

HOUSEHOLD EXPENDITURE & PROPERTY TAXES

Evidence from a Fiscal Consolidation Plan

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Disclaimer

**The views expressed in this paper are those
of the authors and do not necessarily reflect those
of the Board of Governors or the Federal Reserve System.**

Research questions

- **Can property taxes be an effective tool of fiscal consolidation?**
- **How does household expenditure respond to a property tax?**
- **Is the cost of the adjustment disproportionately born by some?**

Our approach

- We consider the 2011 Italian “IMU” property tax reform.
- Relies on Survey on Household Income and Wealth (SHIW).
- Exploits **appositely added questions on IMU tax paid** in 2012.
- Associates changes in household expenditure with IMU paid.
- Controls for demographics, property characteristics and **expectations** on income and house prices.
- Explores heterogeneity across household balance sheet positions.

Results: 5 main regularities

- 1 MPC on non-durable goods **0.03**, MPS on durables **0.47**.
- 2 Pervasive heterogeneity across residential properties taxes:
 - Large and significant MPS on main dwelling taxes.
 - Small and insignificant MPS on other residential property taxes.
- 3 Response far more pronounced for mortgagors and LLW. Tobin
- 4 Mortgagors cut vehicles expenditure while non-debtors cut savings.
- 5 In aggregate: 0.15% decline in GDP (against 0.90% tax increase).

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Literature review

- 1 **(Income) tax rebate:** Johnson, Parker and Souleles (2006), Parker et al. (2013), Agarwal and Qian (2015), Misra and Surico (2014).
- 2 **Austerity using national statistics:** Guajardo et al. (2014), Alesina et al. (2015), Born et al. (2015).
- 3 **(Mortgage) debt:** Eggertsson and Krugman (2012), Kaplan and Violante (2014), Ragot (2014), Andres et al. (2012).
- 4 **Wealth effects of house prices:** Campbell et al. (2007), Attanasio et al. (2011), Mian and Sufi (2014), Paiella and Pistaferri (2014).

- 1 The IMU tax reform
- 2 Dataset
- 3 Identification
- 4 Results
- 5 Aggregate impact and policy implications

Characteristics of the new property tax regime

- Tax base: set by the central government.
 - Registry value of the main dwelling included in tax base.
 - **REGISTRY VALUE** for all properties rescaled by an exogenous factor.
- Tax rates: set independently by municipal governments.
 - Main (Other) dwelling: 0.2 to 0.6 (0.46 to 1.06) percent. **Heat Map**
 - Tax rates reflect **LOCAL POLITICAL BIASES** and not economic activity.
- Announced by the central government as a temporary experiment.

Size of the intervention

- **AVERAGE PAYMENT** on main (other) dwelling: 357 (905) Euros.
- Increase in tax revenues (14.1bn Euros, 1/4 from IMU main):
 - **0.90 % of GDP.**
 - **1.80%** of government total revenues.
 - **24%** of (2011) fiscal deficit.
 - **71%** of (2011) primary fiscal balance.
- Comparison with a 1% VAT change: 0.25% of GDP (upper bound!).

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The Italian “Survey of Household Income and Wealth”

- Bi-yearly “SHIW” survey (Bank of Italy).
 - Covers around 8,000 households per wave.
 - Questions also on demographics, consumption and **IMU paid**.
- Complementary datasets include ISTAT (VAT), Night lights density data (NASA), Mol and MoEF (municipal budgets and personal income data), National Car Association (ACI).

Descriptive statistics

- **SHARE OF HOME-OWNERS**: 71.5 (13.7% of which mortgagors).
- Median household wealth: 270k Euros (65% of which in real assets).
- Relative to home owners, mortgagors are:
 - younger.
 - have higher income.
 - higher real estate values.
 - and lower liquid wealth.

Mortgagors seem to fit the characteristics of 'wealthy-hand-to-mouth'.

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The law and our strategy

$$IMU_{main} = (\text{Registry Value}) \cdot (\text{Municipal IMU}_{main} \text{ rate}) - \text{Deductions}$$

OBSERVED IN THE SHIW:

- Registry value determined by property characteristics.
- Deductions based on number of children.

NOT OBSERVED IN THE SHIW:

- Municipality identifier.

