Price Level Changes and the Redistribution of Nominal Wealth Across the Euro Area

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Euro Area HICP – Inflation (in % versus previous year)

- **In a world with non-contingent nominal claims:**

  unexpected price level movement (surprisingly low inflation):

  ⇨ **wealth redistribution between lenders & borrowers:**

  lenders benefit & borrowers loose

- **Losers: firms (=leveraged equity), borrowing HHs, governments, foreigners**

  Winners: lending HHs, foreigners

- **Quantitative importance of such redistribution in the Euro Area ?**

Countries:	**Euro Area**
	Individual Euro Area countries
Sectors:	**Government , households, rest of the world**
Households :	**Rich vs. poor, old vs. young, homeowners vs. renters**

Main Findings

- **Euro Area (EA) is a net loser of deflation:**

  4.2% GDP for a 10% surprise decrease in the price level

- **Individual countries:**

  Largest loosers: GIPS + Cyprus (up to 14% of GDP)

  Largest winners: Belgium + Malta (4.5 and 9% of GDP)

  Germany: approximately zero gains or losses
  (despite Target II balances at Bundesbank)

Main Findings

- **In the household (HH) sector:**

  young middle class HHs largest losers (mortgage/consumer credit)

- **Heterogeneity across euro area (EA) countries:**

  High inflation EA countries: many HHs ≈ zero inflation exposure

  Low inflation EA countries: more HHs hold all net wealth in nominal form

Related Literature

- **Doepke and Schneider (2006a): United States**
- **Meh and Terajima (2011) : Canada**
- **Both integrate HH survey data with financial accounts data**

Also related:

Kavonius and Törmälehto (2010)

Honkkila and Kavonius (2012)

Heathcote et al. (2011)

Meh and Ríos-Rull et al. (2010)

Data Sources

- **Euro Area Accounts (EAA) : sector balance sheets for HH, GOV, Firms, ROW**

- **Household Finance and Consumption Survey (HFCS)**
  - *Detailed household-level balance sheet data*
  - *Representative samples at country level: in total more than 62,000 households.*
  - *Collected in a harmonised way in 15 euro area members*
  - *Multiply imputed*
  - *Reference year 2010*

Net Nominal Position (NNP)

- **For each economic actor:**

NNP: gross nominal claims – gross nominal liabilities

- **NNP: directly held claims + indirect claims via ownership of equity**
- **NNP of firm sector attributed to ultimate owners : GOV, HHs and ROW**
- **Positive NNP: winner of unexpected price level decrease**
- **Negative NNP: loser of unexpected price level decrease**
- **Gains/losses resulting from 10 % unexpected decrease in price level**

Net Nominal Position (NNP)

- **Integrating HFCS with EAA: aggregates do not fully match**
  - Baseline approach: use HFCS aggregates for HH sector & adjust counterparts in EAA
  - Alternative approach: adjust HFCS aggregates.
  - Emphasize here results that are robust to chosen approach

- **Accounting for firm ownership**
  - Cannot identify from EAA if ownership refers to foreign or domestic firms

    Baseline assumption: domestic firms and HHs have same degree of home bias

    Alternative approaches: full firm home bias, full HH home bias: results for NNP barely change

  - Compute NNP per unit of equity of the firm sector, then attribute this according to ownership shares to HHs, GOV, ROW

Euro Area Results

Net Nominal Position of the Euro Area

	NNP per capita			NNP/GDP		
	GOV	*HH*	*ROW*	*GOV*	*HH*	*ROW*
	(thousands of Euros)					
Euro Area	**-18,6**	**7,8**	**10,8**	**-0,73**	**0,30**	**0,42**

Euro Area: Robustness

Net Nominal Position of the EA

	NNP per capita		
	GOV	HH	ROW
	(thousands of Euros)		
Baseline	-18,6	7,8	10,8
Max HH Home Bias	-18,6	7,5	11,1
Max Firm Home Bias	-18,7	8,4	10,3
Alt. HFCS-EAA Integration	-22,2	14,2	8,0

