Unconventional Monetary Policy and Household Credit Inequality

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Motivation

- Distributional effects of unconventional monetary policy:
  - increases inequality (Bivens, 2015; Hohberger et al., 2020; Guerello,2018)
  - reduces inequality (Montecino et al, 2015; Domanski et al.,2016; Saiki and Frost, 2014)
  - neutral (Bernanke, 2015)
- Credit inequality: Household credit inequality $=$ $2\times$ household income inequality in the Euro area (Cazenave-lacroutz, 2015)
- ECB asset purchase programmes (APP): A positive aggregate effect on household credit

Research Questions

- What is the distributional effect of the ECB Asset Purchase Programmes on household credit?
- What is the role of household asset portfolios in credit expansion and credit distribution?
- What are the policy transmission channels that contribute to the distributional effect?

Data

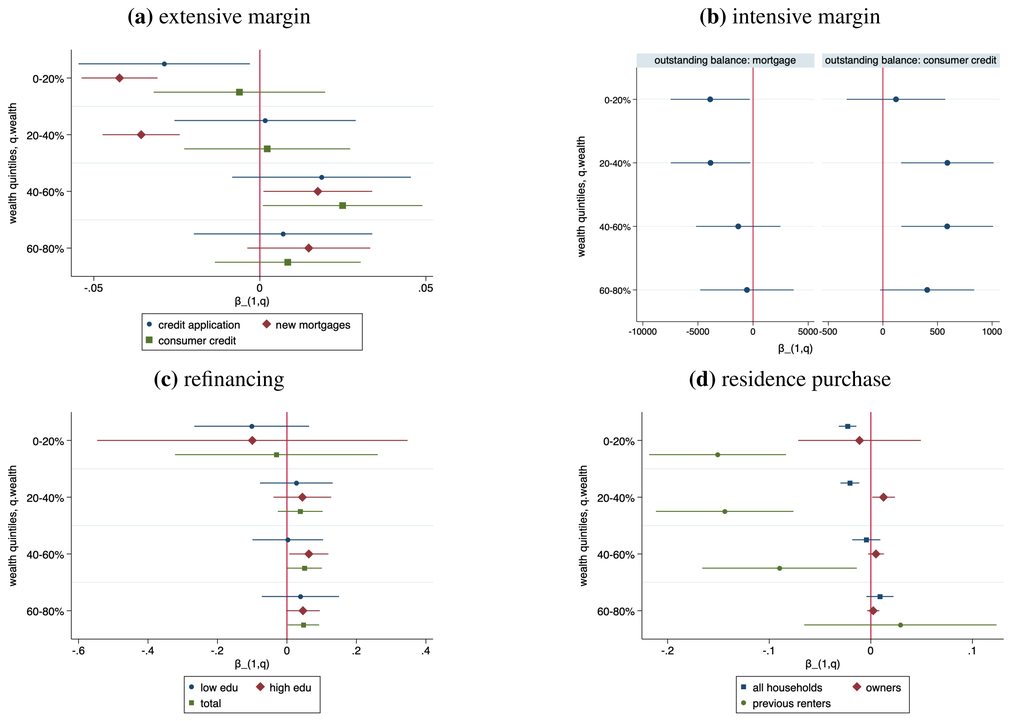
- Household-level data:
  - ECB Household Finance and Consumption Survey (HFCS): second wave (pre-APP period) and third wave (post-APP period), more than 138,000 observations from 17 countries in the Euro area.
- National-level data:
  - ECB: housing price index, bank interest rates on deposits
  - Datastream: stock market index

Cross-Quintile Analysis

$$credit_{ijt} = \sum_{q=1}^{4} \beta_{1,q} APP_t \times q.Wealth_{ijt} + \sum_{q=1}^{4} \beta_{2,q} q.Wealth_{ijt} + \beta_3 HC_{ijt} + \gamma_{jt} + \epsilon_{ijt} \quad (1)$$

