Consumption and Labor Supply Responses to Changes in Disposable Income – Evidence from Final Mortgage Payments

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1. Research question and Motivation

Important and policy relevant questions are how individuals adjust consumption and labor supply in response to financial incentives. For example, Parker, Souleles, Johnson and McClelland (2013), and Kaplan, Violante and Weidner (2014) investigate how households consume out of the 2008 tax rebates. For labor supply responses there is a large literature studying the effect of tax credits (e.g. Eissa and Liebman, 1996), as well as the response to shocks in non-earned income, like lottery winnings (Imbens, Rubin and Sacerdote, 2001; Cesarini, Lindqvist, Notowidigdo and Ostling, 2015; Picchio, Suetens and Van Ours, forthcoming). However, tax rebates are typically too small and too transitory to affect labor supply, while lottery winnings need to be sufficiently large to have an impact, which drastically reduces the sample sizes studied. Furthermore, labor supply decisions are not made in isolation: individuals make a joint decision on consumption and leisure, so focusing on only labor supply is half the story (Imbens et al., 2013 is an exception studying both consumption and labor supply after winning the lottery).

We consider a different relaxation of the budget constraint, one that is sizeable, affects many households, and is anticipated: the last payment of the mortgage. Mortgage expenditures have a large share in the household budget, ranging from 20-40% of disposable household income (Chetty and Szeidl, 2007). This means that households experience a substantial increase in disposable income in the years after the last mortgage payment. Moreover, for most households this change is quite permanent. Mortgage expenditures of households are also committed expenditures, which means that a fixed costs need to be incurred in order to structurally adjust payments. The feature of adjustment costs implies that even households with positive net wealth can be liquidity constrained. Kaplan, Violante and Weidner (2014) call this group the “wealthy hand-to-mouth”, because they have a large marginal propensity to consume out of transitory income shocks (e.g. tax rebates), despite having positive net wealth.

Basic versions of the permanent income hypothesis predict that households (i) anticipate the timing of the last mortgage payment, and (ii) will most likely not arrive liquidity constrained at this date, since they have built up enough collateral to borrow against. For consumption and labor supply this would mean that optimizing households should have readjusted either one (or both) *before* the date of the last mortgage payment. This is exactly the hypothesis we plan to test. Will households decrease labor supply and increase leisure, increase consumption expenditures, or a combination of both?

Two papers studying household behavior after the last mortgage payment are Coulibaly and Li (2006) and Scholnick (2013). Coulibaly and Li use the US Survey of Consumer Expenditures and find that households increase financial savings and durables expenditures after the last mortgage payment is made. Scholnick uses transaction data from a credit card company to test the “magnitude hypothesis”, the idea that households are better smoothers for large shocks to disposable income. We improve on both studies by studying an entire population, using high quality data from administrative records, employing a longer event-time, and taking into account both consumption and leisure.

2. Research Plan and Data

First we extend the models of Chetty and Szeidl (2007) and Kaplan, Violante and Weidner (2014) where we allow for endogenous labor supply of the primary earner. The goal is to get theoretical predictions on consumption and labor supply when the household switches from a regime of consumption commitments into a regime without. Chetty and Szeidl (2007) already investigated the case of labor supply of the spouse, and we will empirically test whether there is a reverse added worker effect (Fortin, 1995, finds that mortgage expenditures increase spousal labor supply).

For the empirical part we use register data with comprehensive information on income, wealth and labor supply information for all households in the Netherlands. Next to data availability, there are several benefits to study the Netherlands. First, home-ownership is substantial, 59% of the households are home-owner (Statistics Netherlands, 2010). Second, around 85% of the home-owners have a mortgage, and up to recently, down payments were quite small so that loan-to-value ratios were close to a 100%. Finally, by law employees have the right to unilaterally reduce contract hours, and many Dutch workers do work part-time, 28% of the men and 76% of the women (Statistics Netherlands, 2010). This last characteristic facilitates the study of labor supply responses.

We have secured access to comprehensive, administrative data, containing the universe of household balance sheets of all Dutch households for the years 2006-2014. Households have to report owning a house for income tax purposes, and declare having a mortgage for the tax deduction of paid mortgage interest. We can precisely assess the year when a household makes the final mortgage payment, and can estimate in which month of the year this payment is made. We link this data to monthly wage records, containing information on hours worked and wages. This information is provided by the public unemployment insurance, which is universal. From household income and household assets data we can construct a measure of consumption expenditures (Browning and Leth-Petersen, 2003). Finally, since we have detailed information on the household, we can measure spousal labor supply, as well as children attending college (which is another possible constraint on household disposable income, Souleles, 2000).

