The interest rate exposure of euro area households

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[1] The findings reported in this paper represent the author's views and do not necessarily represent the views of the Deutsche Bundesbank or of the European System of Central Banks.

Motivation

- Interest rate fluctuations have direct distributional consequences
- Low interest rates in the euro area are said to hurt savers
- An interest rate rise will hurt borrowers
- Inequality and distributional consequences of monetary policy a topical theme, also among central bankers, Mersch(17.10.2014), Draghi (25.10.2016), Constanzio (22.8.2017)
- How are the interest gains/losses after a change in the interest rate distributed across HHs in the euro area

The Unhedged Interest Rate Exposure (URE)

- Unhedged Interest Rate Exposure ('URE', Auclert, 2017): maturing assets- maturing liabilities (including income- consumption)
  - Allows us to estimate direct gains and losses after a change in the interest rate
  - Households with positive URE are hurt from lower real interest rates Households with negative URE benefit from lower interest rates
- The interest rate exposure channel likely to be the most important kind or redistribution created by monetary policy in modern regimes with stable inflation (Auclert, 2017)
- URE: besides allowing us to estimate redistributional effects: to the extent households have different MPCs, URE necessary estimate response of aggregate consumption to monetary policy (Auclert, 2017)

Related literature:distributional consequences of monetary policy

Coibion et al (2017), Gornemann, Kuester and Nakajima(2016)

Albanesi(2007), Doepke and Schneider (2006), Meh and Terajima(2008) Adam and Zhu(2016)

Adam and Tzamourani(2016)

Holzhausen and Sikova(2014)

A more comprehensive review: Bundesbank Monthly Report article (Sep. 2016), Distributional effects of monetary policy

This paper

- Estimate UREs for euro area households, using the Household Finance and Consumption Survey (HFCS)
- Distribution of UREs
  - across countries
  - across the net wealth distribution
  - across the income distribution
  - across age groups
  - across homeowners/renters
- Gains and losses after a 100bp change in the interest rate

Methodology and the Data

- 2014 HFCS: fairly detailed and harmonized HH balance sheet information, 18 euro area countries, about 72.000 households.
- Unhedged interest rate exposure (Auclert 2017)

$$URE = A_i - L_i + Y_i - C_i \tag{1}$$

- A_i, Maturing Assets: 90% of deposits (incl. money market Mutual Funds) + 5% of bonds
- L_i, Maturing Liabilities: Adjustable interest rate mortgages + Maturing FRMs + Non mortgage credit + Loan Payments
- Y_i, Income, C_i, Consumption: *more challenging to define*

Methodology and the Data

- **Income:** Net income
  - For DE: estimated net income (Zhu, 2017)
  - For IT, FI: gross income − total social contribution and taxes (HFCS)
  - For AT: net hh income provided as a non-core variable (HFCS)
  - For the rest: approximate net income by a net/gross factor per income decile. Ratios per decile per country computed from EUROMOD statistics (Sutherland and Figari, 2013).
- **Consumption:** Non-durables consumption + Durables consumption
  - Non-durables consumption: survey question on total consumption of non-durables + rent
    - Alternatively: Imputed from food consumption using the model parameters estimated in the Household Budget Survey (HBS) by Lamarche (2017), for ten euro area countries and LeBlanc and Schmidt (2017) for DE, following the methodology of Browing, Crossley and Weber (2003)
  - Durables consumption: the share of durables to the total stock of durables in the survey x the aggregate flow of durable consumption

