Empirical Evidence on Topics in Behavioral Macroeconomics

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What Makes Economic Research Behavioral?

- Empirical evidence for or theoretical models of
  - Non-standard discounting (e.g., hyperbolic discounting)
  - Non-standard preferences (e.g., reference dependence, loss aversion, ego utility, anticipatory utility, social comparisons, ...)
  - Non-standard beliefs (e.g., rank-dependence, probability weighting, diagnostic expectations, focusing, experience-based learning, ...)
  - Non-standard bracketing (e.g., framing effects, narrow bracketing, ...)
- Applications: trading in financial markets, consumption/savings, risk attitudes, labor supply, principal-agent problems, ...

What Makes Economic Research Macro?

- Results from polling attendants at the NBER EFG meeting
  - Aggregate variables
  - General equilibrium
  - Capital allocation
- In my view also? Certain topics are macro:
  - Because macro people historically worked on them
  - Because assumptions about microeconomic behavior matters for macro models and aggregate fluctuations

Topics in Behavioral Macroeconomics

- High marginal propensities to consume (MPC)s out of windfalls
  - Liquidity constraints and credit cycles
  - MPCs out of capital gains
- The retirement-consumption and retirement-savings puzzles
- Selective versus rational inattention

High MPCs out of Windfalls

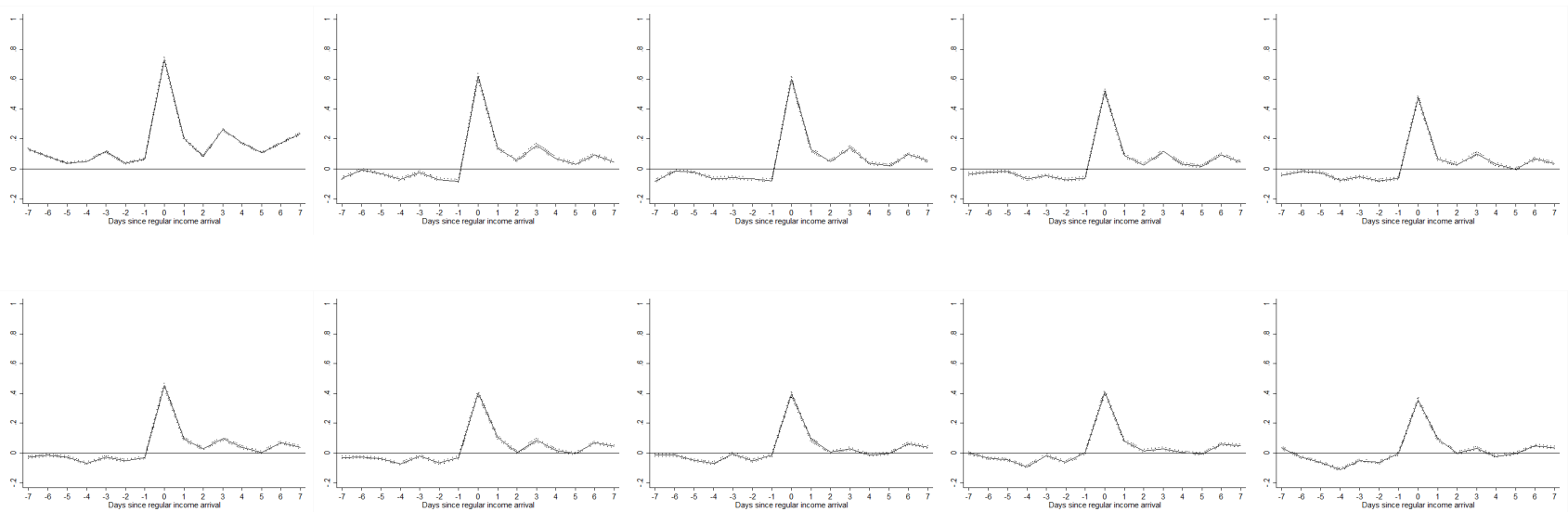
- People consume a lot out of perfectly transitory or perfectly expected income payments but they should smooth consumption
- Macro people that worked on the topic: Shapiro and Slemrod (1995), Souleles (1999), Johnson et al. (2006), and Jappelli and Pistaferri (2010) (among many others)
- Why does it matter for macro models: Calibration, matching moments, fiscal stimulus, and fiscal multipliers (Broda and Parker, 2014; Kaplan and Violante, 2014; Jappelli and Pistaferri, 2014)