In the empirical analysis we perform an event-study, where the event is the year of the last mortgage payment for the universe of Dutch households paying of a mortgage in a given year. In particular we (1) study joint changes in consumption expenditures and labor supply, (2) investigate anticipation effects in the years prior to final repayment, and (3) explore the heterogeneity in the population in both effects with respect to observable characteristics as age, education, and liquid assets. With respect to the labor supply decision we will investigate changes at the extensive (e.g. early retirement) and the intensive margin (part-time work), as well as labor supply of the spouse (added worker effect). Moreover, we will enrich our analysis by merging three large surveys to the administrative data, where the surveys contain information on the type of mortgage of the household. This will allow us to explore difference in mortgage financing, e.g. annuity versus interest-only mortgages.

Access for other Researchers Data access is through remote access with Statistics Netherlands, and everyone working at a university can request access to the data, regardless of nationality or country. We will assist interested researchers with providing information to get access, share code and translated codebooks. More information on data access (in English) can be found at this website https://www.cbs.nl/en-gb/our-services/customised-services-microdata/microdata-conducting-your-own-research

Budget

	Item	**Costs per item**	**Number items**	**Costs**
1	Data costs	€ 313 per month	12 months	€ 3,756
2	Remote access connection	€ 165 per month per researcher	12 months x 2 researchers	€ 3,960
3	User cost researcher	€ 80 per month per researcher	12 months x 2 researchers	€ 1,920
4	Output check	€ 200 per check	3	€ 600
5	Travel costs			€ 2,000
6	Publication costs			€ 500
	Total in EUR			€ 12,736
	Exchange rate (3/16/2016)	1 EUR = 1.072 USD		**USD 13,653**

1. These are the costs for accessing and using datasets on income, wealth and personal characteristics. These costs are per month, and we expect to need access for a period of 12 months.
2. Both researchers plan to work on the empirical part of the data, which requires two remote access connections.
3. In addition to the remote access connection to access the data, Statistics Netherlands charges a monthly cost for each researcher working on the data.
4. Output has to be checked by Statistics Netherlands to guarantee anonymity and confidentiality of individual households. We expect to need 3 such checks.
5. For travel costs to conferences and short research visits to either Essex or Frankfurt.
6. Many journals request a submission fee.

Literature

Browning, M. and Leth-Petersen, S., 2003. Imputing consumption from income and wealth information. *The Economic Journal*, 113(488), pp. F282-F301.

Cesarini, D., Lindqvist, E., Notowidigdo, M.J. and Östling, R., 2015. *The effect of wealth on individual and household labor supply: evidence from Swedish lotteries* (No. w21762). National Bureau of Economic Research.

Chetty, R. and Szeidl, A., 2007. Consumption commitments and risk preferences. *The Quarterly Journal of Economics*, 122(2), pp. 831-877.

Coulibaly, B. and Li, G., 2006. Do homeowners increase consumption after the last mortgage payment? An alternative test of the permanent income hypothesis. *Review of Economics and statistics*, 88(1), pp. 10-19.

Eissa, N. and Liebman, J.B., 1996. Labor supply response to the earned income tax credit. Q*uarterly Journal of Economics*, 111(2), pp.605-637.

Fortin, N.M., 1995. Allocation inflexibilities, female labor supply, and housing assets accumulation: Are women working to pay the mortgage? *Journal of Labor Economics*, 13(3), pp. 524-557.

Imbens, G.W., Rubin, D.B. and Sacerdote, B.I., 2001. Estimating the effect of unearned income on labor earnings, savings, and consumption: Evidence from a survey of lottery players. *American Economic Review*, pp. 778-794.

Kaplan, G., Violante, G.L. and Weidner, J., 2014. The wealthy hand-to-mouth. *Brookings Papers on Economic Activity*, pp. 121-154.

Parker, J.A., Souleles, N.S., Johnson, D.S. and McClelland, R., 2013. Consumer spending and the economic stimulus payments of 2008. *American Economic Review*, 103(6), pp. 2530-2553.

Picchio, M., Suetens, S. and van Ours, J.C., *forthcoming*. Labour supply effects of winning a lottery. *The Economic Journal*.

Scholnick, B., 2013. Consumption smoothing after the final mortgage payment: Testing the magnitude hypothesis. *Review of Economics and Statistics*, *95*(4), pp. 1444-1449.

Souleles, N.S., 2000. College tuition and household savings and consumption. *Journal of Public Economics*, 77(2), pp. 185-207.