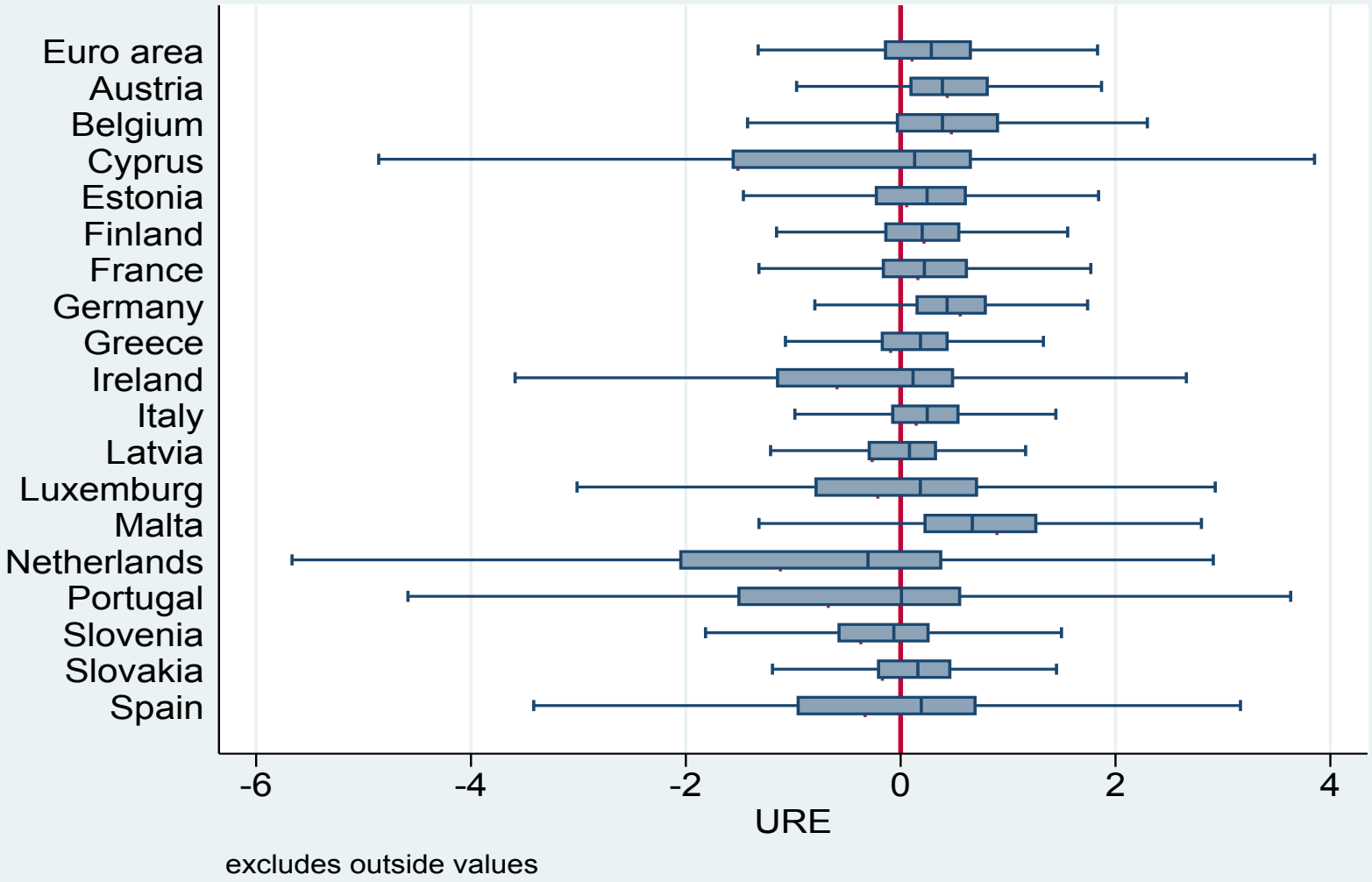
Methodology and the Data

- UREs by construction in euros
- As we want to present the interest rate exposure and gains /losses across different countries and households:
  - standardise with household's gross income
  - exclude households with negative gross income
- Following the structure of the data, measured period of household's consumption plan: a year

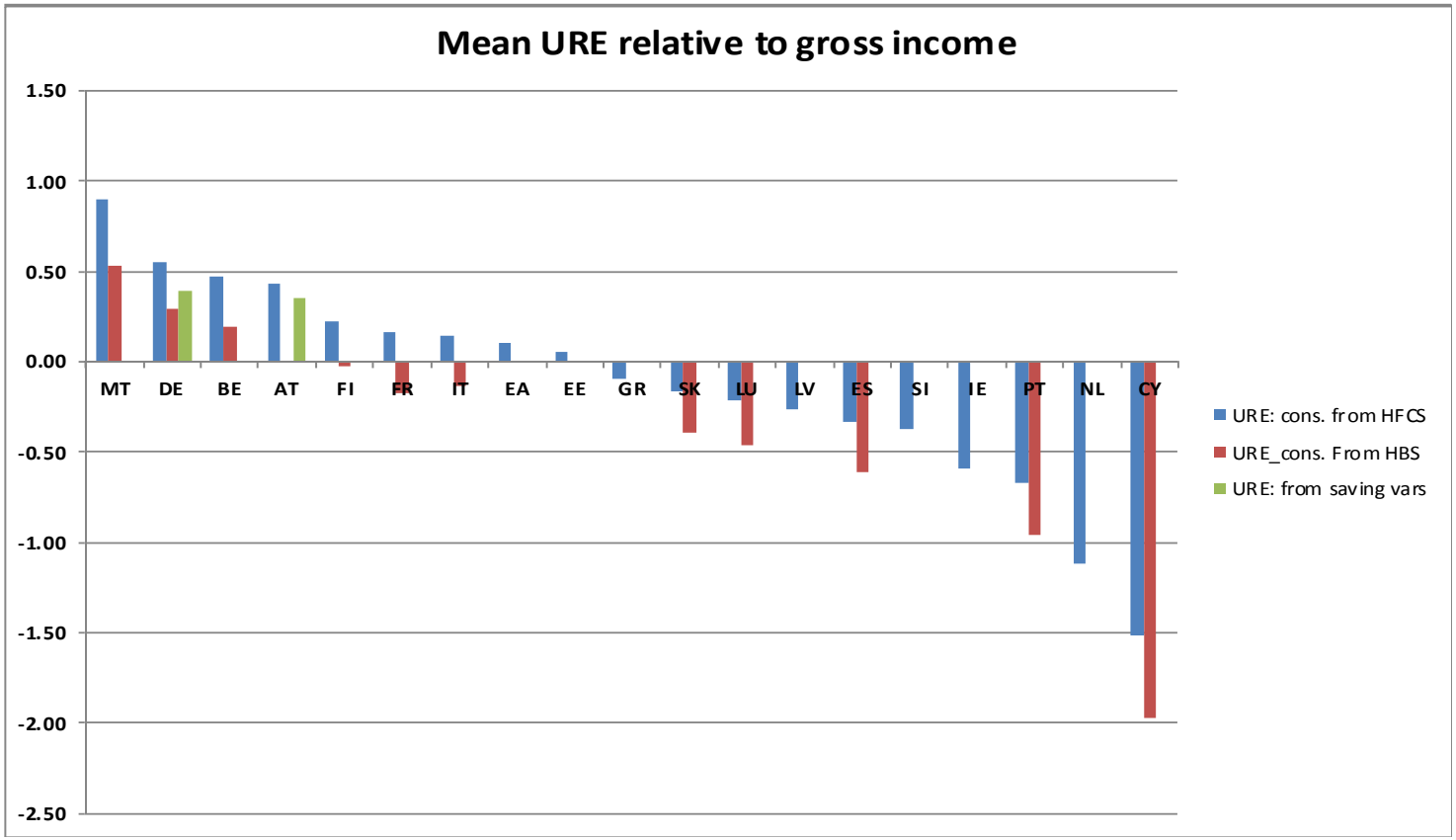
Outline

1. **The interest rate exposure across countries**
2. The interest rate exposure across the wealth, the income and age distribution, homeowners/renters
3. Gains and losses after a 100bp change in the interest rate