Liquidity Constraints and Credit Cycles

- Leading explanation for high MPCs out of windfalls: Liquidity constraints
  - Liquidity constraints means that people cannot consume out of future income or illiquid savings because they cannot borrow (they are not only or necessarily poor)
- Macro people that worked on the topic: Flavin (1985), Deaton (1991), Zeldes (1989), Gross and Souleles (2002), and Parker (2014) (among many others)
- Why does it matter for macro models: Optimal allocations and credit cycles (Keys et al., 2017; Braxton et al., 2019)

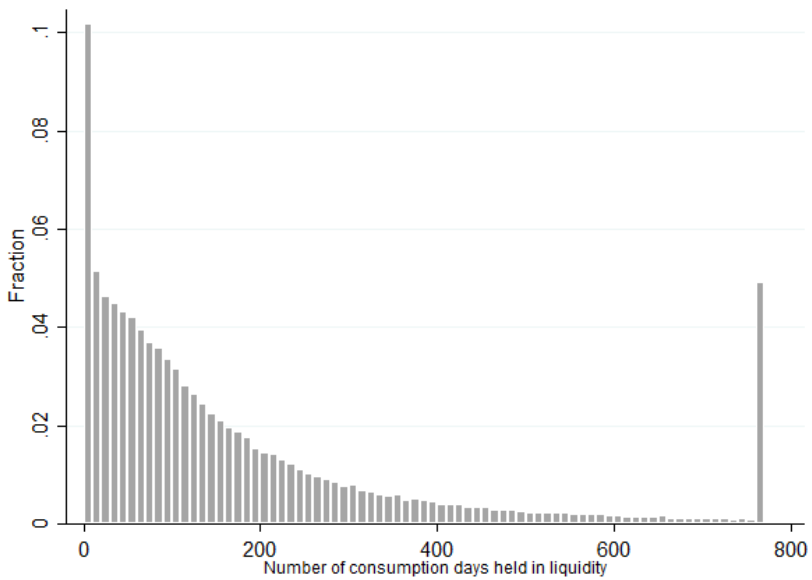
The Liquid Hand-to-Mouth

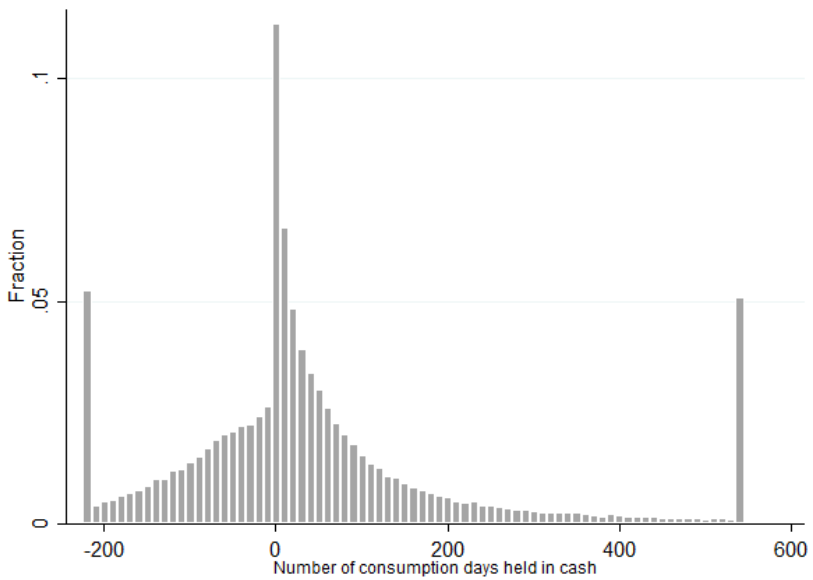
- Olafsson and Pagel (2018a): Liquid individuals are still displaying substantial responses to paydays (see also, Gelman et al., 2014; Baugh et al., 2018, among many others)



How Many Individuals are Liquidity-Constrained on Their Paydays?