Empirical model

$$\Delta C_i = \alpha + \gamma_1 \cdot IMU_{main_i} + \gamma_2 \cdot IMU_{other_i} + \delta \cdot \Delta HP_i + \theta \mathbf{X}_i + \varepsilon_i$$

where:

- ΔC_i : change in household expenditure.
- IMU_{main} (*other*): IMU paid on main (*other*) dwelling.
- ΔHP_i : change in self-reported house value.
- \mathbf{X}_i includes: (i) demographics, (ii) home characteristics, (iii) household expectations (on income and house price).

Confounding factors and placebo test

- **CONFOUNDING FACTORS** that may potentially distort inference:
 - Other non-IMU austerity measures.
 - Pension (“Fornero”) reform.
 - Changes in self-reported house value.
 - “Super-cars” tax (“Super bollo auto”).
 - **VAT INCREASE** (from 20 to 21 percent).
- **PLACEBO**: on the 2008-2010 sample, when no IMU change occurred.

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Baseline

	Full sample		Home owners	
	Non-durables	Durables	Non-durables	Durables
IMU main	-0.02 [0.67]	-0.48** [0.22]	-0.03 [0.67]	-0.47** [0.22]
IMU other	-0.03 [0.43]	-0.02 [0.11]	-0.05 [0.43]	0.01 [0.12]
Δ HP ('000 €)	9.99*** [0.98]	0.20 [0.45]	10.02*** [1.02]	0.33 [0.47]
Observations	4,013	4,013	3,132	3,132
R^2	0.17	0.02	0.19	0.02

Robust standard errors clustered by regions, *** significant 1% level, **at 5% * at 10%.

Role of liquid wealth

	Home owners LLW		Home owners HLW	
	Non-durables	Durables	No-durables	Durables
IMU main	0.06 [0.88]	-1.00** [0.42]	-0.04 [1.00]	-0.28 [0.33]
IMU other	0.25 [1.75]	0.39 [0.57]	-0.08 [0.51]	-0.04 [0.12]
Δ HP ('000 €)	13.68*** [2.56]	-0.24 [0.92]	9.30*** [1.23]	0.54 [0.55]
Observations	1,054	1,054	2,078	2,078
R^2	0.21	0.06	0.20	0.04

Robust standard errors clustered by regions, *** significant 1% level, ** at 5% * at 10%.

LLW Figure

Role of mortgage debt

	Non-mortgagors		Mortgagors	
	Non-durables	Durables	Non-durables	Durables
IMU main	-0.09 [0.74]	-0.09 [0.23]	0.03 [2.46]	-2.68** [0.99]
IMU other	-0.06 [0.46]	0.05 [0.10]	0.10 [0.86]	-0.58 [1.19]
Δ HP ('000 €)	9.84*** [1.15]	0.24 [0.47]	11.02** [4.37]	-0.40 [1.65]
Observations	3,582	3,582	431	431
R^2	0.17	0.02	0.32	0.12

Robust standard errors clustered by regions, *** significant 1% level, **at 5% * at 10%.

Debt service ratio

Anecdotal evidence

**NUOVA MINI 5 PORTE.
PRENDI E PORTE A CASA.**



**TUA A 150 € AL MESE CON PACCHETTO DI MANUTENZIONE E 2 ANNI DI ASSICURAZIONE
INCENDIO E FURTO IN OMAGGIO, TAN FISSO 5,99% TAEG 8,08%*.
E FINO AL 30 GIUGNO PUÒ ESSERE TUA ANCHE CON LA RADIO VISUAL BOOST IN OMAGGIO. X**

The response of savings

	Non-mortgagors	Mortgagors
IMU main	-1.73** [0.74]	0.89 [1.63]
IMU other	-0.42 [0.33]	-1.76* [1.00]
Δ HP ('000 €)	0.59 [1.53]	-0.65 [5.14]
Observations	3,582	431
R^2	0.03	0.09

Robust standard errors clustered by regions, *** significant 1% level, ** at 5% * at 10%.

Further results: spending categories

	Full sample		Home owners	
	Non-vehicles	Vehicles	Non-vehicles	Vehicles
IMU main	0.08 [0.14]	-0.56** [0.21]	0.10 [0.14]	-0.57** [0.22]
IMU other	-0.03 [0.07]	0.01 [0.10]	-0.03 [0.07]	0.04 [0.10]
Δ HP ('000 €)	0.49* [0.27]	-0.29 [0.33]	0.49* [0.27]	-0.16 [0.34]
Observations	4,013	4,013	3,132	3,132
R^2	0.02	0.02	0.03	0.02

Robust standard errors clustered by regions, *** significant 1% level, ** at 5% * at 10%.