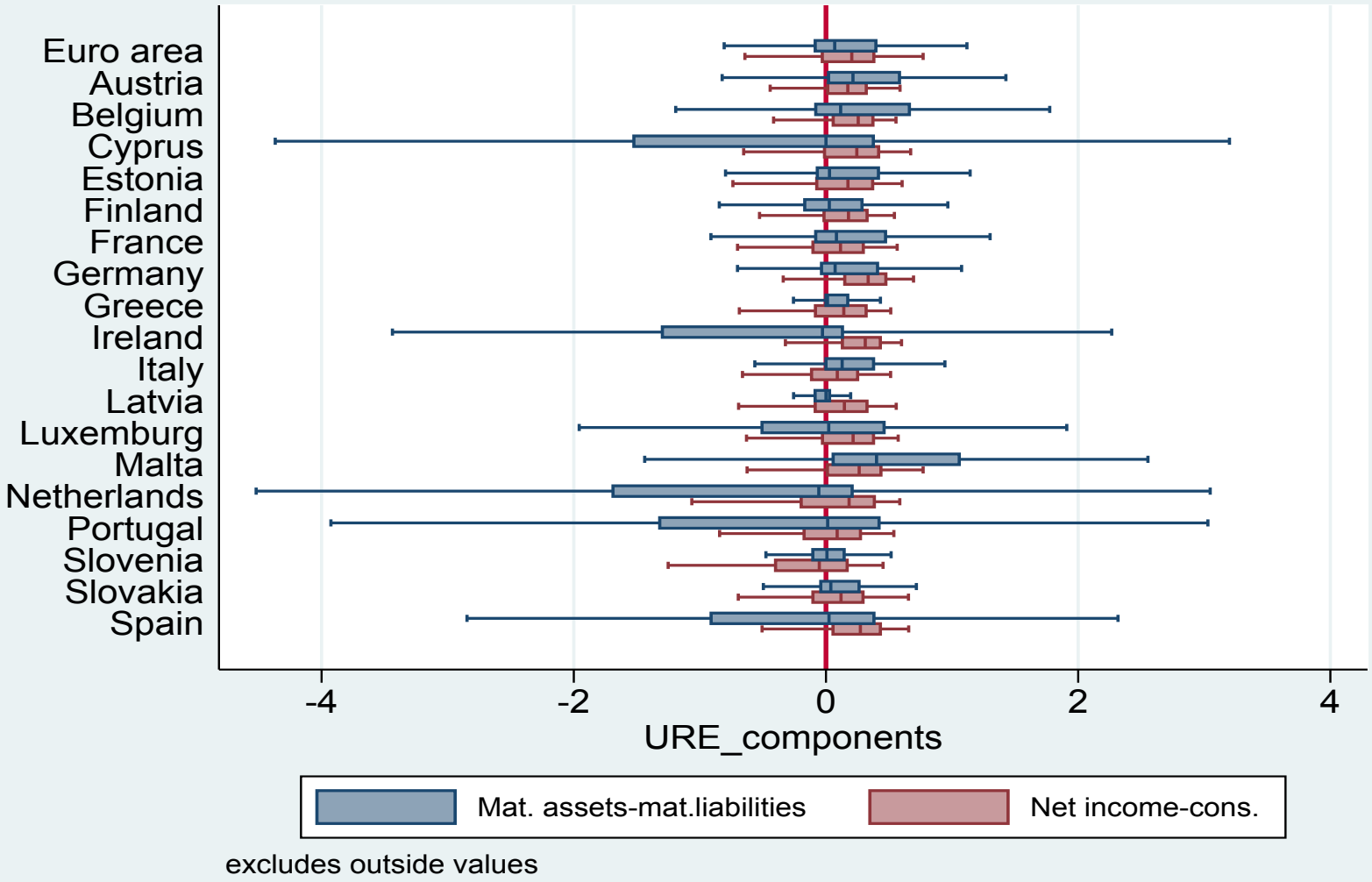
URE across euro area countries, 2014, relative to gross income



URE based on different consumption/saving measures



URE components: Maturing assets – Maturing liabilities and Net Income – Consumption (relative to gross income)