Euro Area Countries

Net Nominal Positions

	NNP per capita			NNP/GDP		
	GOV	*HH*	*ROW*	*GOV*	*HH*	*ROW*
	(thousands of Euros)					
Euro Area	**-18,6**	**7,8**	**10,8**	**-0,73**	**0,30**	**0,42**
Austria	-21,7	11,6	10,1	-0,70	0,37	0,32
Belgium	-27,6	40,8	-13,2	-0,93	1,37	-0,44
Cyprus	-9,9	-7,2	17,0	-0,52	-0,38	0,89
Finnland	-3,0	-8,4	11,3	-0,10	-0,27	0,37
France	-22,3	10,6	11,7	-0,81	0,39	0,43
Germany	-17,4	15,3	2,2	-0,60	0,53	0,08
Greece	-22,9	-1,2	24,1	-1,34	-0,07	1,41
Ireland	-19,2	21,8	-2,6	-0,54	0,61	-0,07
Italy	-23,2	8,1	15,1	-0,99	0,35	0,64
Luxembourg*	22,7	12,0	-34,7	0,35	0,18	-0,53
Malta	-8,3	20,1	-11,8	-0,63	1,52	-0,89
Netherlands*	-16,5	-9,5	25,9	-0,50	-0,29	0,78
Portugal	-13,1	-0,2	13,3	-0,88	-0,01	0,89
Slovakia	-4,8	2,2	2,6	-0,54	0,24	0,29
Slovenia	-8,6	2,9	5,7	-0,56	0,19	0,37
Spain	-12,4	-6,7	19,1	-0,60	-0,32	0,93

** country where results are not robust to data treatment/integration method*

Inflation Exposure in the HH Sector

- **For each HFCS- HH: compute NNP & net wealth (NW)**

- **Compute NNP/NW of the HH**

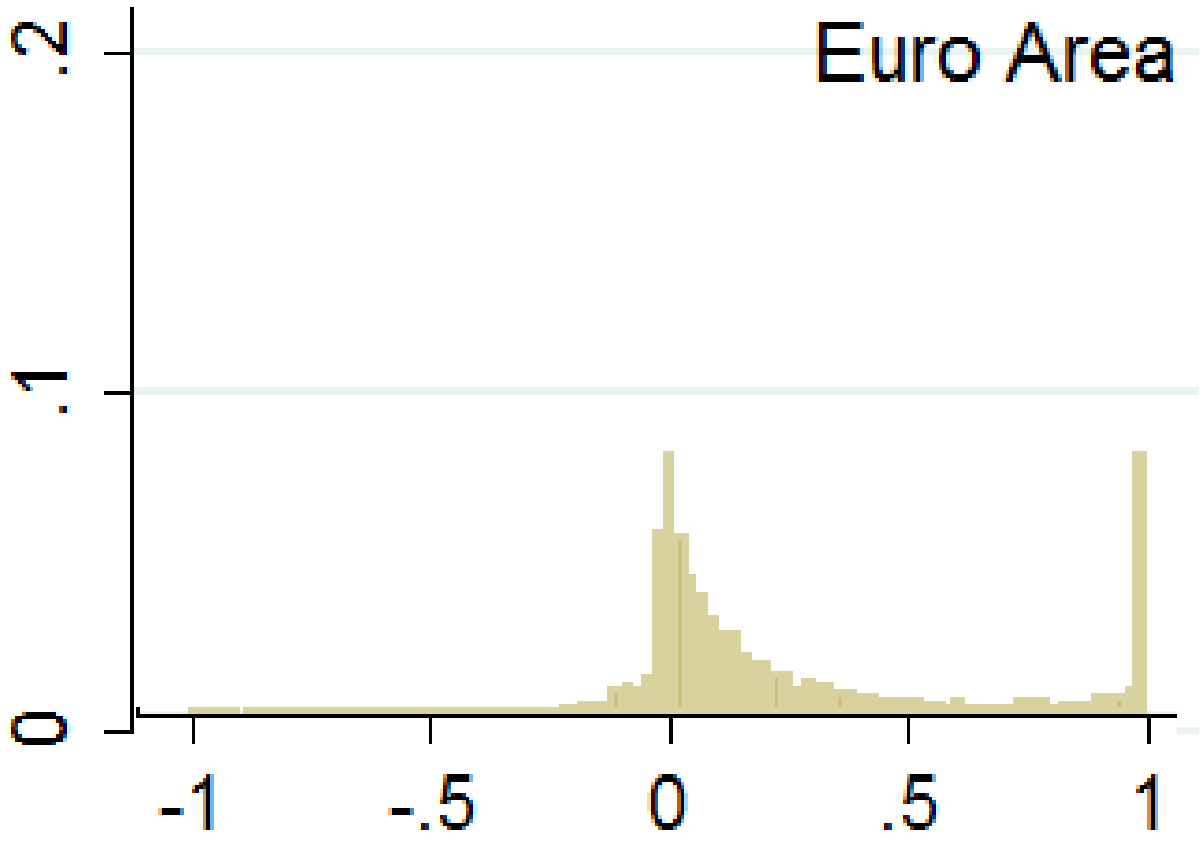
Measures of inflation exposure per unit of net wealth (provided NW>0):