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Contact Information

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Employment

since 10/2016: Senior Lecturer, Department of Economics, University of Essex.

9/2009-9/2016: Lecturer, Department of Economics, University of Essex (with tenure from 10/2011).

Publications in Refereed Journals

"The Selection of High-Skilled Emigrants" (2016, with Jens Ruhose, Fabian Waldinger and Nicolai Netz). forthcoming, *Review of Economics and Statistics*.

"Nonparametric Estimation of a Heterogeneous Demand Function under the Slutsky Inequality Restriction" (2016, with Richard Blundell and Joel Horowitz), cemmap working paper CWP54/13. forthcoming, *Review of Economics and Statistics*.

"Maternal Education, Home Environments, and the Development of Children and Adolescents" (2013, with Pedro Carneiro and Costas Meghir). *Journal of the European Economic Association*, 11(S1), 123-160, Decennial Issue, January 2013.

"Measuring the Price Responsiveness of Gasoline Demand. Economic Shape Restrictions and Nonparametric Demand Estimation" (with Richard Blundell and Joel Horowitz). *Quantitative Economics*, 2012, vol. 3 (1), pp. 29-51.

"Studying Abroad and the Effect on International Labor Market Mobility. Evidence from the Introduction of ERASMUS" (with Fabian Waldinger). *Economic Journal*, 2011, vol. 121 (551), pp. 194-222.

Research Papers

"Testing exogeneity in nonparametric instrumental variables identified by conditional quantile restrictions" (2015, with Jia-Young Michael Fu and Joel Horowitz), cemmap working paper CWP68/15, Revise-and-resubmit, *Quantitative Economics* (re-submitted).

"Measuring the Market Size for Cannabis: A New Approach Using Forensic Economics" (2016, with Imran Rasul).

"Vocational Schooling versus Apprenticeship Training. Evidence from Vacancy Data" (2016).

Work in Progress

"The Impact of a University: Evidence from Admissions Lotteries" (with David Reinstein and Nathanael Vellekoop).

"Gender wage differences among university graduates" (with Marco Francesconi).

"Demand estimation with Berkson errors" (with Richard Blundell and Joel Horowitz).

Book Chapters

"*Labor Participation and Labor Market*", with W. Clemens and H. Künemund, in: Herfurth, M., Kohli, M. and Zimmermann, K.F. (eds): Work in an Ageing Society, 2003, pp. 43-64 (in German).

Graduate Studies

University College London, Dep. of Economics, 2003-2010.
Principal Advisor: Prof. Costas Meghir.
Thesis Title: "Essays in the Economics of Education and Microeconometrics".
Thesis Examiners: Prof. Joe Altonji and Prof. Steve Machin.

Undergraduate Studies

University of Bonn (Germany), Department of Economics, grade 1.0, with Distinction, 2003 (ranked 1st out of 126 on a one-year basis).

Teaching and Research Fields

Primary fields: Labor Economics, Microeconometrics.
Secondary fields: Economics of Education.

Teaching Experience

Topics in Applied Economics (PhD), 2016.
Research strategy seminar (PhD), 2015.
Labor Economics (undergraduate), 2009-2015.
Introduction to Econometrics (undergraduate), 2009-2012.

Research Topics in Applied Economics (PhD), 2010-2011.
Microeconometrics and Econometrics for Macroeconomics and Finance (undergraduate, Teaching Fellow), 2005-2007.
Intermediate Microeconomics (undergraduate, Teaching Fellow), 2004-2005.

Departmental public service

Deputy Employability Director, 2014-2015.
Junior and Senior Hiring Committee, 2012-2013.
Study Abroad Coordinator, 2010-2013.
Deputy Study Abroad Coordinator, 2009-2010.
Careers Link Coordinator, 2010-2012.
Organizer Departmental Seminar, 2009-2010.

Other public service

Programme Committee Member: RES Conference (2010-2013), ESPE conference (2016, 2017).
Co-organizer research workshops: *Labor, Health and Education* (Mar 2013), *Semiparametric Econometrics* (Nov 2013).
External PhD examiner, University of Turin.

Research visits

University of Chicago, April 2013 (three weeks).