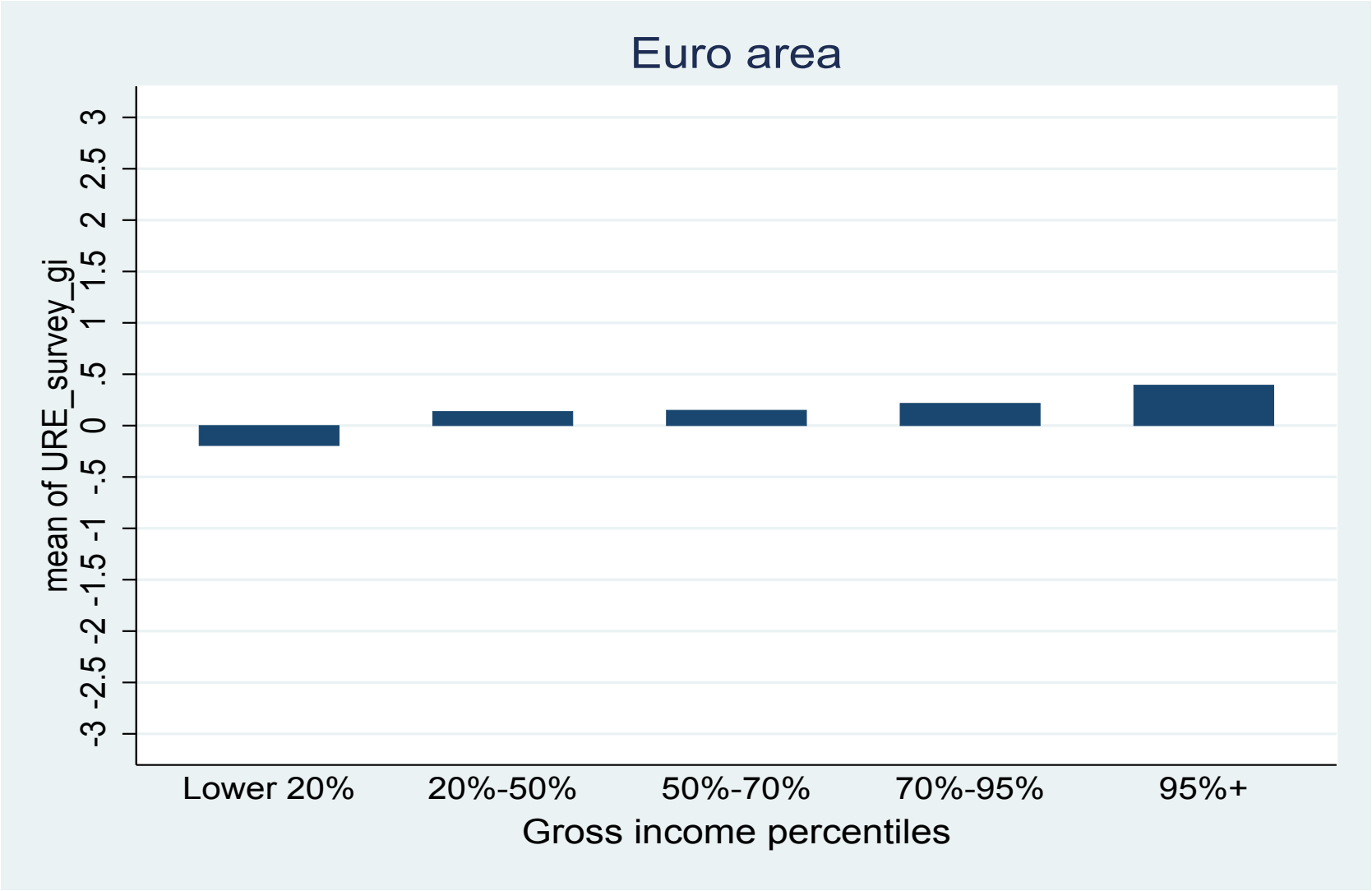
Where does the heterogeneity come from?

Country	Has real estate %	Deposits to total wealth %	Real estate to total wealth %	Has debt %	Debt to income Indebted hhs %	Debt to income All hhs %	Has Mortgage %	Has ARM Mortg. holders %	Has ARM All hhs %
Euro Area	65.7	19.8	51.7	42.6	247.9	105.6	23.5	44.2	10.1
Austria	51.9	**34.4**	40.4	34.4	114.7	39.5	16.7	53.0	8.9
Belgium	73.8	**20.8**	56.9	48.5	734.3	355.8	34.5	38.4	13.3
Cyprus	82.5	12.7	67.2	59.2	730.8	433.0	42.3	54.6	23.1
Germany	50.2	**29.6**	36.0	**45.3**	110.4	50.0	20.5	14.3	**2.9**
Estonia	81.0	18.6	65.2	37.2	139.5	51.8	20.9	81.6	17.1
Spain	87.5	11.0	73.1	**49.5**	257.7	127.5	35.1	80.3	**28.2**
Finland	70.8	**23.0**	58.0	57.4	138.6	79.6	35.2	-	-
France	63.1	17.1	47.1	**48.4**	212.4	102.4	25.1	11.9	**2.6**
Greece	78.4	10.1	68.0	27.1	420.3	113.9	13.4	56.2	7.5
Ireland	74.5	12.7	62.5	**60.7**	224.9	136.5	40.7	86.0	**35.0**
Italy	71.9	13.2	59.9	**21.3**	533.0	113.3	10.2	53.7	**5.5**
Luxembourg	74.7	16.2	61.8	**54.6**	661.0	360.6	35.2	75.1	**26.4**
Latvia	81.5	10.8	70.8	33.5	412.1	138.2	17.1	87.5	14.9
Malta	82.8	16.9	65.3	**37.1**	132.3	49.1	19.1	29.7	**5.7**
Netherlands	58.8	23.4	45.7	**63.2**	302.1	191.1	42.1	78.3	**32.6**
Portugal	79.1	18.8	62.6	**46.0**	307.4	141.4	34.8	94.3	**32.8**
Slovenia	78.6	12.1	67.7	38.8	94.7	36.8	9.3	68.9	6.4
Slovakia	86.6	10.3	74.9	36.6	109.4	40.1	16.2	59.7	9.7

Outline

1. The interest rate exposure across countries
2. **The interest rate exposure across the income distribution**
3. The interest rate exposure across the net wealth distribution
4. The interest rate exposure across age groups
5. The interest rate exposure across homeowners/renters
6. Compute the interest income and capital gains arising from a 100 basispoint expansionary monetary policy shock.

URE across the income distribution



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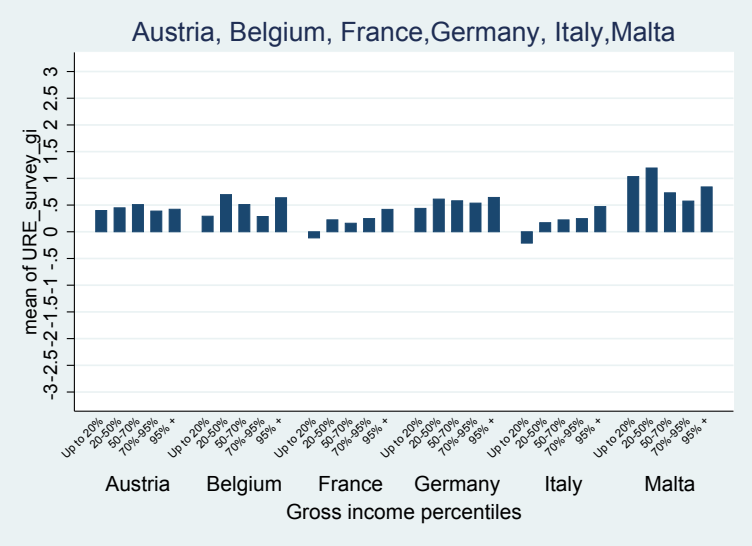

