EUROPEAN CENTRAL BANK

EUROSYSTEM

Monetary Policy Transmission to Consumer Financial Stress and Durable Consumption

Dimitris Georgarakos
European Central Bank

Konstantinos Tatsiramos
University of Luxembourg, LISER and IZA

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Motivation

- Recent public debate: "*low interest rates hurt savers*" (Google search: 1 million results)

- Cœuré (2016) "But people **are not just savers** – they are also employees, taxpayers and borrowers, as such benefiting from the low level of interest rates."

- Different **consumer groups** are **heterogeneously exposed** to changes in **MP**

- To assess effectiveness of MP important to **measure its effects** on consumer **perceptions** and **decisions**

- Consumer perceptions (e.g. about own financial situation) are often monitored as they are likely to signal aggregate consumption dynamics

- Little attention has been paid to **the effect of MP interventions on consumer perceived financial stress** and whether this **maps into spending**

Aim

- Identify the **causal effect of MP on self-reported financial stress** (*perception*) and **household spending** (*decision*)

- Focus on the **heterogeneous effects** of MP across population sub-groups that differ in key dimensions (mortgagors, renters, savers)

- Examine the extent to which these effects also map into **household spending**

Empirical challenge

- Identify the effect of changes in interest rates, while taking into account:

- a) fluctuations in **various macroeconomic** factors

- b) **household-specific unobserved** factors that induce self-selection into groups that are heterogeneously affected by MP (e.g. mortgagors vs. outright owners and renters; savers vs. non-savers)

Data

- British Household Panel Survey (**BHPS**): nationally representative panel survey conducted annually;1991 - 2008 (**18 waves**); unbalanced panel of households aged 20 - 70

- **Day of interview** is known

- **BoE policy rate** on the day of the interview

- **Self-reported financial stress**: *"Worse financial situation now compared to a year ago"* (24%)

- **Durable purchase**: at least one out of a list of seven durable items (TV, PC, washing machine, dish washer, microwave, VCR, CD player) purchased since September of the previous interview year (40%)

Data (cont.)

- Housing status:
  - **Outright owners** (22%)
  - **Mortgagors** (54%); mostly ARMs
  - **Renters** (24%)

- Saving status: "*Do you save any amount of your income for example by putting something away now and then in a bank, building society, or Post Office account other than to meet regular bills?*"

  - **Savers** (42%); **Non-savers** (58%): role of '**Hand-to-mouth**' (Kaplan and Violante, 2014)
    - About 51% of mortgagors and 74% of renters are HTM

BoE policy rate over the sample period
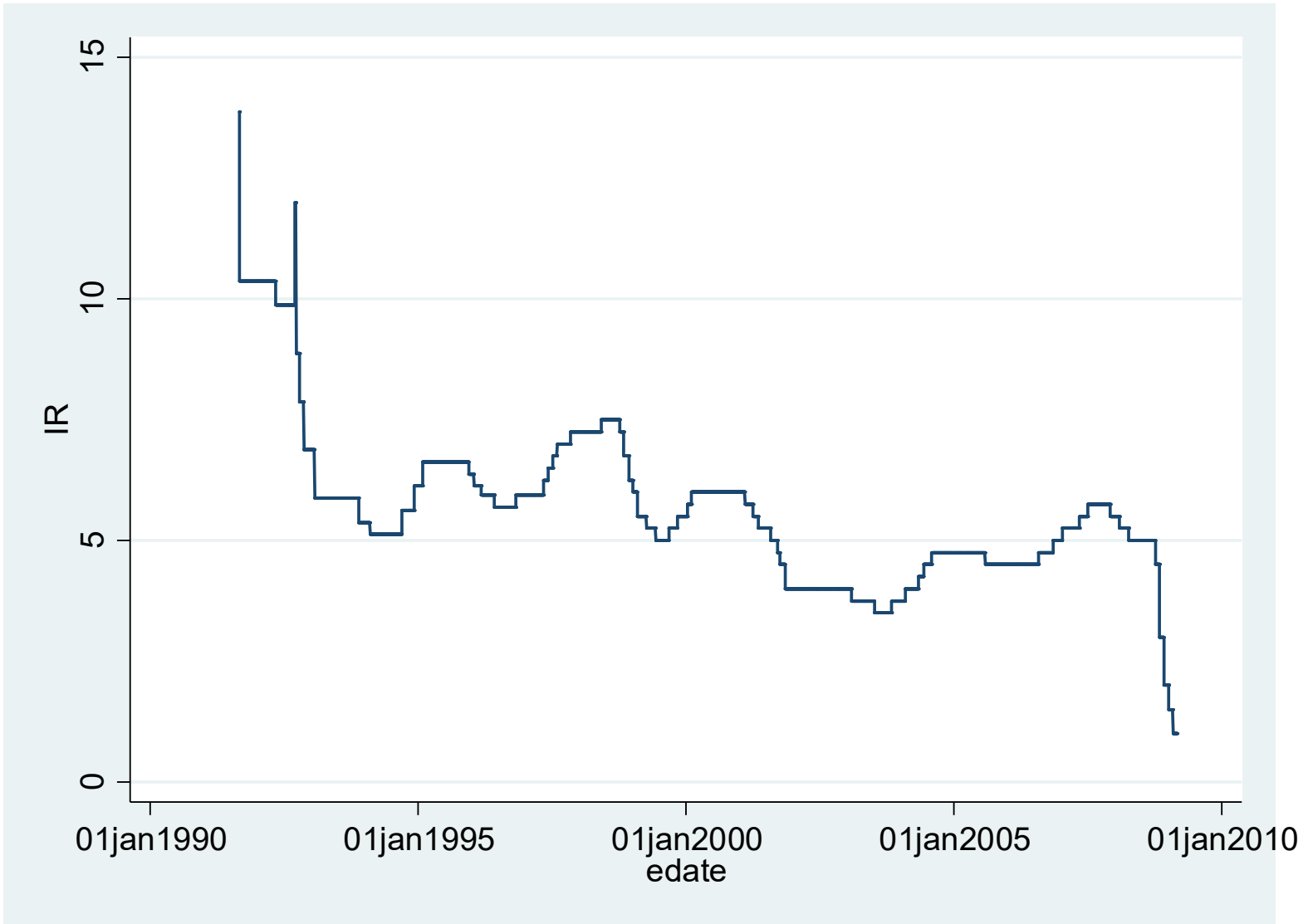
Identification strategy