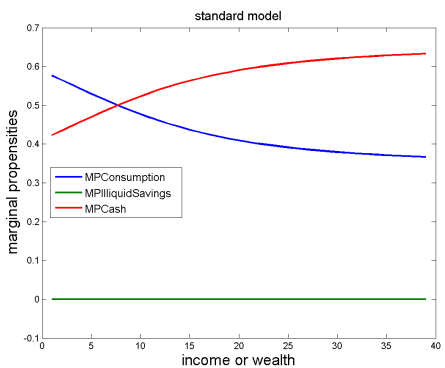
- Liquidity and cash holdings (in consumption days) in the morning of individual paydays:

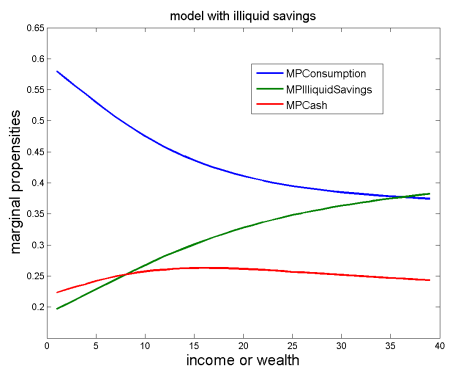


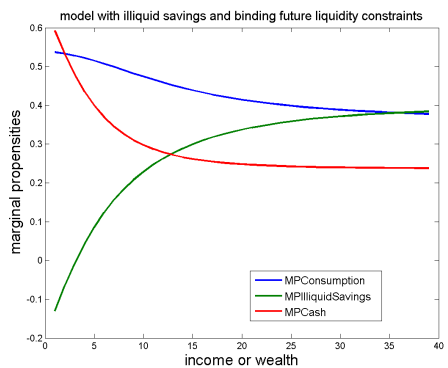


Are Liquidity Constraints a Falsifiable Theory?

- Keep in mind: Liquidity is an endogenous variable – sorting according to liquidity is a very weak test of the theory – sort within individuals own histories?
- Liquidity constraints are impossible to measure! How do we know how large a buffer individuals need? Idea: Look at the liquidity-responses to paydays – are they decreasing in own liquidity?

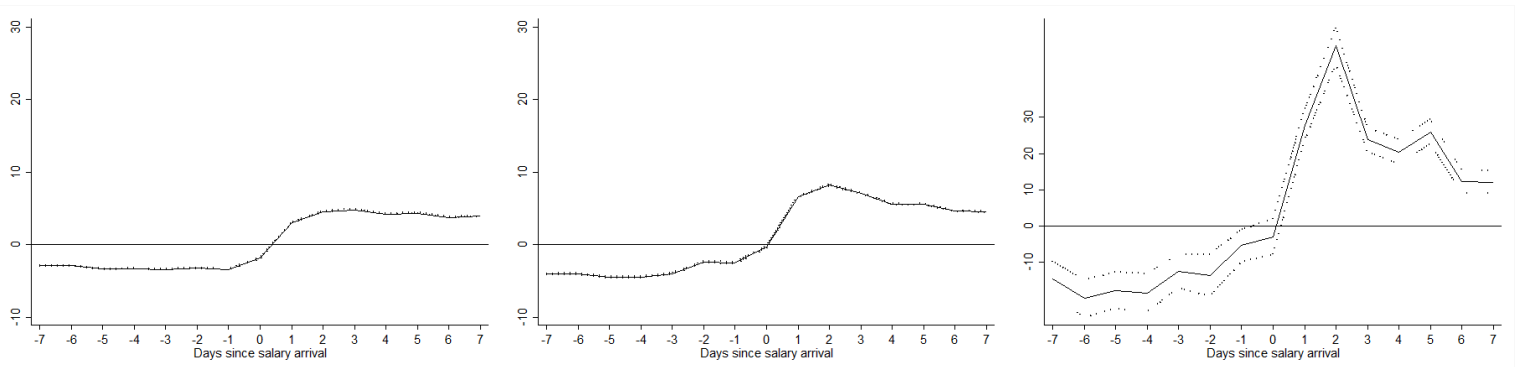






Are Liquidity Constraints a Falsifiable Theory?

- Are the liquidity responses to paydays increasing or decreasing in liquidity?