APP_t: dummy, =1 if post-APP period; =0, otherwise
$q.Wealth_{ijt}$: dummies, wealth quintile q ($1.Wealth_{ijt} = 1$: the bottom 20% wealth group)
HC_{ijt}: household characteristics (education, employment, income, access to credit card, access to overdraft facility, house ownership, age, and household type)

Figure 1: Household credit among different quintiles



Household Asset Portfolio: Property as the Key Driver

$$credit_{ijt} = \beta_1 asset_{ijt} + \beta_2 asset_{ijt} \times APP_t + \beta_3 HC_{ijt} + \gamma_{jt} + \epsilon_{ijt}, \quad (2)$$

$$credit_{ijt} = \beta_1 asset_{ijt} + \beta_2 asset_{ijt} \times APP_t + \beta_3 asset_{ijt} \times return_{jt} + \beta_4 HC_{ijt} + \gamma_{jt} + \epsilon_{ijt}, \quad (3)$$

$asset_{ijt}$: shares of different asset categories within the household's total portfolio
$return_{jt}$: the asset return for each asset category in country j in year t

Table 1: Household Portfolio and Asset Returns on Household Credit

Asset Type	Real Estate (1)	Deposits (2)	Stocks (3)
Dependent variable	a. New Mortgages		
share of asset type	0.077***	-0.041***	-0.083***
	(0.004)	(0.008)	(0.018)
share of asset type × APP	0.006	-0.059***	-0.037
	(0.005)	(0.007)	(0.028)
share of asset type × asset return	0.010***	0.002	0.001*
	(0.001)	(0.006)	(0.000)
N	115,819	110,476	115,819
Dependent variable	b. Consumer Credit		
share of asset type	-0.034***	-0.032	-0.313***
	(0.007)	(0.024)	(0.047)
share of asset type × APP	0.032***	-0.048***	0.047
	(0.009)	(0.018)	(0.061)
share of asset type × asset return	-0.008***	-0.021	-0.001
	(0.001)	(0.015)	(0.002)
N	136,973	131,630	136,973

Notes: Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Control variables: Year × Country fixed effects, household type fixed effects, other household characteristics

- mortgage
  $\beta_3 < 0$: APP → housing price increases → mortgage increases
- consumer credit
  $\beta_2 > 0$: APP → overall easing of credit → consumer credit increases
  $\beta_3 < 0$: APP → mortgage available → substitute expensive non-collateral debt (consumer credit) for property-based debt (mortgages) → consumer credit decreases

Transmission Channels of UMP

- Two Channels: Credit Risk Channel, Credit Constraint Channel
- Empirical Strategy: recentered influence function (RIF) regression joint with the Oaxaca-Blindar decomposition method

Table 2: RIF Decomposition Results

	Gini (1)	Share by Top 10% (2)	Share by Top 5% (3)
a. Overall	$diff = 0$		
Difference ($post - pre$)	0.174	0.715	0.219
	(0.281)	(0.718)	(0.869)
Composition Effects	0.104	0.188	0.444
	(0.121)	(0.317)	(0.320)
Structure Effects	0.070	0.527	-0.224
	(0.257)	(0.653)	(0.819)
b. Composition Effects			
Household characteristics	sum $\beta < 0$		
Edu	-0.032**	-0.085***	-0.096**
	(0.012)	(0.033)	(0.038)
Employ	-0.112***	-0.287***	-0.267***
	(0.038)	(0.099)	(0.093)
Credit constraint channel	sum $\beta < 0$		
Credit Card	-0.058***	-0.130***	-0.111**
	(0.019)	(0.047)	(0.051)
Overdraft	0.028**	0.055*	0.036
	(0.013)	(0.031)	(0.032)
Credit risk channel	sum $\beta > 0$		
Wealth	0.058*	0.125*	0.211*
	(0.031)	(0.064)	(0.112)
Income	0.030	0.032	0.199
	(0.038)	(0.084)	(0.144)