Refereeing

Econometrica. Review of Economic Studies. Journal of Labor Economics. Journal of Econometrics. Demography. Journal of Human Capital. Journal of Human Resources. Journal of the European Economic Association. Economic Journal. Journal of Applied Econometrics. Applied Economic Perspectives and Policy. Economic Inquiry. Economics Letters. Economics of Education Review. Education Economics. Education Finance and Policy. Educational Research. Empirical Economics. European Economic Review. European Sociological Review. Fiscal Studies. Globalisation, Societies and Education. Journal of Population Economics. Journal of the Royal Statistical Society. Labour Economics. Journal of Demographic Economics. Labour. Metroeconomica. Oxford Bulletin of Economics and Statistics. Oxford Economic Papers. Oxford Review of Economic Policy. Review of Economics of the Household. Review of Economics and Statistics. Scandinavian Journal of Economics. CESifo Economic Studies. Industrial Relations.

US National Science Foundation (NSF), National Science Centre, Poland.

2016 JEEA Excellence in Refereeing Award.

Other activities

since 1/2017	Editor, Fiscal Studies.
since 9/2009	IFS Research Associate.
since 7/2015	IZA Research Fellow.
3/2007 – 7/2015	IZA Research Affiliate.
since 11/2015	Fellow of The Higher Education Academy (HEA)
2013	Nominated for 2013 Economics Network Teaching Awards.
2007	Teaching Award: Honorable Mention (UCL, Department of Economics).
2003-2005	PhD student representative, UCL.
2002-2003	Institute for the Study of Labor (IZA), Bonn, student helper.

Scholarships

2004-2009	PhD scholarship, Institute for Fiscal Studies (IFS).
2003-2004	Scholarship of the Hamburg Foundation for International Research, in cooperation with the German National Academic Foundation.
1998-2003	Scholarship of the German National Academic Foundation (Studienstiftung des deutschen Volkes).
2000-2001	Erasmus scholarship, Universitat Autònoma de Barcelona (UAB).

Funding

Co-Investigator, ESRC research grant (PI: Rachel Griffith). "*The Economic Impacts of Post-Brexit Trade Options*". 2017-18 (approx GBP 23,000).

Team member, ESRC grant at Institute for Social and Economic Research, University of Essex (PI: Adeline Delavande). "*Inequality in Higher Education Outcomes in the UK: Subjective Expectations, Preferences, and Access to Information*". 2015-2020 (GBP 15,000).

Affiliated Researcher, *Research Centre on Micro-social Change* (MiSoC) at ISER, University of Essex (directed jointly by Mike Brewer and David Voas), 2014-2019 (GBP 44,000).

Team Member, ERC Advanced Grant, PI: Richard Blundell. "*Microeconometrics of Consumer and Labour Supply Behaviour*". 2013-2018 (GBP 86,260).

Data without Boundaries project (2013), with David Reinstein and Nathanael Vellekoop. *"The Impact of a University: Evidence from Admissions Lotteries, and Implications for Higher Education in Europe"* (since 2013).

Seminars and Conference Presentations

2016	Bergen. LSE. Essex. Collegio Carlo Alberto. Venice. German Economic Association 2016 Meeting.
2015	Essex. 12th IZA Annual Migration Meeting (AM2) and 5th Migration Topic Week (MTW), Dakar, Senegal. Duisburg.
2014	Dondena Centre, Bocconi. ZEW Family Economics Workshop, Mannheim. Essex. HU Berlin.
2013	DAGStat Statistical Meeting, Freiburg. Essex. Southampton. ERCIM conference, London. Bonn.
2012	Queen Mary. LSE. Cologne. CMPO, University of Bristol. Manchester. Essex.
2011	AEA, Denver. 3rd Annual Meeting on the Economics of Risky Behaviors, Bonn. 2nd Essex Statistics Workshop.
2010	EALE, London. ESWC, Shanghai. Alicante. Edinburgh. Sussex Centre for Migration Research. Annual Meeting German Statistical Society (DStatG), Nuremburg. Shape restrictions conference, Northwestern University. Economic Risk Seminar, Berlin.
2009	Warwick. Toronto. Aarhus. Bonn. Budapest. Copenhagen. Essex. IZA, Bonn. UC Louvain. UAB. UPF. IEW, Zurich. Duisburg-Essen. ZEW, Mannheim. Freiburg. CEMFI. RES Conference, Surrey. Uppsala. Leipniz Labor Seminar, Berlin. KOF, Zurich. Tinbergen Institute, Amsterdam. Oxford. Bocconi.
2008	Geary Institute, Dublin. UCL, London. PhD Brownbag Seminar, LBS, London. Cologne, Alicante.
2007	EEA Meeting, Budapest. CESifo Summer Institute, Venice. ISER, University of Essex. IZA Summer School.
2006	Arne Ryde Symposium, Lund. ESEM, Vienna. UCL, London; COST Conference, London; RES Conference, Nottingham; ENTER Network Conference, Stockholm.
2005	UCL, London.

