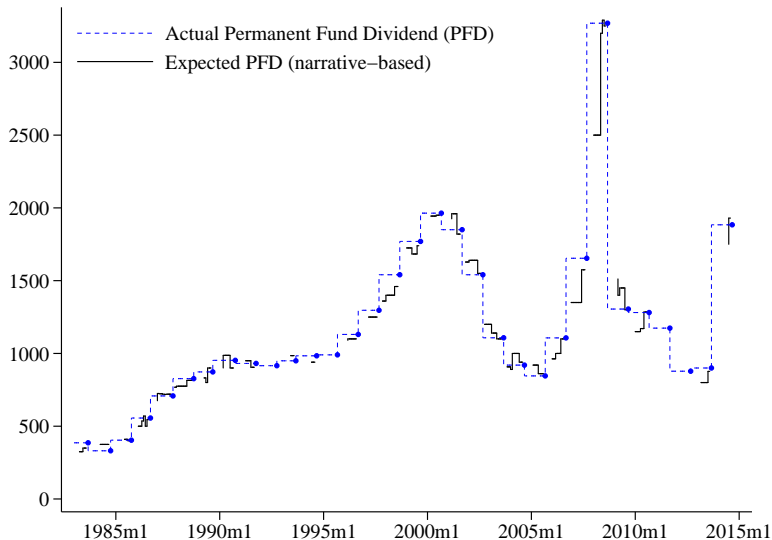
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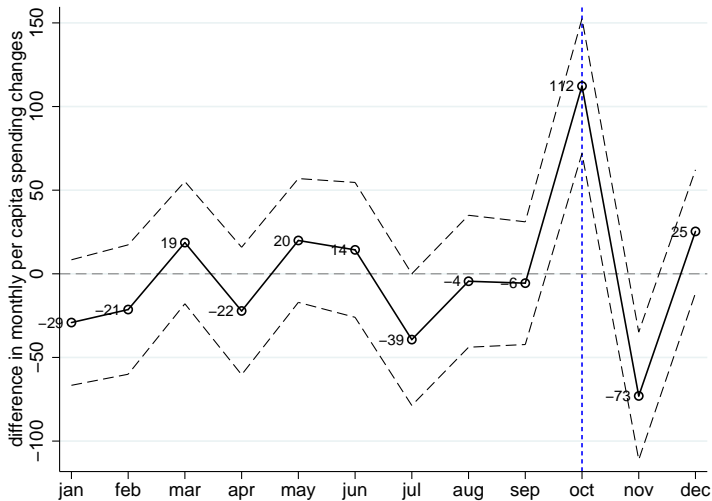
Saliency: Dividend predicted by local newspapers



Household Spending Data

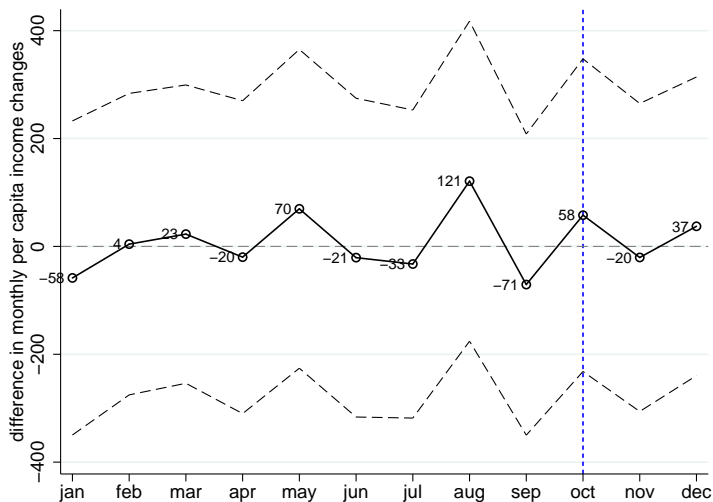
1. New transaction data from user accounts at a large **personal finance website** from 2010-2014
 - ▶ 1,400 Alaskan users that receive dividend via direct deposit (treatment group)
 - ▶ 2,200 users from state of Washington (control group)
2. **Consumer Expenditure Survey** (CE) to check external validity of new data and results

Nonparametric Evidence: Average nondurable spending changes per person by month in **Alaska vs. Washington** (Diff-in-Diff)