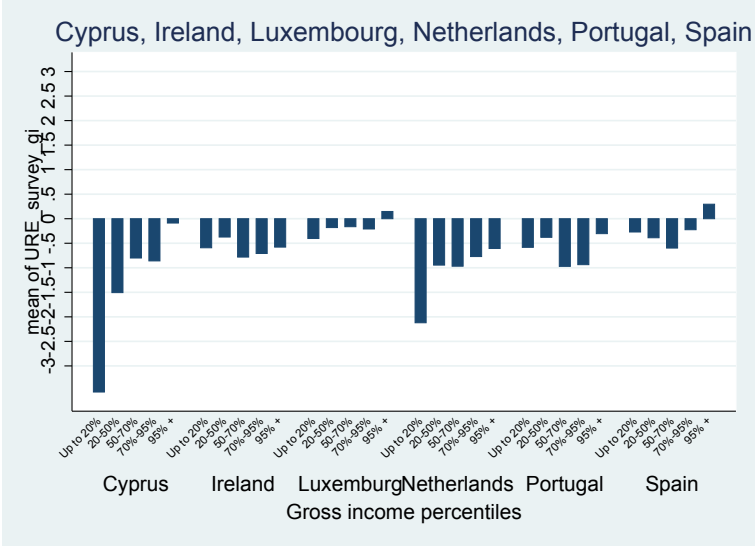

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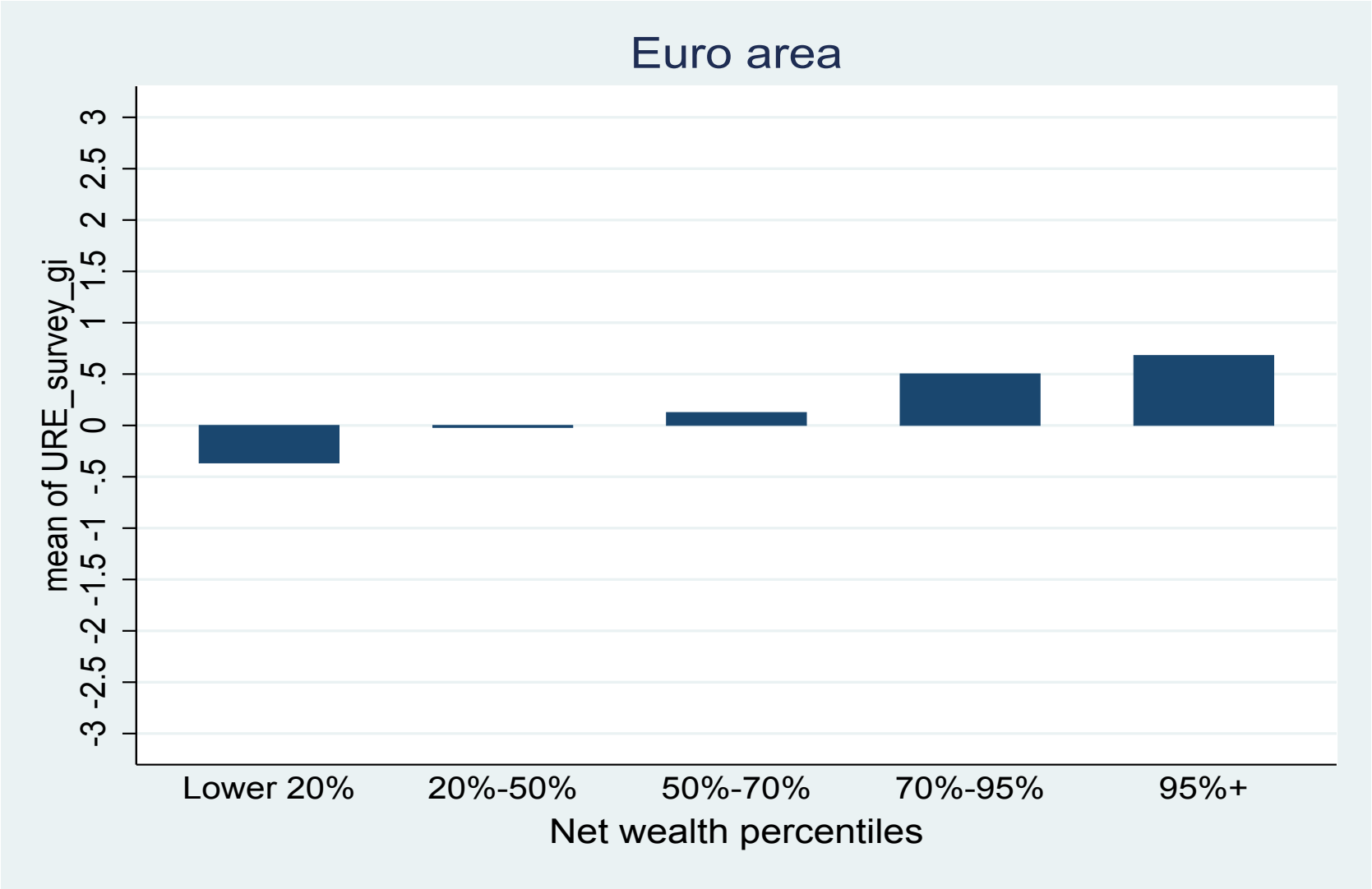
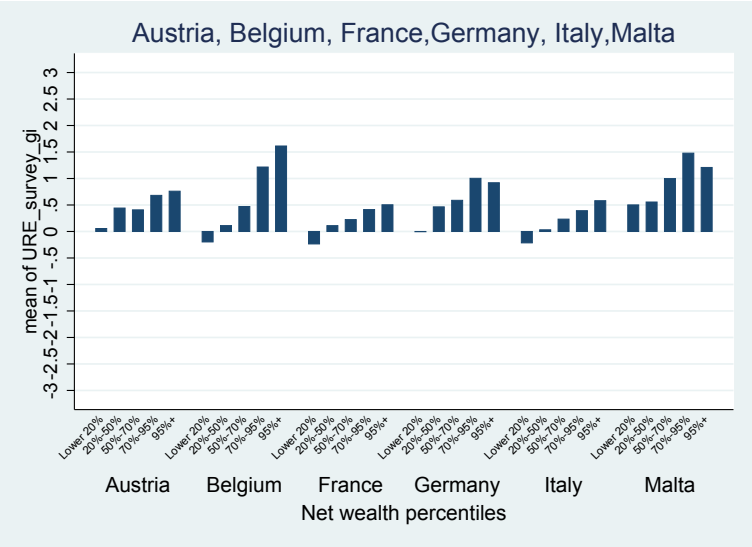
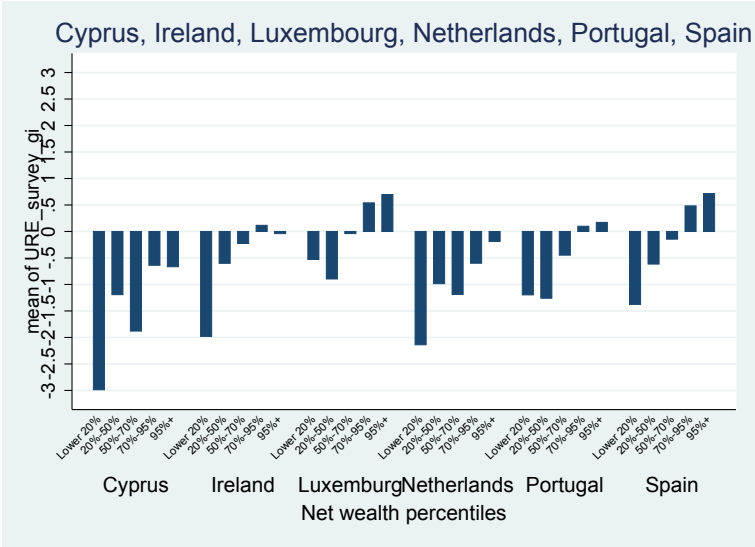
URE across the wealth distribution