Figure

Debtors/Mortgagors

Robustness checks and further results

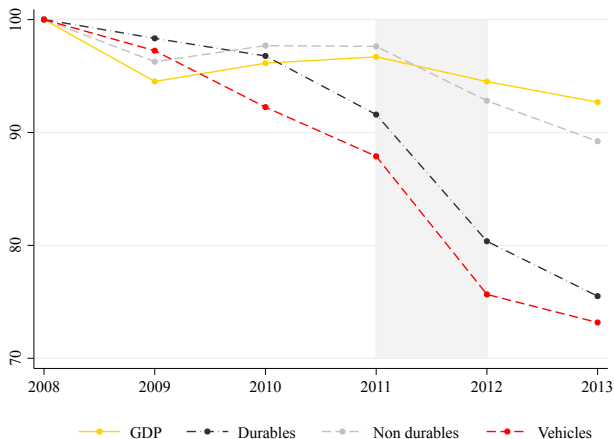
- Interaction terms. [Table](#)
- Age groups. [Table](#)
- Income groups. [Table](#)
- Measurement errors. [Table](#)
- Monthly car sales. [Figure](#)

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Conclusions

- Heterogeneous effects of property tax:
 - Tax on main dwelling: small revenues and large expenditure cuts.
 - Other dwellings: large revenues BUT insignificant expenditure cuts.
- Response driven by mortgagors. Non-mortgagors cut savings.
- In aggregate : **-0.15%** of GDP vs. **+0.90%** of GDP in raised taxes.
- Large negative effects on car industry (10% of 2011 market).

Evolution over time of key macro variables



Source: National Institute of Statistics (ISTAT)

Policy implications

- ① Housing taxes can potentially generate large government revenues without highly recessionary effects.
- ② Shift to taxes on NET housing wealth (i.e. Switzerland) → make outstanding mortgage deductible (for owner-occupiers)!

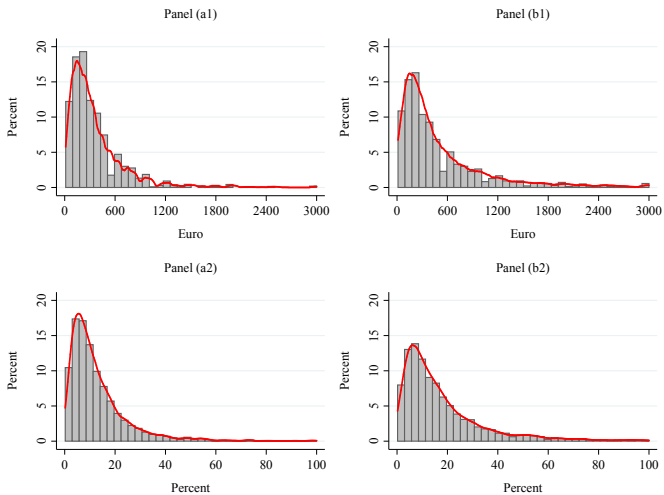
Thank you

Full disclosure

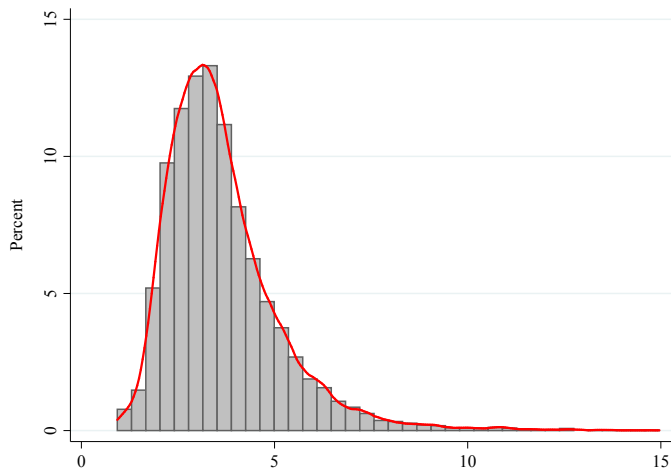
Both coauthors of this paper are about to apply for a mortgage!