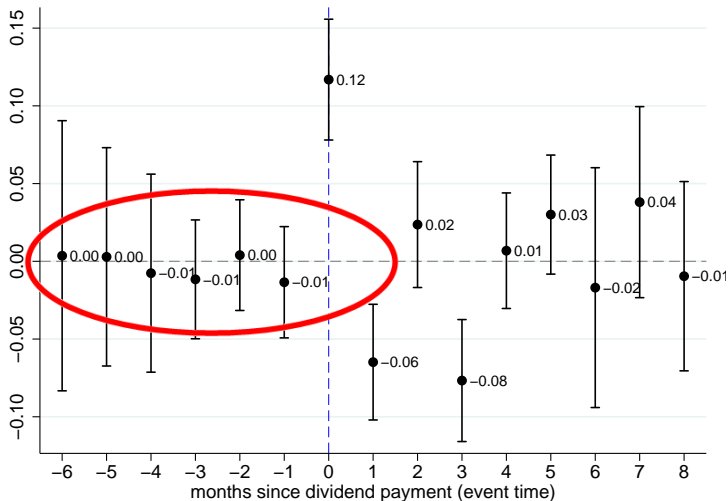
Implies MPC of 12% after one month, 22% after one quarter

Nonparametric Evidence: Not driven by corresponding changes in other income

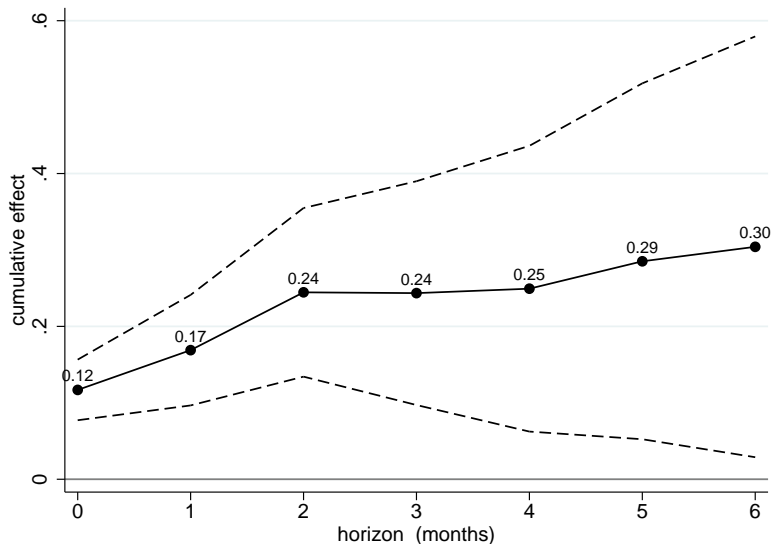


Parametric Evidence: No anticipation effects

$$\Delta C_{it} = \sum_s \beta_s \cdot PFD_{i,t-s} + \alpha_t + \text{Alaska}_i + \lambda \cdot \text{FamilySize}_i + \epsilon_{it}$$



Parametric Evidence: Cumulative MPC stable after 1 quarter



What can explain this large excess sensitivity?

- ▶ Liquidity-to-income ratio does predict lower MPC, but most is left unexplained
- ▶ Instead, see if **near-rationality** explains excess sensitivity
- ▶ Derive **potential loss from fully spending PFD** in the 4th quarter (c^{htm}) instead of fully smoothing (c^*)

$$Loss(c^{htm}, c^*) \equiv \frac{\Delta W}{W} \propto \left(\frac{PFD}{c_T} \right)^2$$

- ▶ The **actual loss** depends on endogenous HH behavior (MPC)

