Macroprudential Policy and Housing Wealth Inequality: Evidence from the Euro Area

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Motivation

- Macroprudential policy (MaPP) has become a key tool for policy makers in addressing vulnerabilities within the financial system:
  - Lower the likelihood of financial crises (Fernandez-Gallardo, 2023).
  - Reduce the severity of crises (Jordà et al., 2021).
  - Mitigate systemic and tail risks in the economy (Franta and Gambarcorta, 2020 and Galán, 2024).
- However, the distributional effects of MaPP on wealth inequality have been largely unexplored.
  - In this paper, we particularly focus on housing wealth inequality.

Why Housing

- Housing is typically the largest component of household wealth (Badarinza et al., 2016). ▸ Housing share EA
- Housing wealth is a major driver of overall wealth inequality (Paz-Pardo, 2022 and Daysal et al., 2023).
- Macroprudential tightening has significant negative effects on house prices (Cerutti et al., 2017), but non-significant effects on stock prices (Richter et al., 2019).

Research Question

- **How does MaPP tightening shocks affect housing wealth inequality in the euro area?**
  - Through which mechanisms does MaPP affect housing wealth? (credit access vs. house prices).
  - Which groups are most affected? (bottom vs. middle vs. top income).
  - Are these effects heterogeneous across countries?
    - We focus on the four largest economies in the EA: Germany, France, Italy, and Spain.

Preview of Main Results

- Tightening MaPP shock reduces aggregate credit and house prices.
- Net housing wealth falls across income groups:
  - France, Italy and Spain: middle-income households incur the largest losses.
  - Germany: losses are concentrated among the bottom 20%.
- As a result, **housing wealth inequality increases** across all countries, driven mainly by an **uneven contraction in credit**.

Empirical Strategy

- **Step 1 — Aggregate effects:** Estimate the aggregate causal impact of MaPP on credit and house prices for each country via local projections.
- **Step 2 — Micro simulation:** Use HFCS microdata to distribute aggregate credit/price responses across households. Three counterfactual scenarios:
  - Households excluded from the housing market due to limited access to mortgages (**Credit channel**).
  - Households experience house price changes resulting from the policy shock (**Price channel**).
  - Both channels operate simultaneously.

MaPP Shocks

- We use the **narrative-identified macroprudential policy shocks** constructed by Fernández-Gallardo and Payá (2025).
- We isolate policy measures that are:
  - Non–systematic (i.e., not responding to contemporaneous or expected macro–financial conditions).
  - They are considered at the announcement date of each policy action.
  - A positive value is considered a tightening actions, whereas a negative value is set to a loosening action.
  - Different weights are assigned to each policy action depending of the type of policy (activation/deactivation, change in the scope, renewals, etc.).

Local Projections: Baseline Specification

- We estimate the dynamic response of credit and house prices to an exogenous MaPP tightening shock by using the following local projections (Jordà, 2005).

$$\Delta^h y_{t+h} = \alpha_h + \beta_h \text{MaPP}_t^{shock} + \sum_{\ell=0}^{L} \Gamma_{h,\ell} X_{t-\ell} + \varepsilon_{t+h}$$

- Country–level regressions for Germany, France, Italy, and Spain.
- Time period: 1990Q1-2017Q4.
- Control variables: annual growth in real GDP, CPI, credit, house prices and GDP growth forecasts.

IRFs: Credit and House Prices

- Credit falls after tightening in all four countries; peaks around 3–4 years.
- House prices decline in France, Italy, Spain; no effect in Germany.

Table: Average IRF responses to a one sd MaPP tightening shock

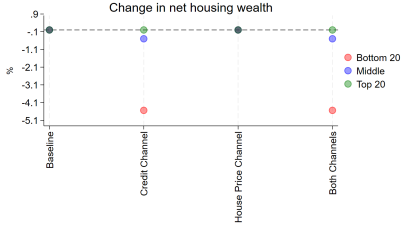
Country	IRF Credit (%)	IRF House Prices (%)
France	−3.40	−2.70
Spain	−4.02	−3.83
Germany	−1.02	0.00
Italy	−1.94	−2.36