Are People Able to Borrow? High-Interest Unsecured Borrowing

- In the 2001 SCF, 27% of households reported revolving an average of $5,766 in credit card debt with an APR of 14%
- Consumer debt in the US (and many other countries) – a puzzle?
  - Laibson et al. (2000), Haliassos and Reiter (2005), Bertaut et al. (2009), Laibson et al. (2018), and Kaplan and Violante (2014)
- Individuals may or may not use borrowing as a tool to smooth consumption in response to transitory income shocks:
  - Hundtofte et al. (2019), Baker and Yannelis (2015), Braxton et al. (2019), Keys et al. (2017), Keys (2010), and Sullivan (2008)

Theoretical Background: Borrowing and Income

- All economic models (Laibson et al., 2018, for instance) predict that individuals should borrow when income is low to smooth consumption

	Log of total borrowing	Indicator for borrowing	Log of total spending
Hyperbolic-discounting agent:			
Log of income	-3.918***	-0.386***	0.820***
	(0.0094)	(0.0009)	(0.0007)
Standard agent:			
Log of income	-0.0304***	-0.0038***	0.372***
	(0.0007)	(0.0001)	(0.0003)
#obs	71,000	71,000	71,000
Age fixed effects	✓	✓	✓

The standard agent only borrows 0.15% of the time at interest rates considered in this model

What were you Taught as a Child about Debts?

Something to be used in moderation - considered carefully and paid off when possible	70%
A promise you should keep	65%
Something to be avoided	52%
A necessary evil	29%
A useful way to split up payments on a high cost item that would be useful to you sooner rather than later	27%
A useful way to shift money from periods when you have it to periods when you do not	9%

Source: "Parents are the main source of education for how to manage finances" Responses from Survey of Consumer Expectations

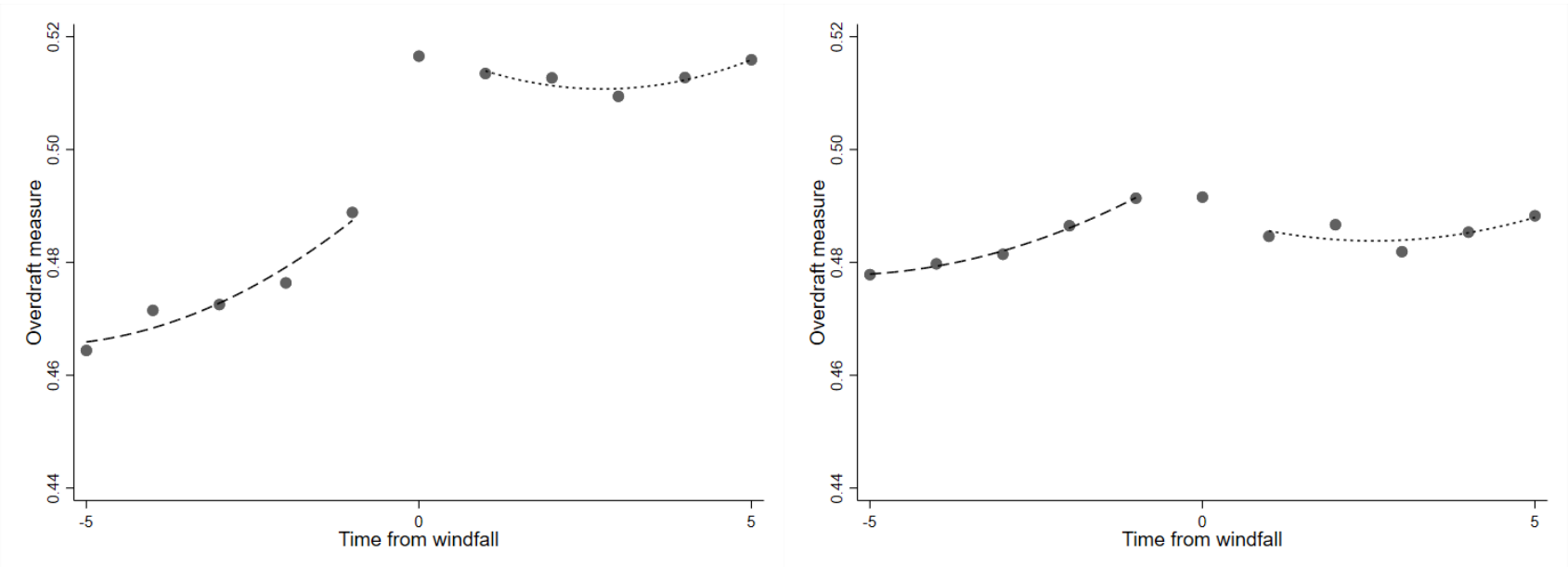
Credit Smoothing

- Hundtofte et al. (2019): Individuals are not borrowing in response to perfectly transitory income payments (see also, Keys, 2010; Keys et al., 2017; Braxton et al., 2019)