Nathanael Vellekoop

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Germany

Current position

2013–present	Assistant professor for Household Finance (W1) Department of Money and Macroeconomics, Goethe University
2013–present	Junior Research Fellow SAFE and Netspar

Research Visits

2016 January–March	Visiting Scholar, Center for Equitable Growth, UC Berkeley
2015 March	Visiting Scholar, Federal Reserve Bank of San Francisco
2011 January–May	Visiting PhD student, Center for Labor Economics, UC Berkeley

Education

2013	PhD in Economics, Tilburg University Advisor: Prof. Peter Kooreman Thesis: *Essays on Household Saving, Religion and Pay Frequency*
2005	MSc Economic Policy, Erasmus University Rotterdam
2005	LLm Law and Economics, Erasmus Mundus Program at Erasmus University Rotterdam, Universities of Bologna and Haifa
2003	BSc Economics, Erasmus University Rotterdam

Research and Teaching Fields

Primary	Household finance, Labor economics
Secondary	Applied microeconomics, Behavioral economics

Publication

2013	Risk Aversion and Religion, with Charles Noussair, Stefan Trautmann, and Gijs van de Kuilen, *Journal of Risk and Uncertainty*, vol. 47(2) pp. 165–183.

Working Papers

2016	*The impact of long-run macroeconomic experiences on personality*, SAFE working paper no. 142.
2013	*Explaining intra-monthly consumption patterns: The timing of income or the timing of consumption commitments?*, with Giovanni Mastrobuoni (Essex) and Matthew Weinberg (Drexel).
2013	*Framing effects in an employee savings scheme: A non-parametric analysis*, with Peter Kooreman, Bertrand Melenberg and Henriëtte Prast (all Tilburg).
2013	*Goal setting and gym attendance: A field experiment*, with Peter Kooreman and Henriëtte Prast (both Tilburg).

Work-in-Progress

- Inflation expectations and choices of households: Evidence from matched survey and administrative data, with Mirko Wiederholt (Goethe University Frankfurt)
- Personality traits and consumption, with Olga Goldfayn (Goethe University Frankfurt)
- Labeling and default effects in an employee savings plan: Evidence from administrative data, with Henriëtte Prast (Tilburg)
- The impact of a university: Evidence from admissions lotteries, with Matthias Parey (Essex) and David Reinstein (Exeter)

Teaching Goethe University

2014–2017	Applied Econometrics: Limited Dependent Variables (graduate)
2014–2017	Economics of Labor Market Institutions (undergraduate)
2013–2014, 2016	Animal Spirits and Behavioral Economics (graduate)
2015	Seminar Household Finance (graduate)
2015–2017	Member PhD committees of Michael Heath, Tobias Waldenmaier, Kathi Schlepper, Nguyen-Khang Do, Sonia Zaharia, Edouard Dubin, and Spyros Palligkinis (scheduled)
2013–2017	Completed supervision of 8 Master theses and 14 Bachelor theses

Grants

2017	SAFE PI: Inflation expectations and household savings
2016	SAFE PI: How do households learn to use a new financial product?
2015	SAFE PI: Bonus income and household savings
2013	Data without Boundaries PI: Bonus income and household savings

Conference and Seminar Presentations

2016	Ohio State, UC Berkeley (Public finance), University of Luxembourg, MEA Munich INET workshop, Research in behavioral finance conference, SAFE household finance workshop, 11th Nordic conference on behavioral and experimental economics
2015	UC Santa Cruz, Federal Reserve Bank of San Francisco, Chapman University, University of Southern California, UC Santa Barbara, Copenhagen Business School
2014	UC Berkeley (2x: Labor lunch and Environment and Resource Economics seminar), Cal State East Bay, Maastricht NIBS Nottingham
2013	Goethe University Frankfurt
2009–2012	UC Berkeley (labor lunch), Tilburg, University of Amsterdam Netspar international conference, 4th Alhambra Experimental workshop, Iarep/Sabe conference Halifax, 4th Nordic conference on behavioral and experimental economics, Tiber conference XI, MESS workshop

Refereeing

Journal of Financial Stability, JEBO, JITE, Journal of Pension Economics and Finance, Journal of Socio-Economics, JBEE (2x), Review of Economics of the Household, Social Indicators

Other Work Experience

2012–2013	Statistical Researcher at Statistics Netherlands, Den Haag.
2006–2007	Researcher at *AS*tri Policy Research and Consulting, Leiden.
2005–2006	Editor Economisch Statistische Berichten at SDU, Den Haag.

References are available upon request.