Thank you

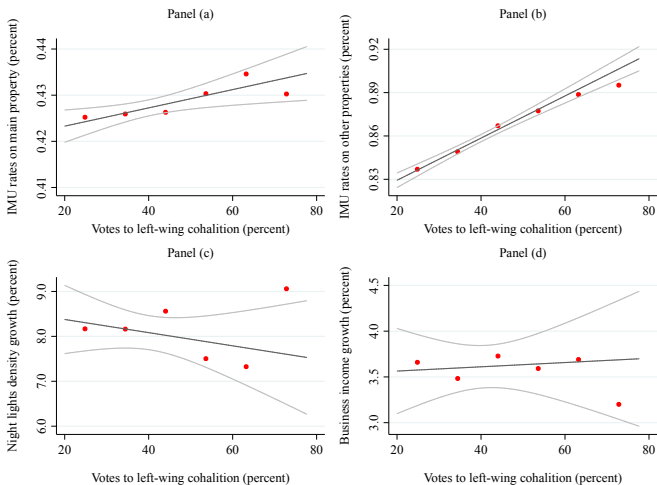
Tax burden: IMUmain - IMUtotal



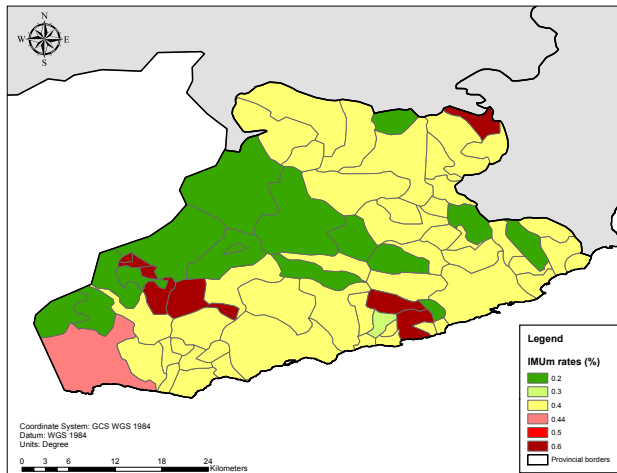
Ratio market value to registry values



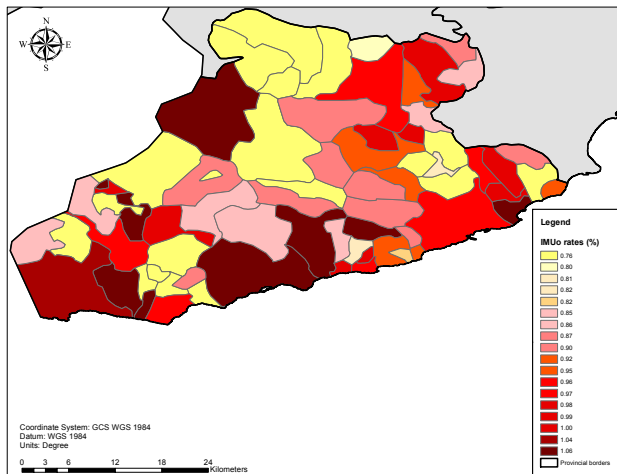
Ideology - local business cycles



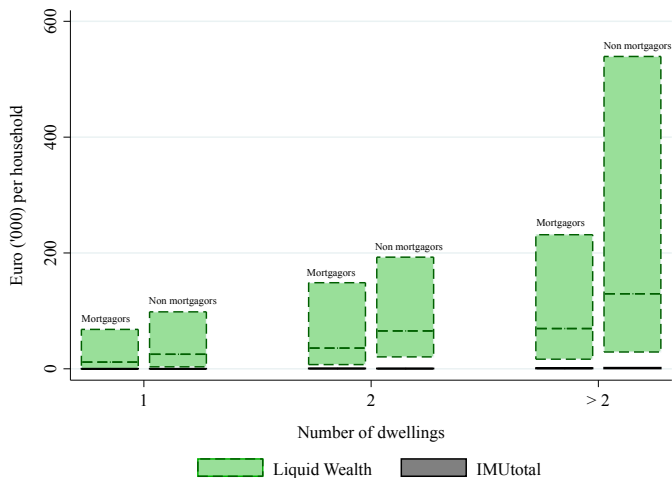
Heat map - IMUmain rates



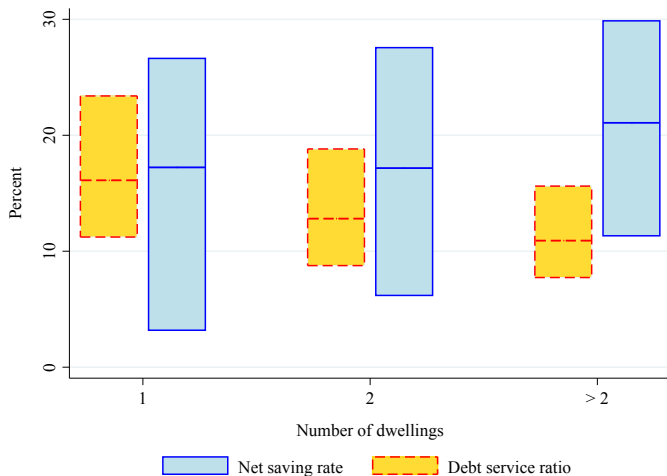
Heat map - IMUother rates



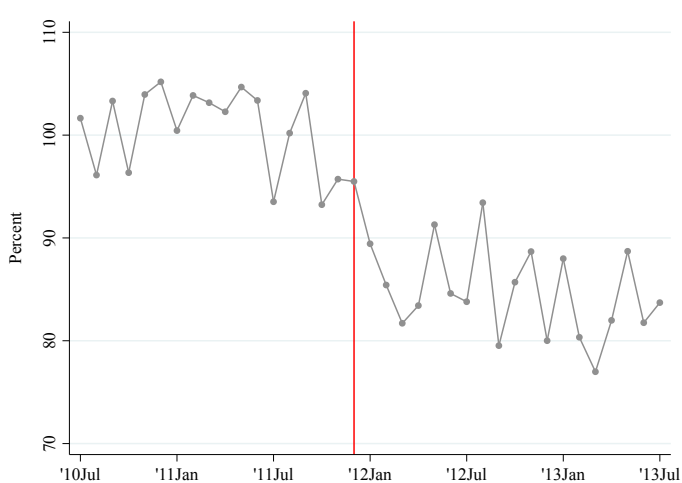
Distribution of liquid wealth by # properties