Household Mapping: Data and Mechanism

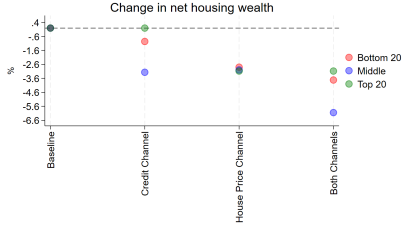
- **Micro Data:** HFCS 2010 wave $\rightarrow$ few MaPP actions from 2000 to 2010.
- **Credit channel:**
  - For each country, we estimate the following probit model for household's i mortgage status C:

$$\Pr(C_i = 1|X_i) = \Phi(X_i'\beta)$$

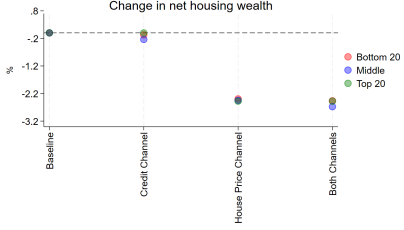
  - X represents income, marital status, education, number of children, age, wealth, and employment status.
  - Rank 2000-2010 mortgagors by $\hat{C}_i$; exclude lowest $\hat{C}_i$ until aggregate credit drop matches IRF.
- **Price channel:** proportional drop in housing values consistent with country IRF.



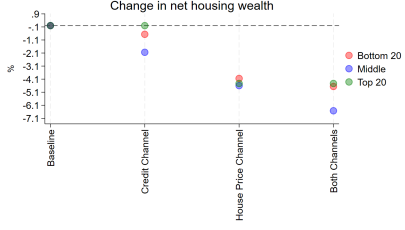
(a) Germany



(b) France



(c) Italy



(d) Spain

Who Loses More?

- Consistent pattern in Spain, France, and Italy: largest losses for the middle quintile.
- Germany is the exception: bottom 20% experiences the largest decline.
- Channel decomposition:
  - **Credit channel dominates** inequality effects: uneven denial of mortgages across the household distribution.
  - **Price channel**: homogenous reduction in net housing wealth.

Possible Explanations

- **Germany**: Bottom 20 has relatively low initial LTV ratios. Consequently, losing both their mortgage and home in our simulation places a disproportionately high burden on their net housing wealth. LTV
- **House price channel**: The largest declines tend to occur in the income quintiles where mortgage liabilities represent a larger proportion of housing value. DTA

Robustness checks

- Alternative control specifications for the aggregate response of credit and house prices.
  - US VIX, which helps account for global factors influencing domestic household credit and house prices in each country.
  - Short-term interest rates to control for potential monetary policy interlinkages with macroprudential policy.
- Heterogenous drop in house prices across income groups.
  - We find no significant differences across house price quintiles using provincial-level data for Spain.
- Households groups by net total wealth.

Conclusion

- Tightening MaPP reduces wealth more for lower-income households, widening housing wealth inequality.
- While macroprudential policies are primarily aimed at safeguarding financial stability, their distributional consequences should not be overlooked.
- These findings highlight the potential need for complementary housing policies to help offset the adverse effects of mortgage market exclusion, particularly for lower- and middle-income households.

Why Germany Differs on Prices

- Lower homeownership, deep rental market, conservative mortgage practices (Kuhn and Grabka, 2018).
- House prices historically less sensitive to macro/MP shocks; slow adjustment (Corsetti et al., 2022).

Table: Mortgage Characteristics by Income Quintile and Country

Variable	Income Quintile	Germany	Spain	France	Italy
Loan-to-Value (%)	Bottom 20	52.26	96.51	45.46	84.89
	Middle	76.46	114.87	42.05	81.84
	Top 20	76.90	111.96	39.25	74.74
Amount Borrowed (€ thousand)	Bottom 20	1.03	0.86	0.76	0.63
	Middle	1.07	1.13	0.86	0.91
	Top 20	1.59	1.51	1.48	1.47
Mortgage Duration (Years)	Bottom 20	14.90	24.78	17.77	17.43
	Middle	15.83	26.31	18.24	20.24
	Top 20	14.54	24.91	16.97	20.49
HRP Age (Years)	Bottom 20	33.84	41.34	44.27	50.77
	Middle	49.19	39.83	42.06	42.94
	Top 20	45.77	43.04	41.19	44.52

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Table: Debt to Asset Ratios and Homeownership Rate by Country and Income Quintile

Variable	Income Quintile	Germany	Spain	France	Italy
Debt to Assets (Total Housing) [%]	Bottom 20	5.98	6.17	4.15	1.08
	Middle	21.03	23.62	12.78	4.82
	Top 20	35.22	20.87	14.75	6.16
Homeownership Rate [%]	Bottom 20	22.23	80.78	48.41	59.18
	Middle	54.68	90.90	67.99	74.08
	Top 20	85.59	89.07	92.73	89.77

Notes: This table reports three types of debt to asset ratios and homeownership rates across income quintiles for Germany, Spain, France, and Italy for homeowners. All values are percentages. *Source*: Household Finance and Consumption Survey, wave 2010.