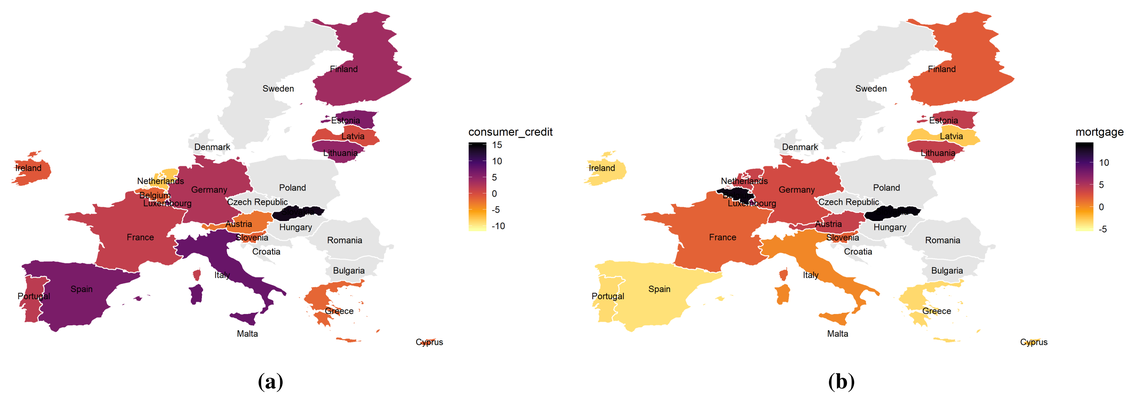
Notes: Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Coefficients are normalized to solve the problem of the base level choice associated with categorical variables, such as countries and household types.

- Policy Effect: APP ⇒ changes on distributions of components ⇒ contribute to credit inequality change
- Contributions of explanatory variables offset each other:
  - credit constraint channel: UMP loosens credit constraints ⇒ decreases credit inequality after the APP.
  - credit risk channel: UMP increases household income and wealth ⇒ increases credit inequality after the APP.

Extensions

Extension 1. Country heterogeneity

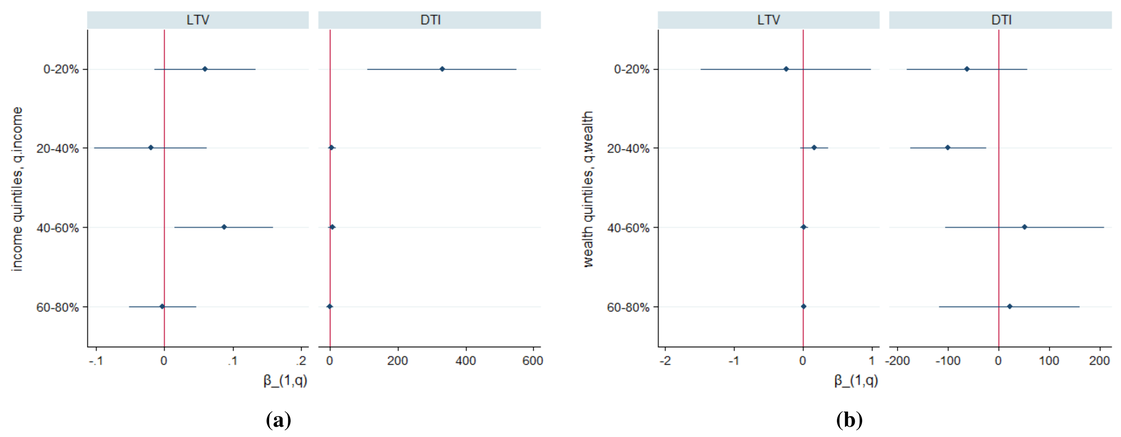
Figure 2: Country heterogeneity: Average household credit growth rates (%, 2014 Oct - 2016 Dec)



(a) **(b)**

Extension 2. Debt Repayment Ability

Figure 3: Household Credit among Different Quintiles: Debt Repayment Ability



(a) **(b)**

Conclusions

- Among all quintiles, the middle-wealth households increase the most their credit after APP implementation.
- APP widens the credit gap between the top and the bottom of the distribution.
- APP affects household credit by boosting property prices and the higher property prices lead to credit expansion by property owners.
- The credit risk channel increases credit inequality and the credit constraint channel decreases credit inequality.