URE across the net wealth distribution





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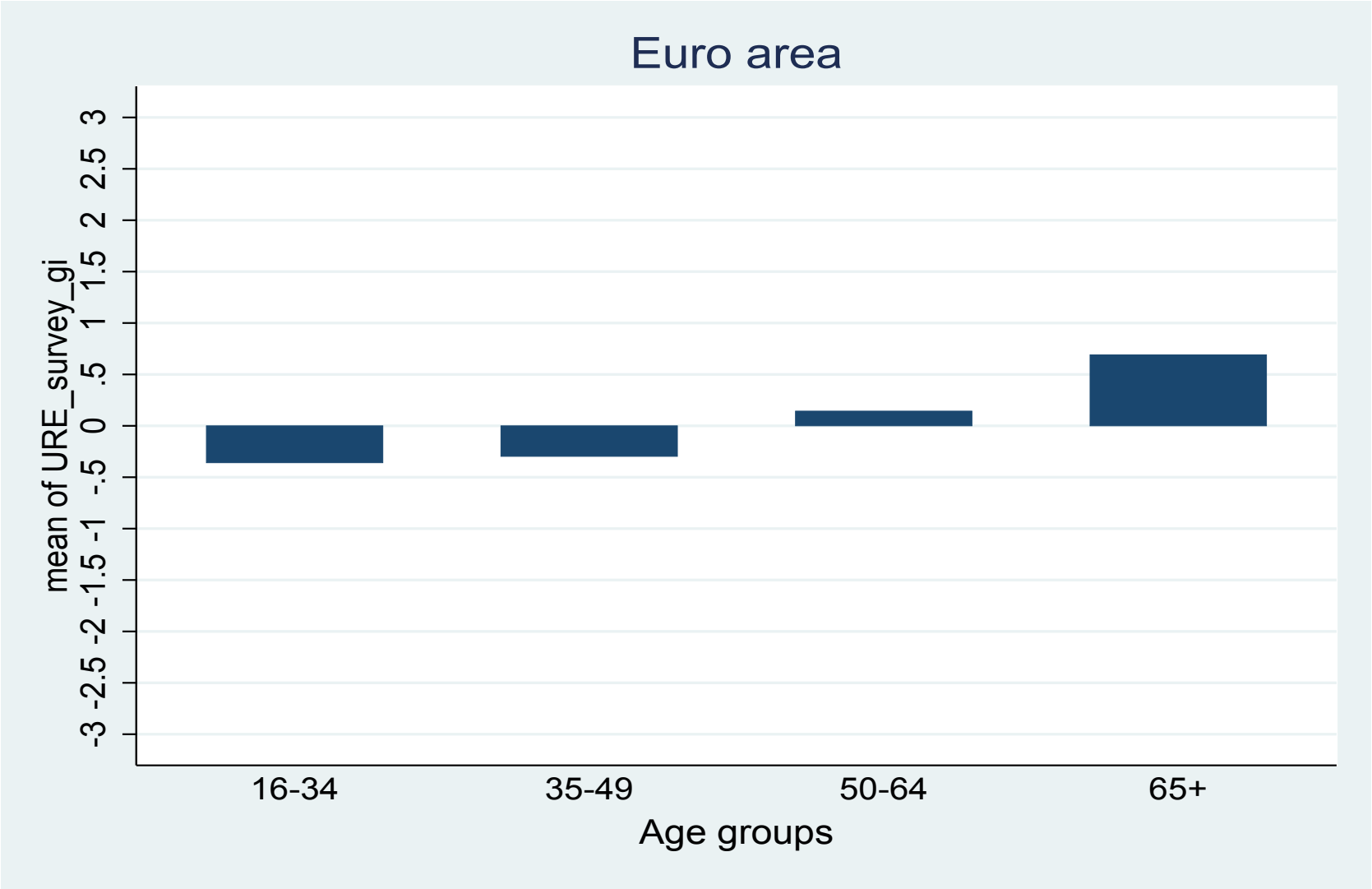
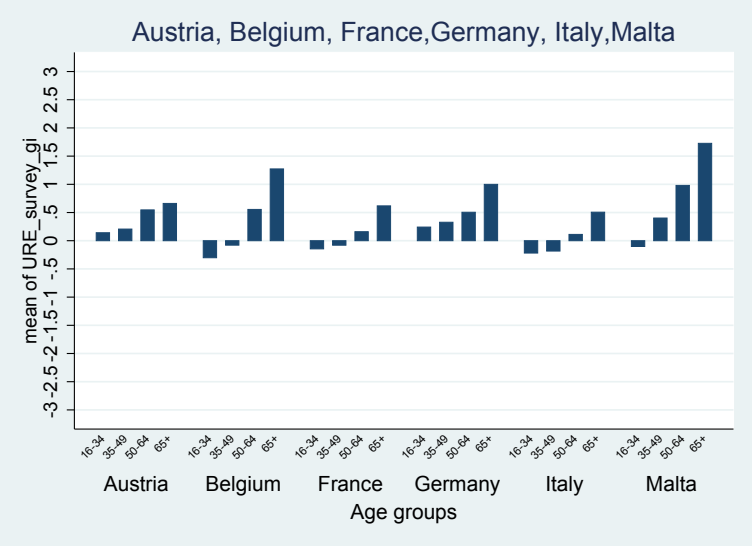
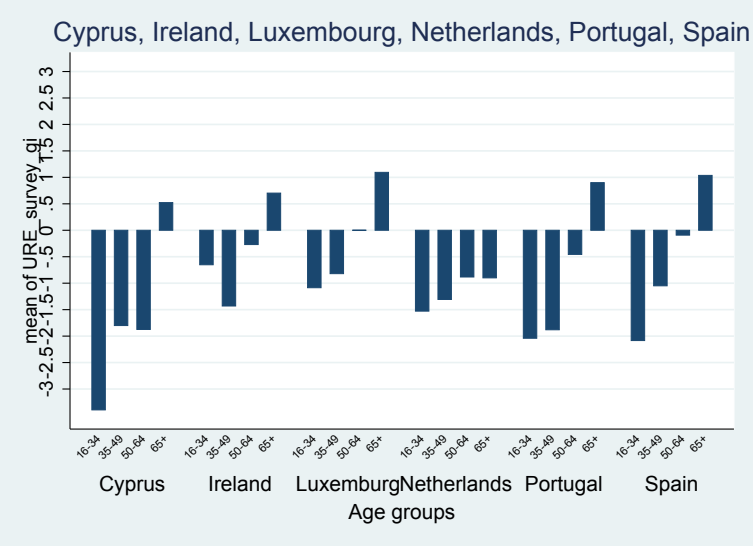
URE across age groups