- Exploit the fact that households are **interviewed in different days within months across consecutive years.** This generates exogenous variation in the *exposure* to MP

- Account for **all unobserved time-varying by month-year-of-interview aggregate factors** which may correlate both with the policy rate and the outcome of interest

- Also account for **individual fixed effects** by observing the same households over multiple years

- Estimate a **two-way FE** model that takes into account both macro time-varying factors and household unobservables

- Identify heterogeneous effects of interest rates through their **interactions** with their housing and saving status

Financial stress: modelling

- $Y_{h,t,d} = \beta_1 \overline{IR}_{h,t,d} + \beta_2 Mortgage_{h,t,d} + \beta_3 Rent_{h,t,d} + \beta_4 Save_{h,t,d} + \beta_5 (Mortgage * \overline{IR})_{h,t,d} + \beta_6 (Rent * \overline{IR})_{h,t,d} + \beta_7 (Save * \overline{IR})_{h,t,d} + \beta_8 X_{h,t,d} + \alpha_h + \varphi_{t,m} + \varepsilon_{h,t,d}$

- $Y_{h,t,d}$: =1 if worse financial situation today compared to last year and 0 otherwise (same or better)

- $\overline{IR}_{h,t,d}$ *interest rate exposure*

- $\varphi_{t,m}$: month-year-of-interview FEs

- α_h : household FEs

- $X_{h,t,d}$: education; marital status; number of children; employment status; household income

- Standard errors: two-way clustering to allow for cross sectional and serial correlation dependence in the error term

Interest rate exposure

- Every household in the sample is assigned the BoE policy rate, averaged over the duration in days between the two points in time

- $\overline{IR}_{h,t,d} = \sum_{j=d_0,t-1}^{h,t,d} IR_j$

- d is the current interview day; d_0 is the first day of the month one year ago

VARIABLES	(1) Financial Stress	(2) Financial Stress	(3) Financial Stress	(4) Financial Stress
IR	0.00330	0.0414	0.0181	0.0164
	(0.117)	(0.115)	(0.116)	(0.116)
mortgage_IR	0.00977**		0.00897**	0.0137***
	(0.00392)		(0.00385)	(0.00450)
mortgage_save_IR				-0.00956**
				(0.00436)
rent_IR	0.0205***		0.0162***	0.0205***
	(0.00312)		(0.00297)	(0.00349)
rent_save_IR				-0.00952
				(0.00618)
save_IR		-0.0141***	-0.0130***	-0.00513
		(0.00200)	(0.00205)	(0.00429)
Observations	89,145	90,334	88,093	88,093
Individual Controls	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes
Regional Controls	Yes	Yes	Yes	Yes

Financial stress: implied effects

- 1 p.p. increase in IR *increases* financial stress of **mortgagors** by 0.9 p.p. or 4%

- 1 p.p. increase in IR *increases* financial stress of **renters** by 1.6 p.p. or 7%

- 1 p.p. increase in IR *decreases* financial stress of **savers** by 1.3 p.p. or 5%

Financial stress: HTM vs. non-HTM

- Allow for housing tenure effects to **differ between HTM** (non-savers) and **non-HTM** (savers)

- **Mortgagors**: an increase in IR induces financial stress to HTM mortgagors; this effect is almost counteracted for non-HTM mortgagors

- **Renters**: an increase in IR induces roughly similar financial stress to HTM and non-HMT renters