NNP/NW=1: all net wealth held in nominal form

NNP/NW=0: no inflation exposure

NNP/NW<0: net nominal debtor/negative inflation exposure

- **Use HH population weights to compute the NNP/NW distribution of the EA and for individual EA countries**


Euro Area
0
.1
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Inflations-Exposure & HH Charakteristika

NNP/NV Kategorien

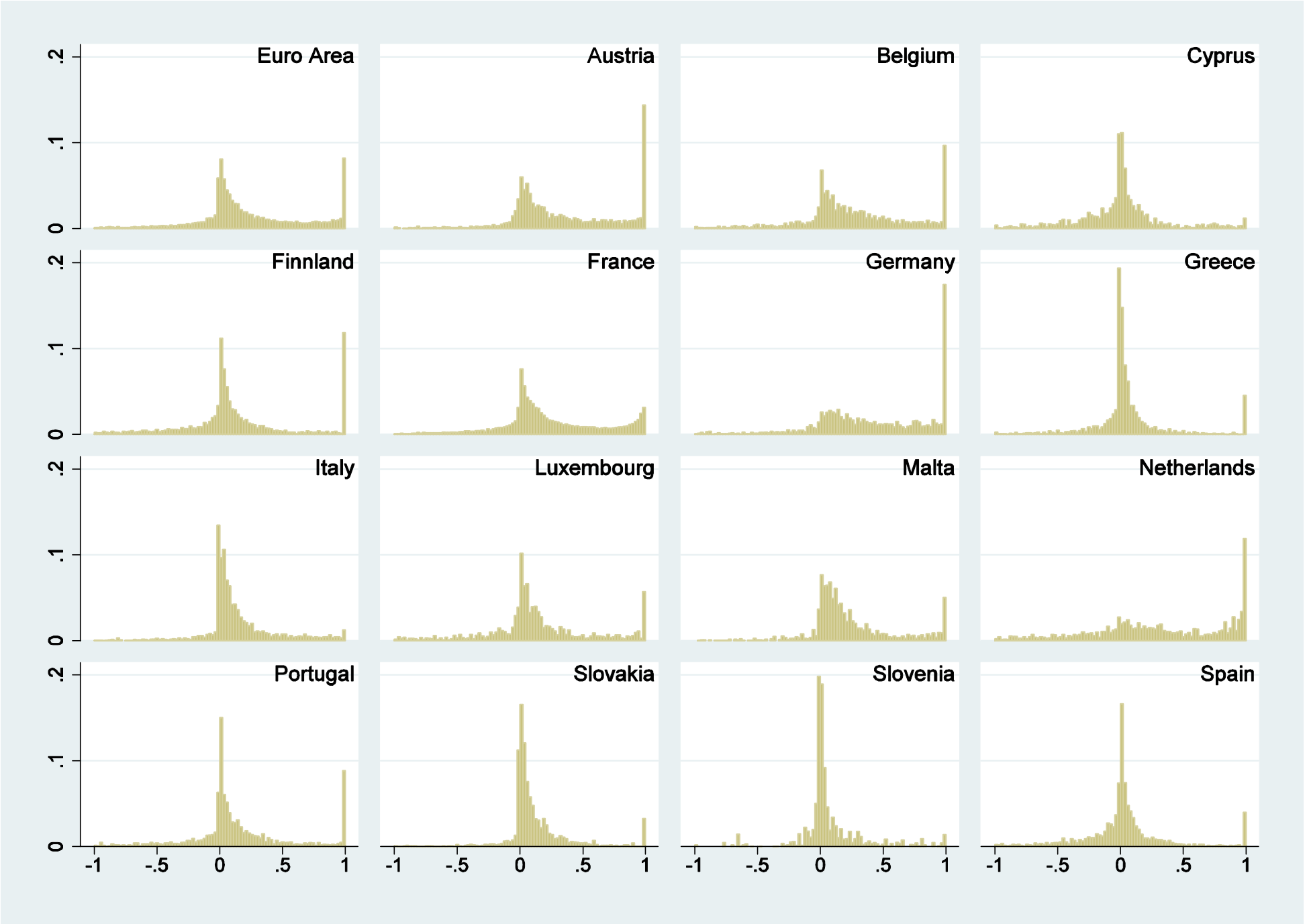
Borrower:	<-0.05
Almost no exp.:	[-0.05,0.05[
Pred.real assets:	[0.05,0.5[
Pred.nom.assets:	[0.5, 0.95[
Alm.only nom.assets:	[0.95,1]