$$Loss^{ex-post} = MPC^2 \times Loss(c^{htm}, c^*)$$

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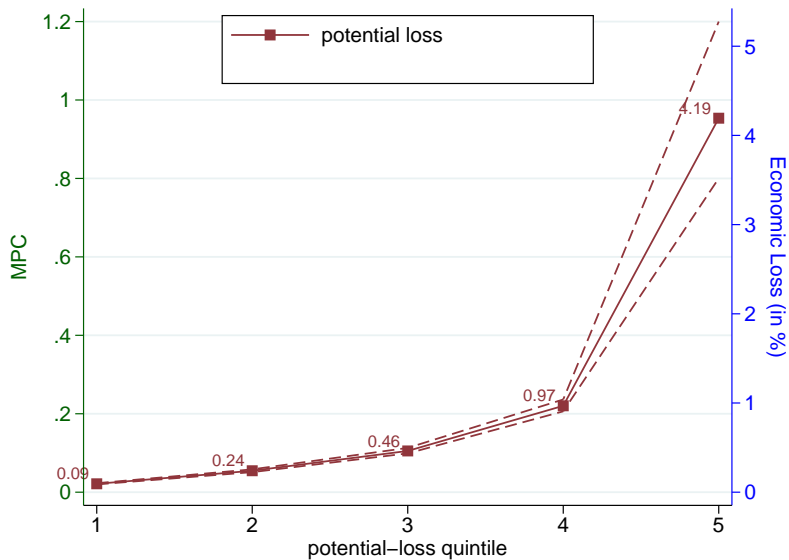
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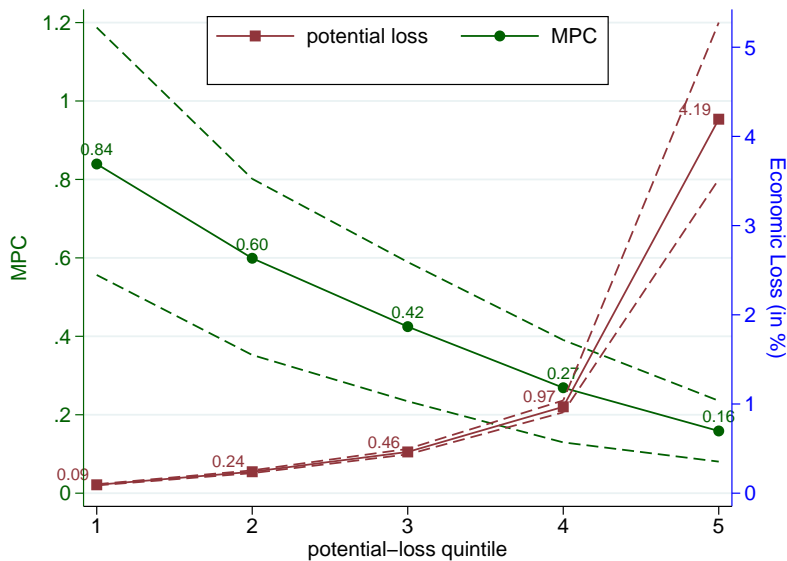
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Potential-loss statistic quintiles across HHs



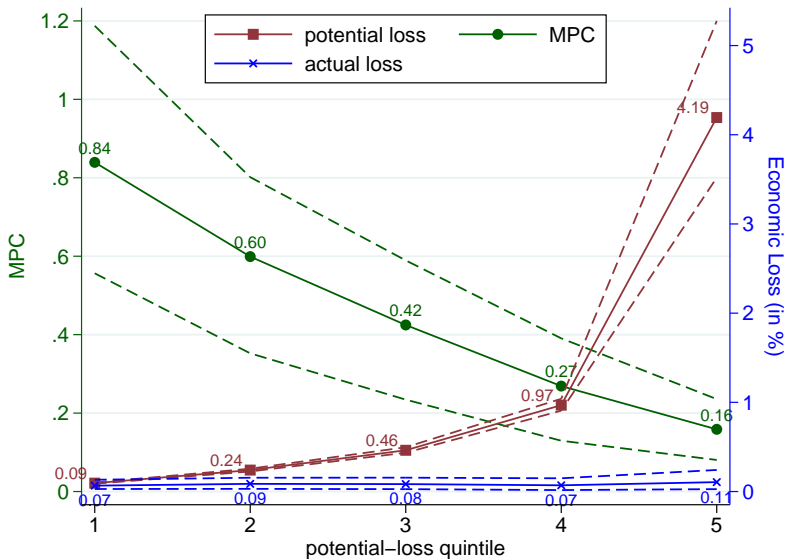
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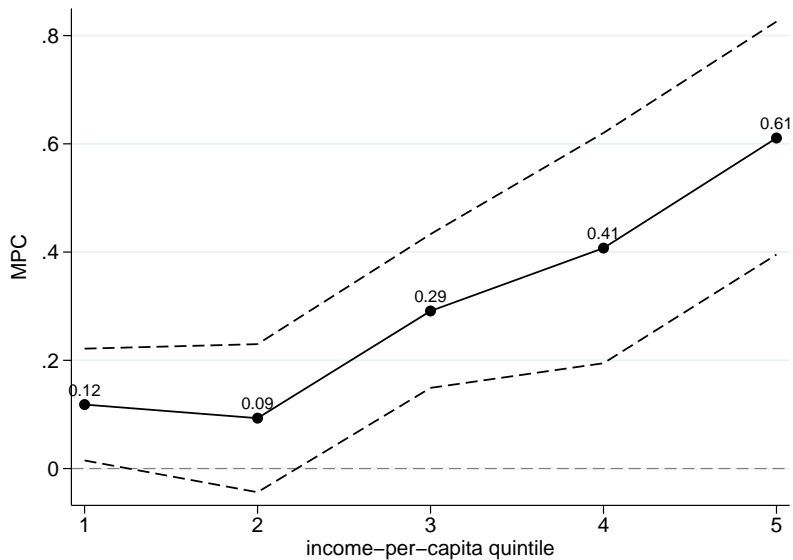


