# Patterns of Consumption and Savings around Retirement

Arna Olafsson and Michaela Pagel

Copenhagen Business School

Columbia GSB, NBER, & CEPR

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- But many people have barely any savings and hold substantial amounts of consumer debt at the time of retirement (Skinner, 2007; Anguelov and Tamborini, 2009; Poterba et al., 2012)
- The question whether or not individuals plan properly and save enough for retirement is still debated (Poterba, 2015)

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  - ★ DeNardi et al. (2010); Jones et al. (2018); Ameriks et al. (2016); Laitner et al. (2018) explain this with longevity and medical expense risk

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- ★ Other papers on changes in households' balance sheets around retirement: Addoum (2016) analyses portfolio choice around retirement and Agarwal et al. (2009) look at financial mistakes over the life-cycle

## Monthly income and personal finances

	Eligible but not retired		Retired	
	Mean	St.dev.	Mean	St.dev.
Age:	64.2	3.6	71.2	5.8
Income:				
Pensions	74	1,063	1,899	1,869
Personal finances:				
Overdraft indicator	0.46	0.50	0.38	0.49
# Overdrafts	0.52	0.65	0.46	0.67
Overdraft interest	24	66	17	56
Late fees	6	36	5	31
Interest income indicator	0.32	0.47	0.53	0.50
Interest income	45	724	79	609
Liquidity (in days of average spending)	180	152	201	330

	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	✓	<b>√</b>	<b>√</b>	<b>√</b>	✓	<b>√</b>	<b>√</b>		
Month-by-year FE	. ✓	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	✓		

# Empirical findings: personal finances dynamics

	Overdraft indicator	# overdrafts	Overdraft interest	Late fees	Interest income indicator	Interest income	Credit lines
Retired for (months)	:						
Without controlling	for income:						
< 12	-0.050***	-0.049**	-0.577***	-0.263***	0.042***	0.487***	-0.048
	(0.016)	(0.020)	(0.134)	(0.084)	(0.015)	(0.098)	(0.081)
12 > < 24	-0.037**	-0.031	-0.468***	-0.149	0.029	0.296***	-0.134
	(0.018)	(0.024)	(0.155)	(0.099)	(0.019)	(0.108)	(0.108)
> 24	-0.039**	-0.043	-0.574***	-0.319***	0.033	-0.047	-0.020
	(0.020)	(0.028)	(0.166)	(0.104)	(0.023)	(0.115)	(0.152)
Controlling for incom	ne:						
< 12	-0.051***	-0.051**	-0.590***	-0.300***	0.020	0.487***	-0.047
	(0.016)	(0.020)	(0.134)	(0.084)	(0.015)	(0.098)	(0.081)
12 > < 24	-0.038**	-0.032	-0.480***	-0.182*	0.013	0.296***	-0.133
	(0.018)	(0.024)	(0.155)	(0.099)	(0.018)	(0.108)	(0.109)
> 24	-0.041**	-0.044	-0.587***	-0.355***	0.029	-0.047	-0.018
	(0.020)	(0.028)	(0.166)	(0.104)	(0.022)	(0.115)	(0.152)

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- We find the same patterns in individual-level data from the PSID and HRS
- Using spending data alone, even for very fine categories (bakeries, fine dining, restaurant visits, ...) we cannot conclusively tell whether expenses are work-related or not

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- We can look at the leading explanations of the retirement puzzles but they do not necessarily explain our findings
- We cannot "retire the consumption puzzles" just yet

- Addoum, J. M. (2016). Household portfolio choice and retirement. *Review of Economics and Statistics* (0).
- Agarwal, S., J. C. Driscoll, X. Gabaix, and D. Laibson (2009). The age of reason: Financial decisions over the life cycle and implications for regulation. *Brookings Papers on Economic Activity 2009*(2), 51–117.
- Agarwal, S., J. Pan, and W. Qian (2015). The composition effect of consumption around retirement: Evidence from singapore. *American Economic Review Papers & Proceedings* 105(5), 426–431.
- Aguiar, M. and E. Hurst (2005, October). Consumption vs expenditure. *Journal of Political Economy* 113(5), 919–948.
- Aguiar, M. and E. Hurst (2013). Deconstructing life cycle expenditure. *Journal of Political Economy* 121(3), 437–492.
- Ameriks, J., J. Briggs, A. Caplin, M. D. Shapiro, and

- C. Tonetti (2016). Late-in-life risks and the under-insurance puzzle.
- Anguelov, C. E. and C. R. Tamborini (2009). Retiring in debt-differences between the 1995 and 2004 near-retiree cohorts. *Soc. Sec. Bull. 69*, 13.
- Banks, J., R. Blundell, and S. Tanner (1998). Is there a retirement-savings puzzle? *The American Economic Review 88*(4), 769–788.
- Bernheim, B. D., J. Skinner, and S. Weinberg (2001, September). What accounts for the variation in retirement wealth among u.s. households? *American Economic Review 91*(4), 832–857.
- Caliendo, F. and D. Aadland (2007). Short-term planning and the life-cycle consumption puzzle. *Journal of Economic Dynamics and Control* 31(4), 1392–1415.

- DeNardi, M., E. French, and J. B. Jones (2010). Why do the elderly save? the role of medical expenses. *Journal of Political Economy 118*, 39–75.
- Gabaix, X. (2016). Behavioral macroeconomics via sparse dynamic programming. Technical report, National Bureau of Economic Research.
- Haider, S. J. and M. Stephens (2007, May). Is there a retirement-consumption puzzle? evidence using subjective retirement expectations. *The Review of Economics and Statistics* 89(2), 247–264.
- Huang, K. X. and F. Caliendo (2011). Rationalizing multiple consumption-saving puzzles in a unified framework. Frontiers of Economics in China 6(3), 359.
- Hurst, E. (2008, September). Understanding consumption in retirement: Recent developments. In J. Ameriks and O. Mitchell (Eds.), *Recalibrating Retirement Spending and*

- Saving, Chapter Understanding Consumption in Retirement: Recent Developments. Oxford University Press.
- Jones, J. B., M. De Nardi, E. French, R. McGee, and J. Kirschner (2018). The lifetime medical spending of retirees. Technical report, National Bureau of Economic Research.
- Laitner, J., D. Silverman, and D. Stolyarov (2018). The role of annuitized wealth in post-retirement behavior. *American Economic Journal: Macroeconomics* 10(3), 71–117.
- Love, D. A., M. G. Palumbo, and P. A. Smith (2009). The trajectory of wealth in retirement. *Journal of Public Economics* 93(1), 191 208.
- Poterba, J., S. Venti, and D. Wise (2011a). The composition and draw-down of wealth in retirement. *Journal of Economic Perspectives 25*, 95–117.

- Poterba, J., S. Venti, and D. Wise (2011b). Family status transitions, latent health, and the post-retirement evolution of assets. In David A. Wise (ed.), Explorations in the Economics of Aging. Chicago: The University of Chicago Press.
- Poterba, J. M. (2015). Saver heterogeneity and the challenge of assessing retirement saving adequacy. *National Tax Association*.
- Poterba, J. M., S. F. Venti, and D. A. Wise (2012). Were they prepared for retirement? financial status at advanced ages in the hrs and ahead cohorts. Technical report, National Bureau of Economic Research.
- Schwerdt, G. (2005). Why does consumption fall at retirement? evidence from germany. *Economics Letters* 89(3), 300 305.

Skinner, J. (2007). Are you sure you're saving enough for retirement? *Journal of Economic Perspectives 21*(3), 59–80.