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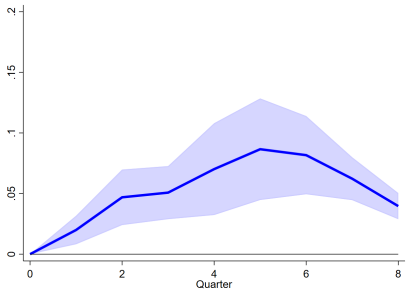
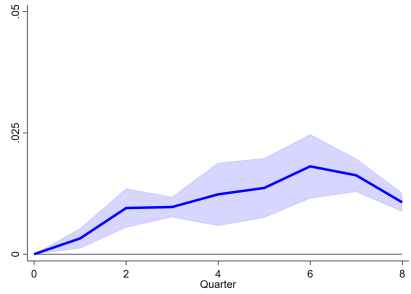
Figure: Dynamic Response of Housing Wealth Inequality to Macroprudential Policy Tightenings



(a) $\frac{top10}{middle}$



(b) $\frac{decile9}{middle}$

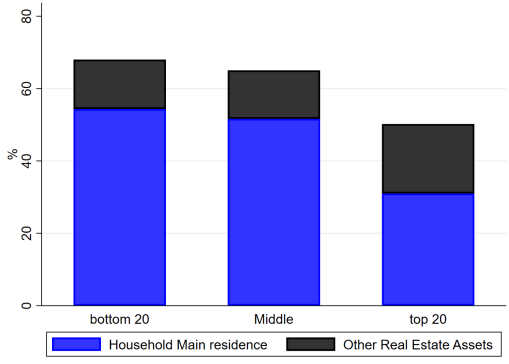
Notes: Estimated cumulative changes in the $\frac{top10}{middle}$ net housing wealth ratio and the $\frac{decile9}{middle}$ net housing wealth ratio at horizons $h = 1, 2, ..., 8$, following the activation of a tightening macroprudential policy. The sample period is 2009Q1–2017Q4. Shaded area denotes the 68% confidence interval, based on robust standard errors.

Table: Gini Coefficients for Net Housing Wealth by Country and Scenario

Country	Baseline	Credit Channel	Price Channel	Both Channels
Germany	0.812	0.814	0.812	0.814
Spain	0.583	0.586	0.587	0.590
France	0.677	0.681	0.678	0.682
Italy	0.619	0.619	0.619	0.619

Notes: The table shows Gini coefficients for housing wealth inequality across countries. Each counterfactual represents the Gini coefficient of net housing wealth across income groups relative to a baseline scenario. For each counterfactual and income group, we simulate the impact of the shock and compute the Gini coefficient of net housing wealth over the whole distribution. *Source*: Household Finance and Consumption Survey, wave 2010.

Figure: Total Housing assets as a share of total household assets by income quintile for the Euro Area



Notes: The figure depicts the share of total housing assets as a percentage of total household wealth across the income distribution of homeowners for the aggregate distribution of Germany, France, Italy, and Spain. Specifically, the "bottom 20%" refers to the first quintile, the "middle" represents the third quintile, and the "top 20%" corresponds to the fifth quintile. *Source*: Household Finance and Consumption Survey, wave 2010.

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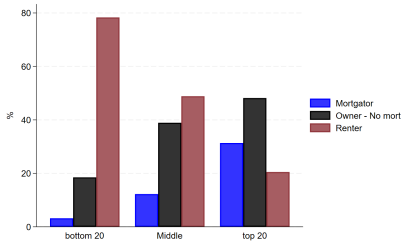
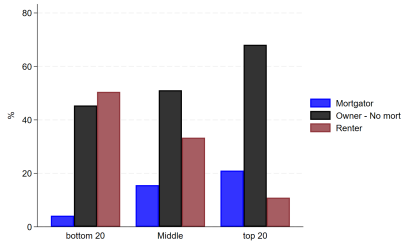
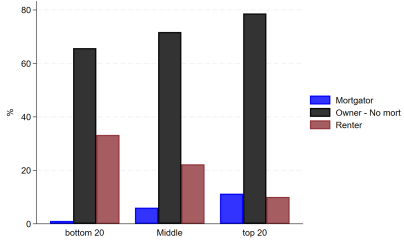


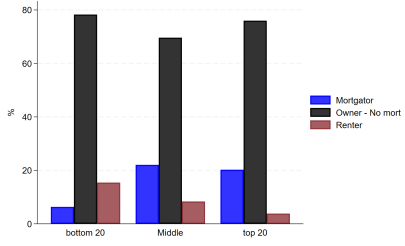
(a) Germany



(b) France



(c) Italy



(d) Spain

Figure: Macroprudential Policy Shocks by Country.