	total spending	necessary spending	unnecessary spending	cash	overdraft indicator	# overdrafts	late fees	credit lines
				With individual fixed effects:				
Unemp.	-0.066***	-0.035	-0.110***	-0.022	0.006	-0.002	0.061	-0.018
	(0.018)	(0.042)	(0.040)	(0.071)	(0.010)	(0.012)	(0.068)	(0.023)
R-sqr	0.081	0.021	0.039	0.020	0.001	0.001	0.008	0.027
				Including liquidity interactions:				
Unemp.	-0.064***	-0.016	-0.103**	-0.147	0.009	0.003	-0.006	-0.025
	(0.021)	(0.050)	(0.048)	(0.115)	(0.012)	(0.013)	(0.077)	(0.040)
Unemp.* liquidity$_{t-4}$	-0.003	-0.019	-0.005	0.043	-0.003	-0.004	0.040	0.002
	(0.008)	(0.017)	(0.018)	(0.027)	(0.004)	(0.005)	(0.029)	(0.009)
liquidity$_{t-4}$	0.002	0.004	-0.003	-0.021	0.003	0.000	0.037*	0.000
	(0.005)	(0.011)	(0.011)	(0.017)	(0.003)	(0.004)	(0.020)	(0.006)
R-sqr	0.081	0.021	0.039	0.020	0.001	0.001	0.008	0.027
#individuals	10,851	10,851	10,851	10,851	10,851	10,851	10,851	10,851
month-by-year fixed effect	✓	✓	✓	✓	✓	✓	✓	✓

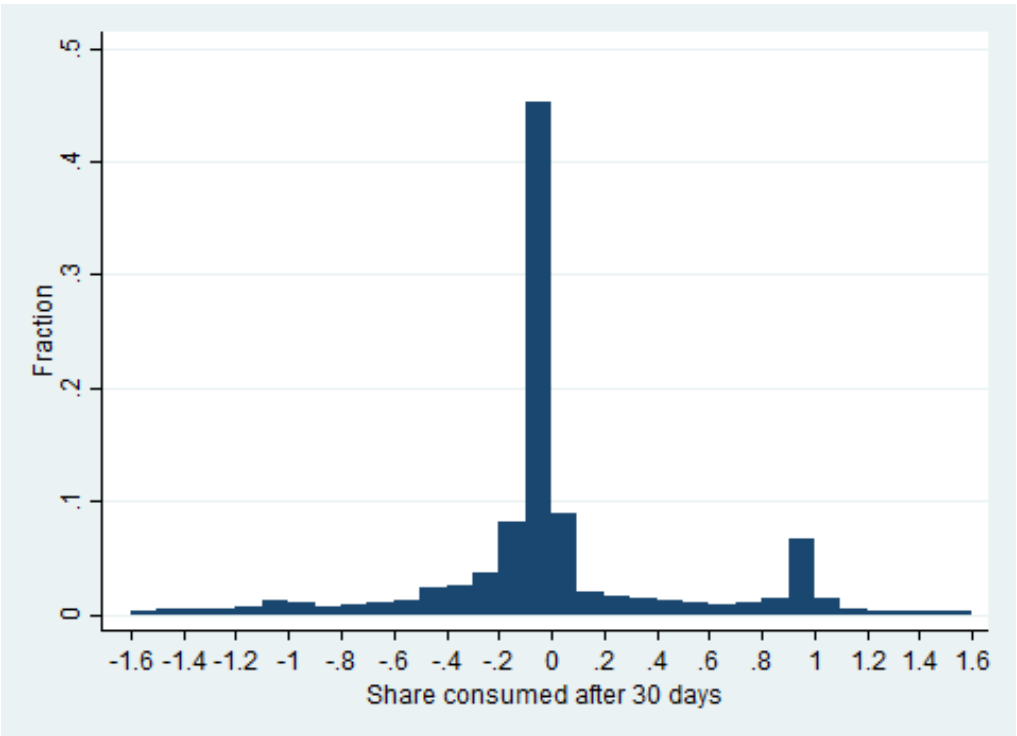
Borrowing in Response to Windfalls

- Olafsson and Pagel (2019) observe 37,655 lottery winning payments with a median winning around of $100 (excluding payments <$20)
- Plotting overdraft indicator or interest relative to the months around small versus large windfalls



MPCs out of Capital Gains

- Baker et al. (2007) document that individuals display higher MPCs out of dividends than capital gains
- Loos et al. (2018) and Meyer et al. (2018) show that when capital gains are liquidated, then individuals consume a lot out of them (see also Maggio et al., 2018)