Inflation Exposure & HH Characteristics

Euro Area	Median Age	Mean Ed	Share of Ho	Median Income (thou €)	Median Wealth (thou €)	# of HHs (mill)	HH share
Borrower	45	3,3	87%	37,9	173,2	19,1	15%
Almost no exposure	58	2,5	86%	23,0	201,2	28,1	21%
Pred. real assets	58	3,0	74%	32,4	217,6	45,7	35%
Pred. nominal assets	48	3,1	10%	28,7	30,3	18,7	14%
Almost only nom. assets	50	2,9	0%	17,9	7,3	11,6	9%
Not plotted:							
Negative net worth	41	2,9	13%	20,6	-3,4	7,7	6%

NNP/NW Categories

Borrower:	<-0.05
Almost no exp.:	[-0.05,0.05[
Pred.real assets:	[0.05,0.5[
Pred.nom.assets:	[0.5, 0.05[
Alm.only nom.assets:	[0.95,1]


Euro Area
Austria
Belgium
Cyprus
Finnland
France
Germany
Greece
Italy
Luxembourg
Malta
Netherlands
Portugal
Slovakia
Slovenia
Spain
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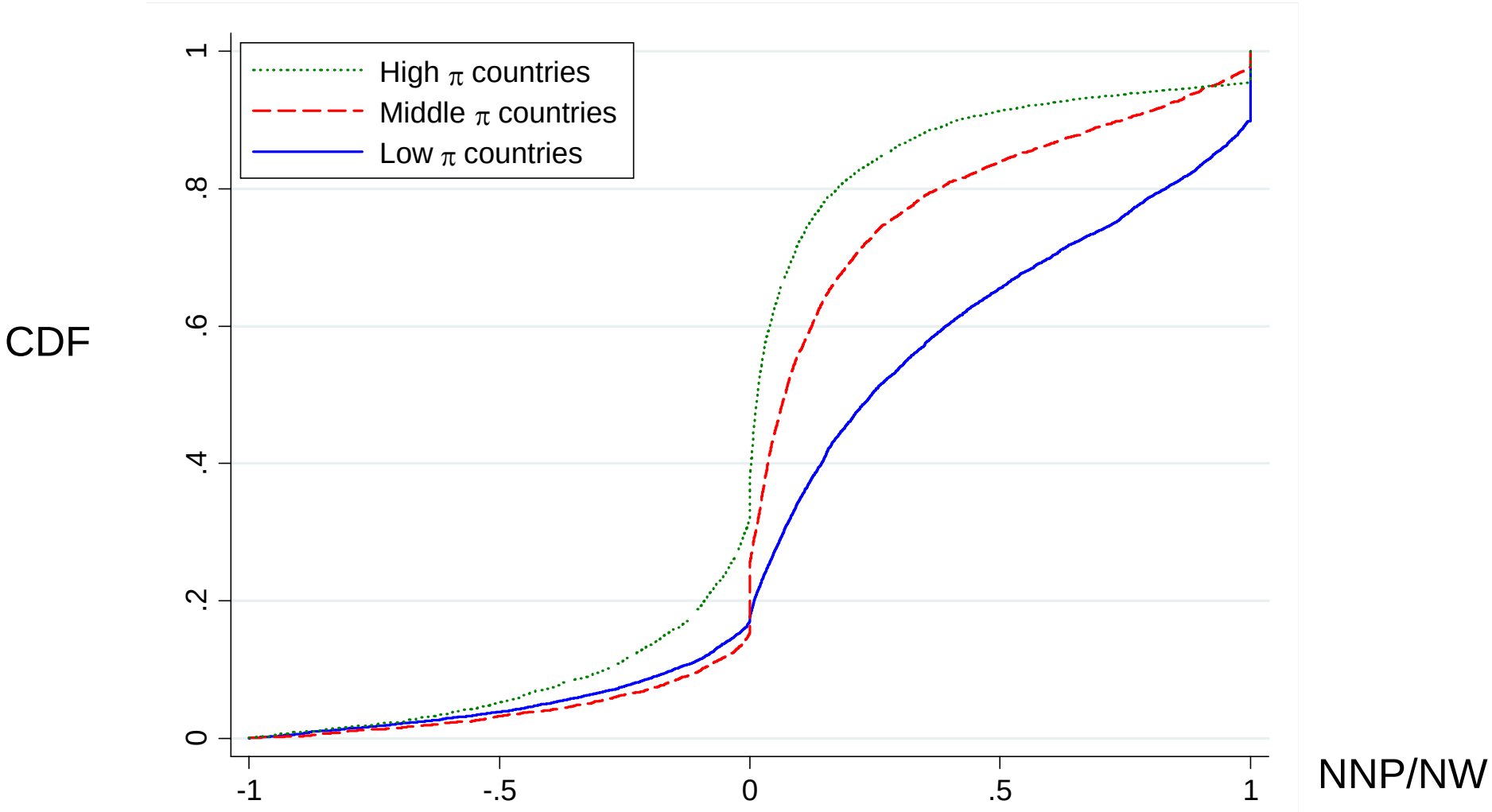
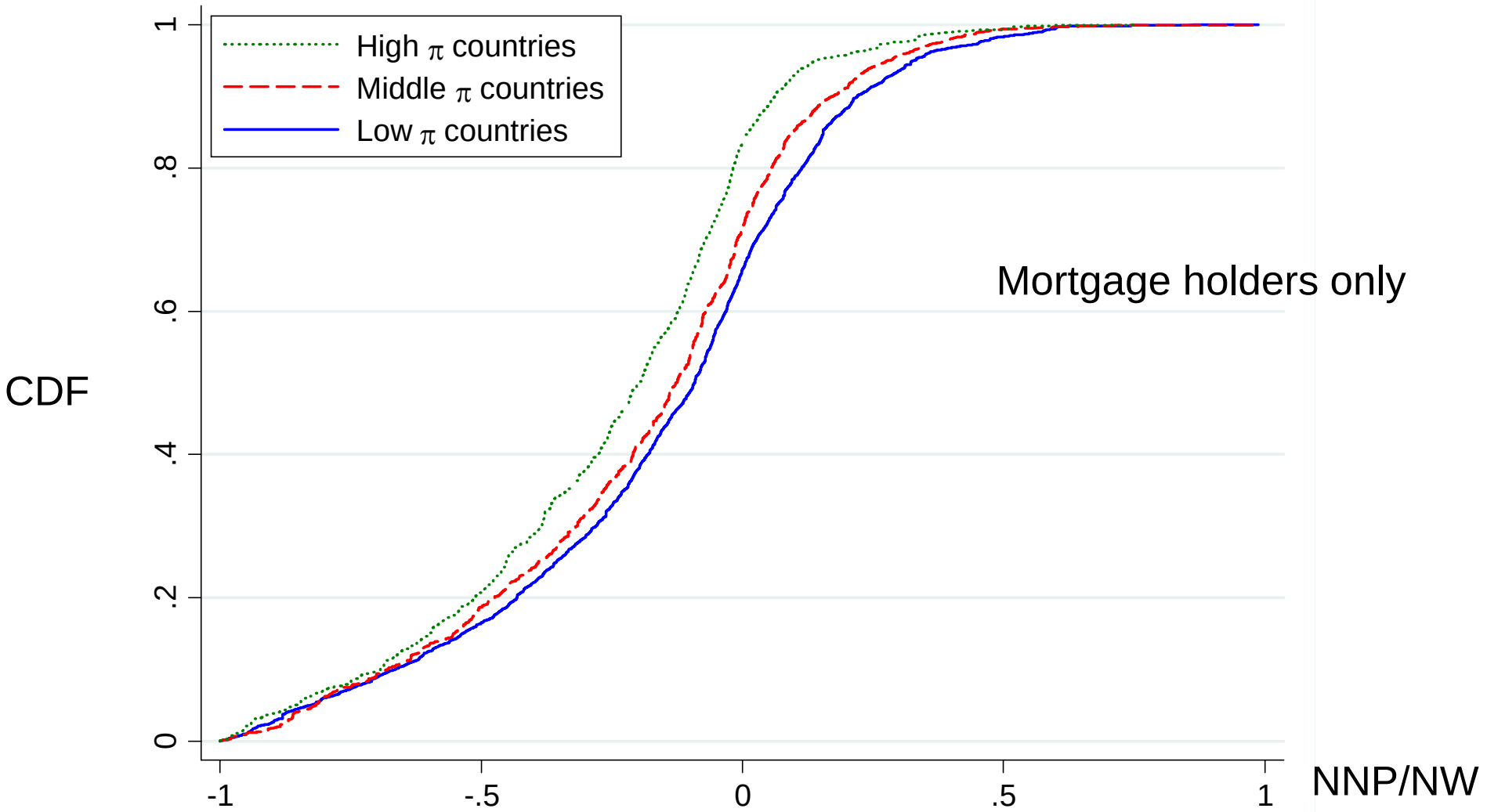
1