Net saving rates and debt ratio by # properties



Monthly cars sales: timing

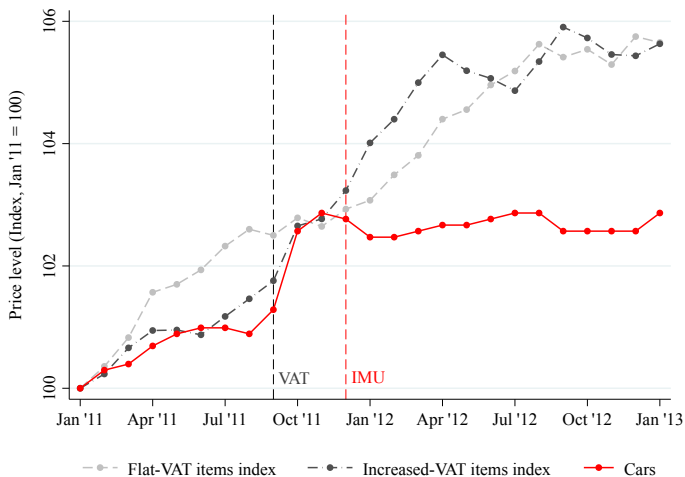


Confounding factors

	<u>Austerity no IMU</u>	<u>Transfers</u>	<u>ΔW</u>	<u>Supercar</u>	<u>VAT</u>
IMU main	0.02 [0.01]	0.53 [0.99]	0.02 [0.02]	0.01 [0.01]	-0.10 [0.39]
IMU other	0.00 [0.02]	0.18 [0.39]	0.01 [0.00]	-0.01 [0.01]	-0.06 [0.27]
Observations	4,013	4,013	4,013	4,013	4,013
R^2	0.26	0.02	0.21	0.03	0.11