The Retirement-Consumption and -Savings Puzzles

- Macro people who have worked on life-cycle consumption and retirement savings: Deaton (1986), Gourinchas and Parker (2001), Browning and Crossley (2001), Gourinchas and Parker (2002), and Gomes and Michaelides (2003), among many others
- The retirement-consumption (Banks et al., 1998; Bernheim et al., 2001, among many others) and retirement-savings (Love et al., 2009; Poterba et al., 2011) puzzles and their leading explanations:
  - Work-related expenses and home production: Hurst (2008) and Aguiar and Hurst (2013)
  - Earnings and medical risks: DeNardi et al. (2011)
- Why does it matter for macro models: consumption is a large fraction of GDP, populations are aging in developing countries, retirement savings schemes became voluntary

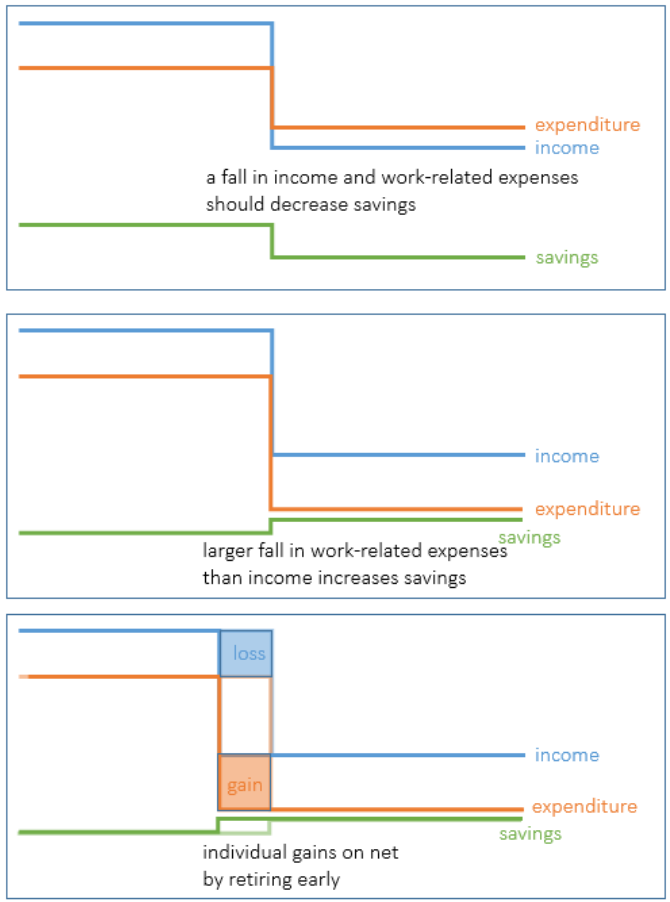
The Retirement-Consumption and -Savings Puzzles

- The existence of the puzzles and their leading explanations are highly debated
- Olafsson and Pagel (2018c) look at the intersection of the two and study how liquid savings and consumer debt responds to the onset of retirement

	Overdraft indicator	# overdrafts	Overdraft interest	Late fees	Interest income indicator	Interest income	Credit lines
Without controlling for income:							
Retired	-0.044***	-0.043**	-0.549***	-0.249***	0.036**	0.281***	-0.060
	(0.016)	(0.021)	(0.133)	(0.081)	(0.016)	(0.098)	(0.080)
Controlling for income:							
Retired	-0.045***	-0.045**	-0.561***	-0.284***	0.021	0.281***	-0.058
	(0.016)	(0.021)	(0.133)	(0.081)	(0.016)	(0.098)	(0.080)
Individual FE	✓	✓	✓	✓	✓	✓	✓
Month-by-year FE	✓	✓	✓	✓	✓	✓	✓

Potential Explanations for an Increase in Savings at Retirement

- Either the agent experiences systematic surprises that increase savings (while consumption drops for other reasons), or any explanation has to:
  1. Increase the drop in consumption beyond the drop in income
  2. Explain why the agent would not have retired early