URE across age groups





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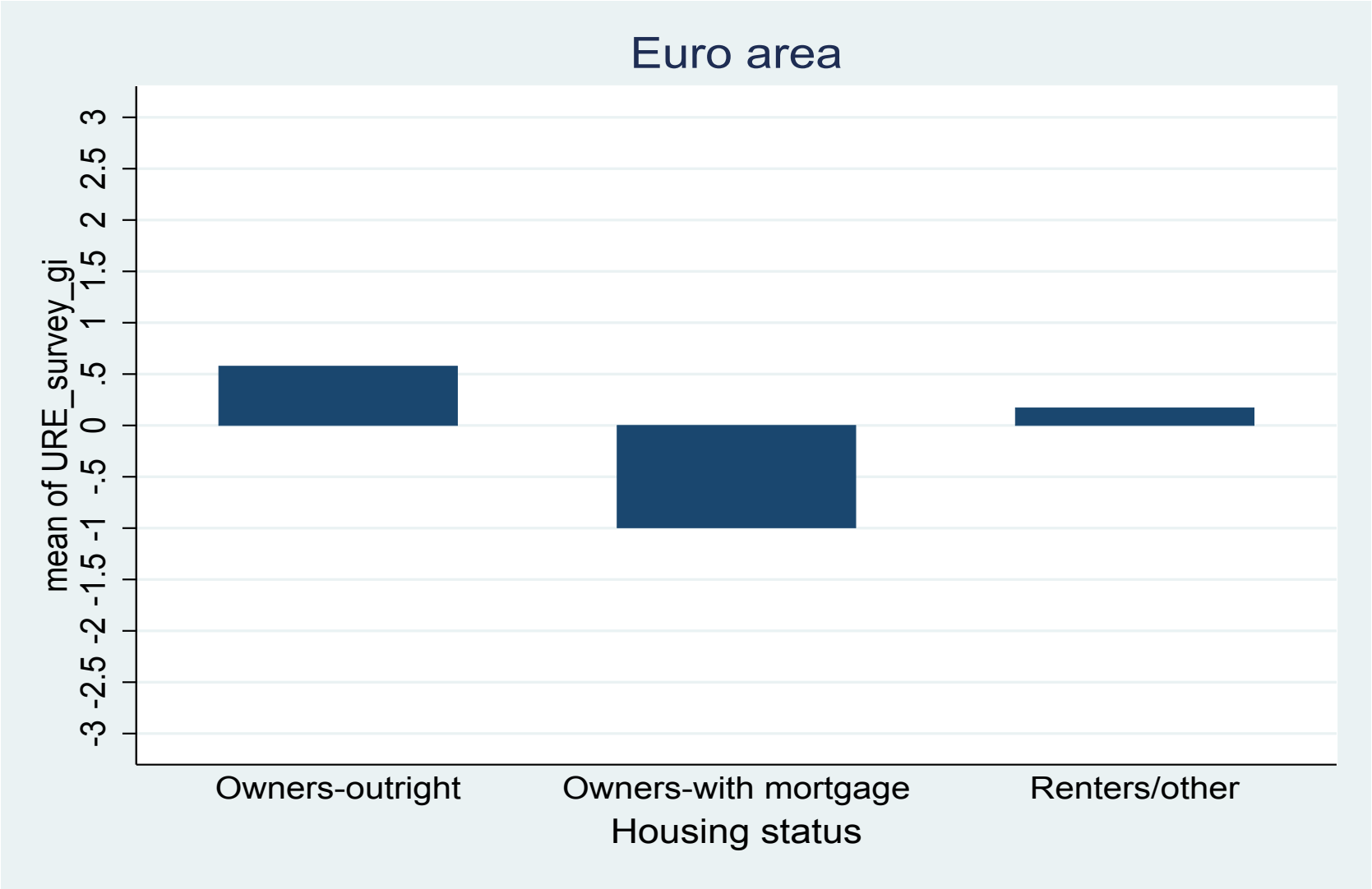
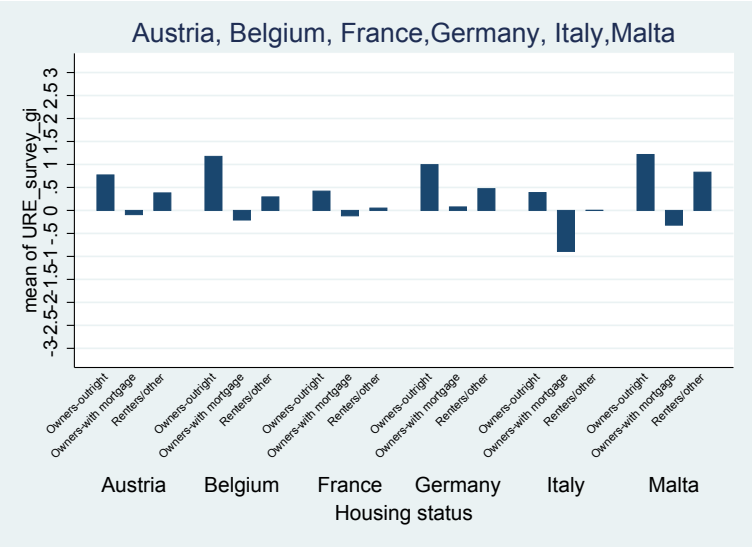
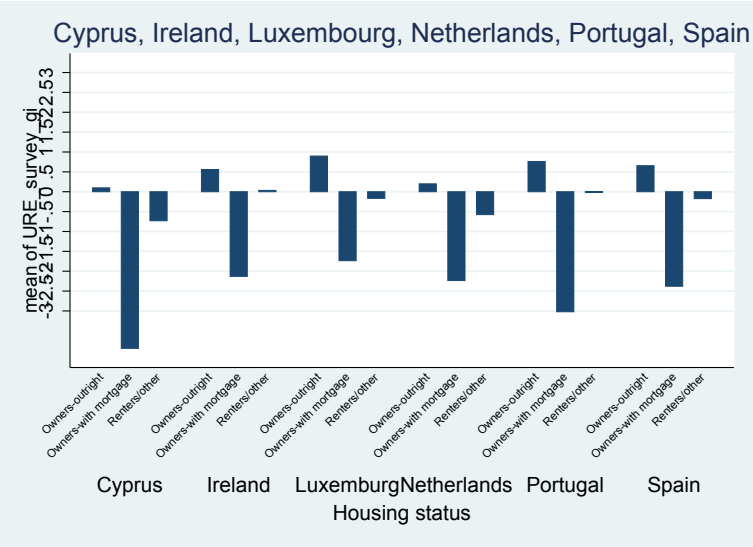
URE across homeowners/renters



URE across homeowners/renters





Expansionary Conventional Monetary Policy Shock

- Peersman and Smets (2003) estimate impulse responses to a **25** basispoint reduction in EA interest rates

- After 4 quarters:

  A **1.8%** increase in stock prices,
  No movement in the long-term bond price
  A **0.025%** increase in housing prices

- Compute the interest income and capital gains arising from a **100** basispoint expansionary monetary policy shock.

Interest income and capital gains in the euro area after a 100bp reduction in the interest rate

	Hhs with interest gain %	**Hhs with interest loss %**	**Interest gain/ loss**	**Hhs with gains stocks %**	**Gains stocks Stocks' owners**	**Gains stocks all hhs**	**Hhs with gains h.p. %**	**Gains h.p. Home owners**	**Gains h.p. all hhs**
Total	31	69	-94	18	11226	2140	66	260	172
Net wealth									
Lower 20	43	57	96	2	922	28	10	125	12
20-50	31	69	3	11	1009	124	53	88	46
50-70	30	70	-36	15	1801	293	94	156	148
70-95	24	76	-272	32	4495	1485	98	310	303
Upper 5	22	78	-772	62	51485	33045	99	1018	1007
Owners-outright	19	81	-285	22	13858	3140	100	269	269
Owners with mortg.	58	42	343	25	11202	2944	100	272	272
Renters/other	30	70	-115	11	5703	656	12	138	17

Summary

- Quantified the Unhedged Interest Rate Exposures (UREs) for the euro-area households
- URE allows us to measure *direct* distributional effects of changes in the interest rate (assuming the same interest rate pass-through for deposits and loans)
- Median household in euro area positive URE in 2014
- Heterogeneity across countries: portfolio structure, % of ARMs
- Heterogeneity across income, wealth, age and housing status distribution within and between countries
- Small or negative UREs for households in the bottom part of the net wealth distribution
- Negative UREs across the entire income distribution in countries with high proportion of indebted households
- Small or negative UREs for younger households
- Generally negative UREs for homeowners with a mortgage (DE an exception)
- Interest losses (gains) smaller than asset price gains (losses) but much more widespread
- Caveats: only direct distributional consequences. Inflation or other effects of monetary policy, eg in employment, not captured here.

Thank you.