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What drives this heterogeneity? \Rightarrow mostly **income per capita**



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Dep. var.: Δc_{it} , quarterly nondurables and services	by liquidity quartiles			
	1 st	2 nd	3 rd	4 th
	(2)			
PFD payments x 1 st potential-loss quintile	0.946*** (0.281)	0.723** (0.336)	0.557* (0.334)	1.114*** (0.328)
PFD payments x 2 nd potential-loss quintile	0.724*** (0.235)	0.539* (0.296)	0.487* (0.261)	0.606*** (0.212)
PFD payments x 3 rd potential-loss quintile	0.536*** (0.122)	0.510*** (0.168)	0.178 (0.162)	0.340 (0.261)
PFD payments x 4 th potential-loss quintile	0.392*** (0.084)	0.271** (0.129)	0.248 (0.179)	0.147 (0.168)
PFD payments x 5 th potential-loss quintile	0.258*** (0.065)	0.234*** (0.072)	0.015 (0.081)	0.067 (0.138)
- Time FE (year-by-quarter), Alaska FE			YES	
- FE for main effects (potential loss and liq)			YES	
- Income per capita quintile FE			YES	
- Other household characteristics			YES	

External validity implementing same analysis using the CE

I obtain similar results after taking into account

1. dividend has to be imputed in the CE
2. different sample composition

Table 5: External Validity using the Consumer Expenditure Survey (CE)

Dep. var.: Δc_{it} , quarterly nondurables and services	<i>CE Sample</i>	<i>PFW Sample</i>		
		using the observed PFD	using the imputed PFD	dealing w/ sample composition
	(1)	(2)	(3)	(4)
PFD payments		0.276*** (0.042)		
<i>PFD x family size</i>	0.079** (0.036)		0.184*** (0.031)	-0.044 (0.048)
PFD x family size x income/\$100,000				0.201*** (0.046)
<i>predicted MPC at average CE income</i>				0.082*** (0.029)
- Time FE, Alaska FE, other controls	YES	YES	YES	YES
Observations	385,800	50,210	50,210	50,210
R-squared	0.006	0.107	0.107	0.109

Various **robustness checks** in paper

1. difference between spending and consumption
⇒ broad-based effect, incl. groceries and restaurants
2. consumption commitments and wealthy-hand-to-mouth cons.
3. decomposition of identifying variation, such as
 - ▶ using only variation within Alaska
 - ▶ controlling for family FEs
 - ▶ difference between family size and # of users
4. log-changes (elasticity) vs. level differences (MPC)
5. squared dividend instead of relative PFD payments

Conclusion

Main findings

1. Large average excess sensitivity even to large payments
2. Potential-loss statistic predicts higher-income HHs MPCs
3. Low liquidity-to-income continues to predict higher MPCs
4. Actual ex-post losses are similar and small \Rightarrow near-rationality

Policy implications

- ▶ Targeting low-income HHs might not be the only way to stimulate the economy
- ▶ Modeling near-rational behavior is important next step: Why do high-income HHs spend dividend?

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