Explanations for Increases in Savings at Retirement

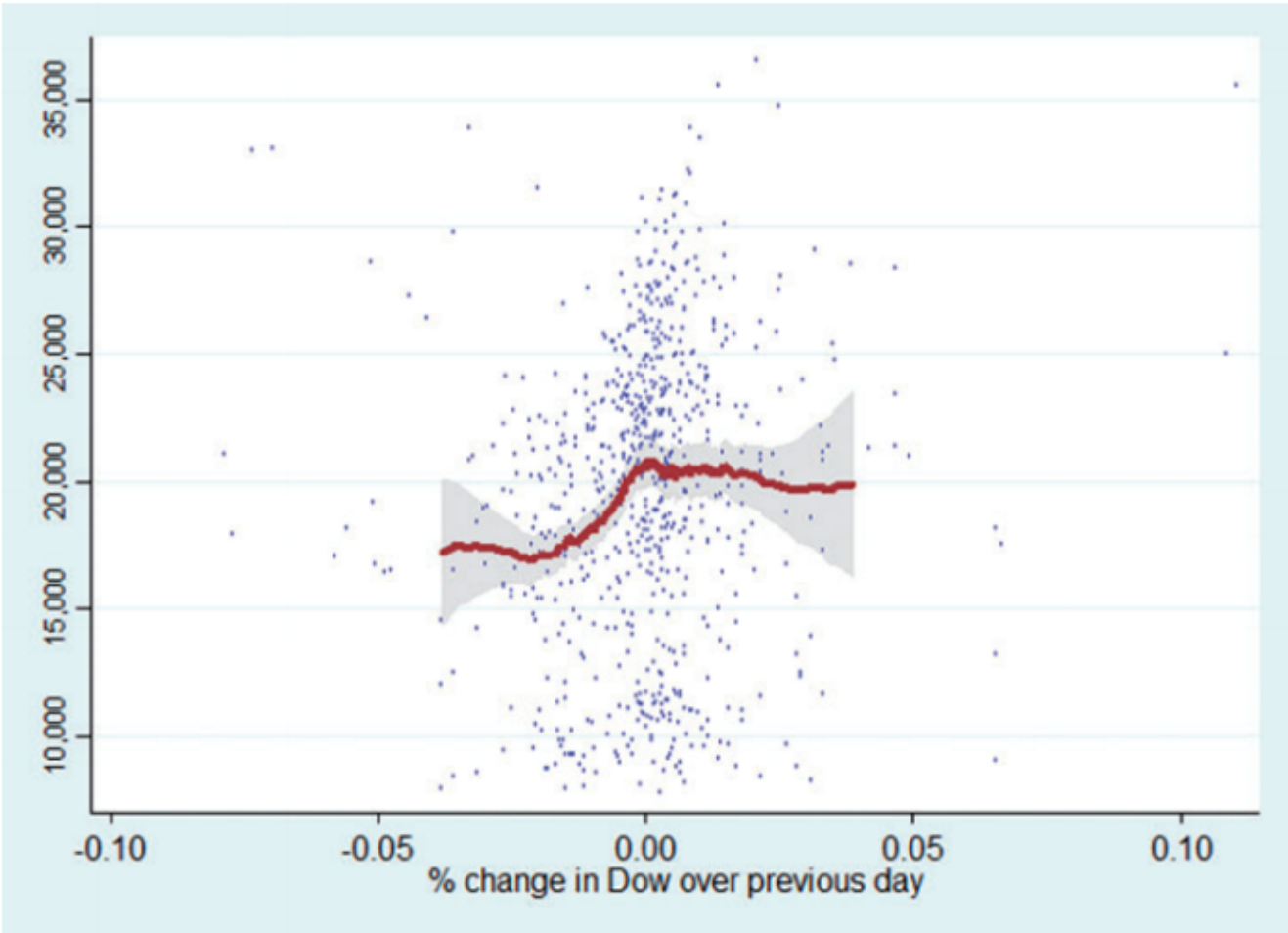
- Work-related expenses? People should retire early but we do not see retiring at the thresholds
- Earnings and longevity risk? Fully annuitized and indexed monthly pension payments, government guaranteed
- Health shocks and precautionary savings? Pharmacy spending decreases plus comprehensive health care system
- Liquidating pension funds or other assets? We observe and control for "pension income" and "other income"
- Systematic underestimation of retirement income? Exact information is easy to obtain
- Lumpy income payments? Pension payments are monthly annuities and volatility of income decreases
- Credit constraints? No decrease in limits at retirement