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Confounding factors - VAT



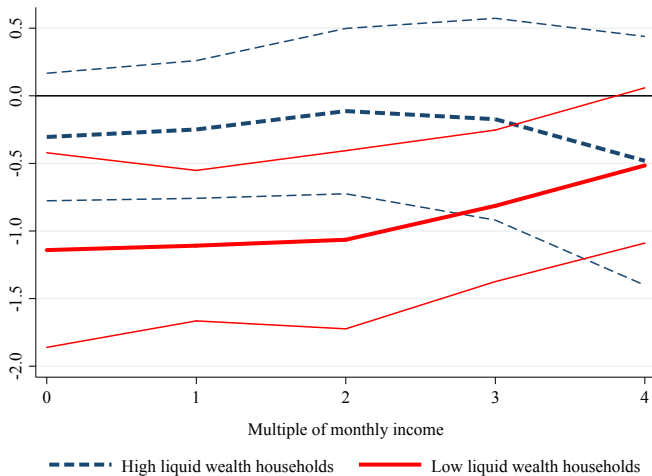
Placebo

	Full sample		Home owners	
	Non durables	Durables	Non durables	Durables
IMU main	0.02 [0.85]	0.29 [0.52]	0.11 [0.90]	0.22 [0.53]
IMU other	0.02 [0.19]	-0.10 [0.09]	-0.01 [0.21]	-0.10 [0.09]
Δ HP ('000 €)	9.25*** [1.74]	0.68 [0.70]	9.17*** [1.77]	0.73 [0.67]
Observations	2,488	2,488	2,426	2,426
R^2	0.14	0.02	0.15	0.02

Robust standard errors clustered by regions, *** significant 1% level, **at 5% * at 10%.

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Low versus high liquid wealth



Interaction terms

	LLW	Debtors	Mortgagors
IMU main	-0.25 [0.31]	-0.05 [0.29]	-0.21 [0.24]
IMU other	-0.05 [0.12]	0.04 [0.10]	0.02 [0.10]
IMU main + inter	-1.08*** [0.36]	-2.58*** [0.68]	-2.67*** [0.69]
IMU other + inter	0.23 [0.27]	0.08 [0.41]	-0.39 [0.82]
Δ HP ('000 €)	0.23 [0.47]	0.26 [0.47]	0.25 [0.48]
Observations	4,013	4,013	4,013
R^2	0.02	0.02	0.02

Robust standard errors clustered by regions, *** significant 1% level, ** at 5% * at 10%. [Back](#)

Age groups

	Younger cohorts		Older cohorts	
	Non durables	Durables	Non durables	Durables
IMU main	0.58 [0.99]	-1.43** [0.67]	-0.24 [0.80]	-0.19 [0.28]
IMU other	-0.47 [0.73]	0.68 [0.42]	0.01 [0.58]	-0.06 [0.10]
Δ HP ('000 €)	10.55*** [2.20]	0.65 [1.18]	9.89*** [1.41]	0.24 [0.41]
Observations	801	801	2,331	2,331
R^2	0.25	0.06	0.19	0.03

Robust standard errors clustered by regions, *** significant 1% level, **at 5% * at 10%.

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Income groups

	Lower income		Higher income	
	Non durables	Durables	Non durables	Durables
IMU main	0.53	-0.36	-0.17	-0.52*
	[1.58]	[0.67]	[0.71]	[0.26]
IMU other	-0.93	0.15	-0.02	-0.02
	[1.16]	[0.40]	[0.45]	[0.11]
Δ HP ('000 €)	13.84***	-0.55	9.77***	0.32
	[2.91]	[0.97]	[0.98]	[0.48]
Observations	499	499	2,633	2,633
R^2	0.34	0.11	0.18	0.02

Robust standard errors clustered by regions, *** significant 1% level, **at 5% * at 10%.

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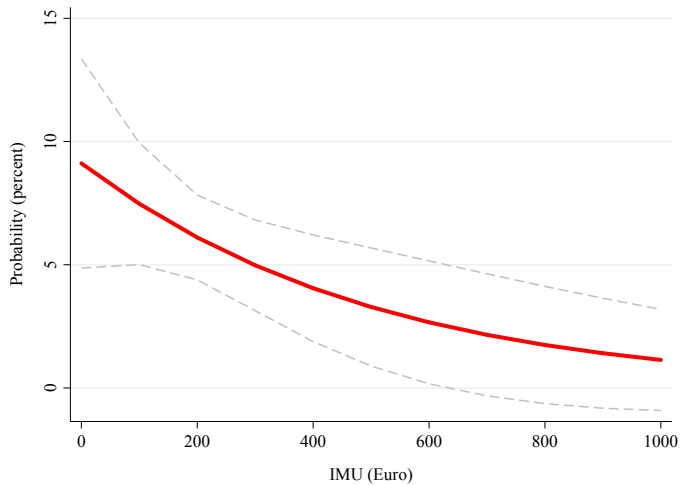
Probit