Financial stress: robustness

- Baseline results are resilient to the inclusion of additional interaction terms of the groups of mortgagors, renters and savers with macro variables:

    – CPI

    – Oil prices

    – FTSE index

    – Unemployment rates

Modelling: Durable consumption

- $Y_{h,t,d} = \beta_1 \overline{IR}_{h,t,d} + \beta_2 Mortgage_{i,t,d} + \beta_3 Rent_{h,t,d} + \beta_4 Save_{h,t,d} + \beta_5 (Mortgage * \overline{IR})_{h,t,d} + \beta_6 (Rent * \overline{IR})_{h,t,d} + \beta_7 (Save * \overline{IR})_{h,t,d} + \beta_8 X_{h,t,d} + \alpha_h + \varphi_{t,m} + \omega_{h,t,d}$

- BHPS asks from every household to indicate durable purchases during the time elapsed between the interview date and September 1st of the previous interview year

- Variation in interview dates generates random variation in every household's exposure to interest rates

- Every household in the sample is assigned the BoE policy rate, averaged over the duration in days between the two points in time

$$\overline{IR}_{h,t,d} = \frac{1}{D} \sum_{j=d,t-1}^{h,t,d} IR_j$$

Durable consumption: heterogeneous effects of interest rate

VARIABLES	(1) Durables	(2) Durables	(3) Durables	(4) Durables
IR	-0.0209	-0.0495	-0.0236	-0.0198
	(0.131)	(0.128)	(0.135)	(0.135)
mortgage_IR	-0.00713***		-0.00668***	-0.0131***
	(0.00239)		(0.00249)	(0.00411)
mortgage_save_IR				0.0130**
				(0.00601)
rent_IR	-0.00191		-0.00102	-0.00356
	(0.00398)		(0.00392)	(0.00635)
rent_save_IR				0.00215
				(0.00766)
saving_IR		0.00103	0.00159	-0.00681
		(0.00223)	(0.00194)	(0.00455)
Observations	89,476	90,445	88,362	88,362
Individual Controls	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes
Month-Year FE	Yes	Yes	Yes	Yes
Regional Controls	Yes	Yes	Yes	Yes

Durable consumption: HTM vs. non-HTM

- Allow for housing tenure effects to **differ between HTM** (non-savers) and **non-HTM** (savers)

- **Mortgagors**: an increase in IR reduces spending of HTM mortgagors; this effect is counteracted for non-HTM mortgagors

  - 1 p.p. increase in IR *decreases* spending of **HTM mortgagors** by 1.3 p.p. or 3.25%

  - Symmetry with self-reported financial stress

  - Highlights the importance of (tighter) liquidity constraints

- **Renters**: no effects by HTM status

  - Investigate further by distinguishing *young* (i.e. prospective home buyers) and *old* renters

Financial stress and durable consumption: young vs. old renters

VARIABLES	(1) Sentiment	(2) Durables
IR	0.0161	-0.0277
	(0.115)	(0.135)
mortgage_IR	0.0136***	-0.0138***
	(0.00455)	(0.00411)
mortgage_save_IR	-0.00957**	0.0130**
	(0.00436)	(0.00601)
rent_below35_IR	0.0212***	-0.0135*
	(0.00529)	(0.00706)
rent_below35_save_IR	-0.0126	0.00867
	(0.00767)	(0.0116)
rent_above35_IR	0.0202***	0.00223
	(0.00350)	(0.00638)
rent_above35_save_IR	-0.00698	-0.00179
	(0.00693)	(0.00620)
Observations	88,093	88,362
Individual Controls	Yes	Yes
Individual FE	Yes	Yes
Month-Year FE	Yes	Yes
Regional Controls	Yes	Yes

Financial stress and durable consumption: young vs. old renters

- Effects on financial stress and durable spending mainly for **young renters**: an increase in IR makes it more difficult for prospective homebuyers to take up a mortgage and service it

- No role of HTM status among young renters: an increase in IR does not make the currently faced liquidity constraint tighter

Summary of findings

- An increase in IR:

  – *Induces financial stress* to **mortgagors**/ **renters**

  – *Lessens* financial stress of **savers**

  – '**Hand-to-mouth**' mortgagors *more financially stressed* than their counterparts with access to liquidity.

- Effects map into **durable consumption**:

  – HTM mortgagors vs. non-HTM mortgagors

  – Young (HTM and non-HTM) renters vs. old renters

Main takeaways

- Examine **directly** the impact of interest rates on the **micro level**:

  – **No need to use aggregated groups** (e.g. Cloyne, Ferreira, Suricco, 2018)

  – Take into account individual **unobserved heterogeneity** and **selection** into borrowing, saving

- Estimate the **heterogeneous effects** of policy rate changes on self-reported **financial stress** and **durable consumption** of mortgagors, renters and savers

  – Importance of **access to liquid assets** for tenure groups

- MP interventions impact perceptions of different household groups

- An increase in IR reduces spending of HTM mortgagors and young renters

Thank you!