Selective versus Rational Inattention

- Inattention is used as an explanatory mechanism in macro models: Gabaix and Laibson (2002), Reis (2006), Gabaix (2016), Woodford (2009), and Van Nieuwerburgh and Veldkamp (2009) (among many others)
- Why does it matter for macro models: Equity premia and business cycle fluctuations
- Semantics here:
  - Rational inattention = exogenous/environmental costs of information acquisition and processing
  - Selective inattention = psychological costs of information acquisition and processing

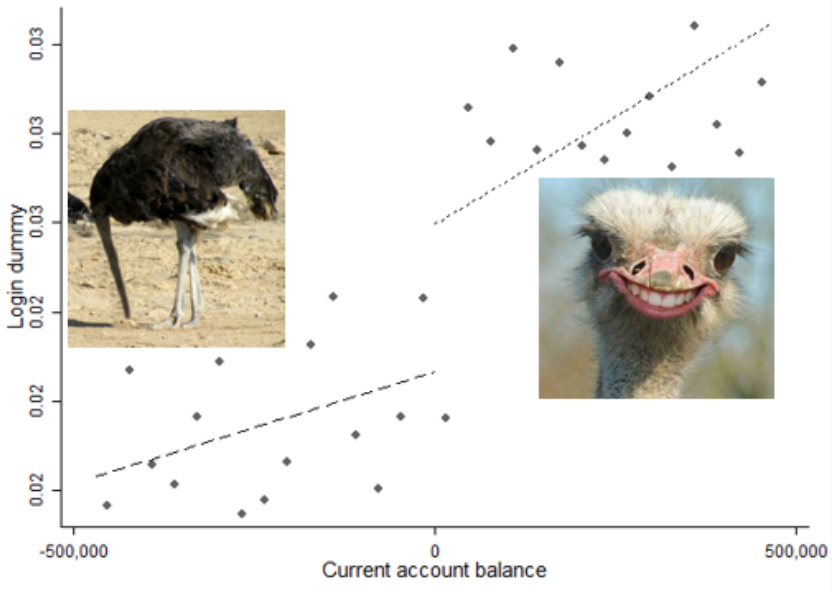
Are People Rationally or Selectively Inattentive?

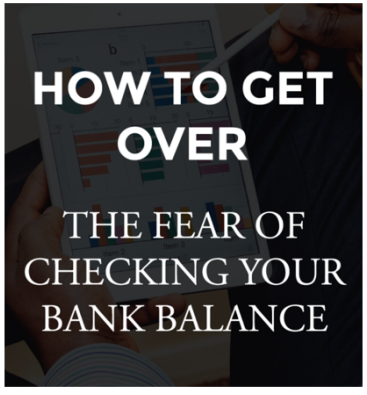
- Karlsson et al. (2009) (see also, Sicherman et al. (2015), Gherzi et al. (2014), and Gargano and Rossi (2017))

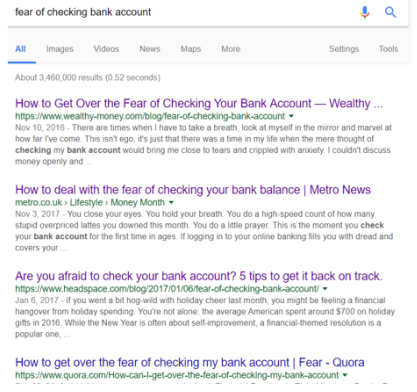


Are People Rationally or Selectively Inattentive?

- Olafsson and Pagel (2018b): Individuals do not log in to their bank accounts any more when they overdraw their checking accounts but log in more when they are in relatively good financial standing (holds within individuals own histories)







A simple Lucas tree model with rational or selective inattention

- Consider a simple endowment economy as in Mehra and Prescott (1985)
- Assume that the upcoming time period varies with the consumption shock, either the agent pays more (rational) or less (selective) attention in adverse states

The mean and variance of the risky and risk-free returns as well as the equity premium are majorly affected

	Risky return		Risk-free return		Equity premium	
	mean	standard deviation	mean	standard deviation	mean	standard deviation
Selective	0.0354	0.0322	0.0322	0.0040	0.0032	0.0319
Constant	0.0340	0.0271	0.0309	0.0000	0.0030	0.0271
Rational	0.0353	0.0239	0.0324	0.0040	0.0029	0.0236

Other Topics in Behavioral Macro?

- I am sure there are!!!
* Work on topics in behavioral macroeconomics!
* Email me paper ideas or first drafts and I will give you feedback!
* Thank you so much for your attention!

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