	Debtors		Mortgagors	
	Non vehicles	Vehicles	Non vehicles	Vehicles
IMU main	0.06 [0.25]	-1.01*** [0.35]	0.10 [0.35]	-1.06** [0.54]
IMU other	-0.09 [0.07]	-0.03 [0.11]	0.02 [0.11]	0.21 [0.18]
Δ HP ('000 €)	-0.01 [0.01]	-0.01 [0.01]	-0.01 [0.01]	-0.01 [0.01]
Observations	892	892	431	431
Area under ROC	0.66	0.82	0.71	0.80

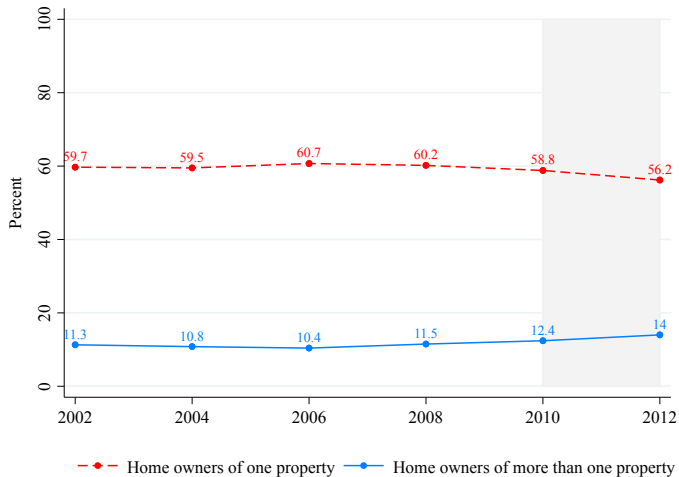
Robust standard errors clustered by regions, *** significant 1% level, ** at 5% * at 10%.

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[Marginal](#)

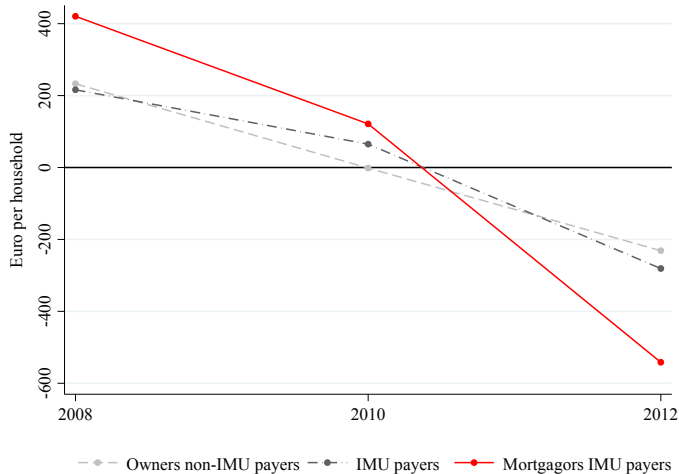
IMU marginal



Share of home owners



Spending on vehicles across type of households



Further results: spending categories

	Debtors		Mortgagors	
	Non vehicles	Vehicles	Non vehicles	Vehicles
IMU main	-0.80* [0.45]	-2.17*** [0.56]	-0.94 [0.93]	-1.74* [0.91]
IMU other	-0.07 [0.18]	-0.01 [0.39]	-0.30 [0.47]	-0.29 [0.93]
Δ HP ('000 €)	0.89 [0.81]	-0.98 [0.91]	1.86 [1.39]	-2.26** [1.04]
Observations	892	892	431	431
R^2	0.05	0.07	0.09	0.12

Robust standard errors clustered by regions, *** significant 1% level, ** at 5% * at 10%.

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Tobin's conjecture

“Household debtors are frequently young families acquiring homes and furnishing before they earn incomes to pay for them outright; given the difficulty of borrowing against future wages, they are liquidity-constrained and have a high marginal propensity to consume”

(James Tobin, 1980, 'Asset Accumulation and Economic Activity', [p.7](#))