Inflation Exposure & Inflation Experience



High: GR, PT, Sl, SK, ES;
Middle: CY, IT, LU, MT, NL
Low: AT, BE, DE, FI, FR

Inflation Exposure & Inflation Experience



High: GR, PT, Sl, SK, ES;
Middle: CY, IT, LU, MT, NL
Low: AT, BE, DE, FI, FR

Infl. Exposure: Cohorts & Social Classes

		Age cohort					
		<=34	35-44	45-54	55-64	65-74	>74
EA	Rich HHs	-1,54	5,53	10,29	13,88	12,33	20,70
EA	Middel Clas	-80,44	-15,34	1,00	9,60	13,71	22,81
EA	Poor HHs	0,96	-4,17	9,38	14,47	12,44	15,48
EA	Total	-48,28	-11,64	3,11	10,98	13,18	19,27

For each cohort &social class, the table reports average NNP / average NW

Rich: 10% asset richest of an age cohort
Rank remaining HHs according to income:
Poor: lowest income, 20% of all HHs
Middle class: 70%

Euro Area vs. Germany (DE)

		Age cohort					
		<=34	35-44	45-54	55-64	65-74	>74
EA	Rich HHs	-1,54	5,53	10,29	13,88	12,33	20,70
EA	Middel Clas	-80,44	-15,34	1,00	9,60	13,71	22,81
EA	Poor HHs	0,96	-4,17	9,38	14,47	12,44	15,48
EA	Total	-48,28	-11,64	3,11	10,98	13,18	19,27
DE	Rich HHs	5,69	14,67	17,98	15,68	13,53	17,34
DE	Middel Clas	8,48	-4,91	8,13	14,48	18,95	31,58
DE	Poor HHs	30,83	11,74	30,36	37,49	23,31	31,33
DE	Total	17,00	-0,63	12,08	19,36	19,56	30,09

DE : Considerably lower indebtedness of the young middle class

Higher infl. exposure of old middle class & poor (not so for the rich!)

Euro Area vs. U.S. and CA

		Age cohort					
		<=34	35-44	45-54	55-64	65-74	>74
EA	Rich HHs	-1,54	5,53	10,29	13,88	12,33	20,70
EA	Middel Cla	-80,44	-15,34	1,00	9,60	13,71	22,81
EA	Poor HHs	0,96	-4,17	9,38	14,47	12,44	15,48
EA	Total	-48,28	-11,64	3,11	10,98	13,18	19,27
US	Rich HHs	-14,00	3,80	6,60	16,30	16,70	27,50
US	Middel Cla	-114,00	-31,60	-4,80	14,00	25,20	38,10
US	Poor HHs	-36,60	-33,80	-5,50	7,50	17,50	26,40
US	Total	-42,60	-10,10	2,30	15,20	19,40	30,60
CA	Rich HHs	-2,66	2,16	16,43	17,53	27,51	29,82
CA	Middel Cla	-89,44	-26,47	11,40	26,04	29,36	33,88
CA	Poor HHs	-52,11	-27,13	-3,26	20,73	14,15	23,75
CA	Total	-35,80	-11,19	13,06	22,14	27,93	31,89

Inflation Tax, Inequality and Wealth Taxes

	Gini pre inflation	Gini post inflation	Δ Gini (%)	Rev.-equivalent wealth tax (%)
Euro Area	**0.652**	**0.650**	**-0.30**	**1.64**
Austria	0.732	0.733	+0.21	1.70
Belgium	0.593	0.591	−1.21	1.20
Cyprus	0.633	0.632	−0.40	0.41
Finland	0.602	0.596	−1.02	0.37
France	0.664	0.661	−0.47	2.10
Germany	0.719	0.720	+0.04	1.73
Greece	0.546	0.544	−0.46	4.03
Italy	0.601	0.600	−0.12	2.09
Luxembourg	0.641	0.636	−0.76	−0.72
Malta	0.593	0.593	+0.02	0.54
Netherlands	0.545	0.537	−1.44	2.02
Portugal	0.653	0.654	−0.46	2.39
Slovakia	0.439	0.438	−0.28	1.64
Slovenia	0.525	0.523	−0.29	1.42
Spain	0.561	0.558	−0.52	1.11

Gini refers to net wealth distribution

Conclusions & Outlook

- **Quantitatively important wealth redistribution associated with surprise movements in the price level in the EA**
- **EA sizable loser of negative inflation surprises**
- **Within EA: crisis countries largest losers of negative inflation surprises**
- **Findings show strong incentives for keeping price level predictable**
- **Future work: modelling nominal exposure choices to understand better how inflation experience and monetary policy affects/distorts these choices**