Online Appendix - Companion to:

Contents of the Online Appendix

List of Figures

List of Tables

A Country-specific information

A.1 BE - Belgium

The National Bank of Belgium has been collecting granular data on credit to individual persons since 2006. In May 2024, a new data model and platform (BECRIS-ICR) was introduced, replacing the previous credit register (CCR/KCP). As the coverage of the two systems differs, there is a break in the time series as of May 2024. The credit register collects loan-level information on new loans, overdue debt, and payment arrears. Information on the Individual Credit Register is available at https://www.nbb.be/en/central-credit-registers/individual-credit-register-icr.

Importantly, **Interest rates** are not recorded. For mortgages, they can be estimated (at origination) from data on the principal, the first monthly payment, the frequency of payments, and the number of payments. Assuming annuity amortization of mortgages, if F is the amount of the loan at the time of issuance (face value) and C be the monthly payment that the borrower must make until maturity (T periods later). The interest rate r on the loan can be computed from the following formula:

$$F = \frac{C}{r}\left(1 - \frac{1}{(1+r)^t}\right) \tag{3}$$

A.2 ES - Spain

The Spanish Credit Registry (Central de Información de Riesgos del Banco de España or CIRBE) provides monthly information on all loans, credits, bank endorsements and general risks that financial institutions have with their customers. This detailed information is reported at the contract level and includes both the contract and borrower characteristics at the time of origination and throughout the life of the contract. Specifically, contract characteristics include the loan amount at origination, maturity, interest rate modality (adjustable versus fixed), interest rate, collateral requirements, purpose of the loan or the bank granting the loan. For more information, see https://www.bde.es/wbe/en/publicaciones/informes-memorias-anuales/memoria-cir/

A.3 HU - Hungary

The Hungarian credit registry has continuously evolved: it started as a list of delinquent borrowers in 1995, and was extended to include descriptive information on all outstanding loan contracts granted by financial institutions to households in 2012. The data used in this paper come from a new administrative data source (HITREG) that financial institutions (FI) have to provide to The Central Bank of Hungary established by MNB Directive 35/2018. (XI. 13.). FIs have to submit information on all outstanding loans in their portfolio including information on the loans' attributes both at origination and at the time of reporting. Attributes include loan amount, origination date, duration, loan type, interest rate, formula for calculating the interest rate (base rate + premium), macroprudential

measures (LTV and DSTI ratios), information on collateral values, and information on the borrowers (date of birth, gender) and guarantors of the loan contract. Of course, not all of these variables are applicable for all loans, and some of these variables could be missing for contracts that were originated before the establishment of the current reporting framework. For more information, see Technical assistance: https://aszp.mnb.hu/mnb-data-reporting/technical-assistance.

The Hungarian database was constructed based on the June 30 and December 31 screenshots of the HITREG for the analyzed period of 2021-2024, which means that the new loans with less than 6 months maturity are not included in the final database (less than 0.3% for 2022 first half year) and neither new loans which were terminated before the end of the half year (less than 1.7% for 2022 first half year). For the analyzed period of 2021-2024, most new loans are denominated in HUF; less than 0.1% are denominated in EUR or CHF. We converted non-EUR loans to EUR amount on the half year end exchange rate. Loans with zero outstanding capital credit were dropped from the sample.

A.4 IE - Ireland

Information on Ireland's Central Credit Register (CCR) is available at: https://www.centralcreditregister.ie/about-us/what-is-included-on-the-central-credit-register/. Some data points were excluded from the analysis due to confidentiality rules governing the use of CCR data.

A.5 IT – Italy

The main source used for data on Italian mortgages is the Bank of Italy's TAXIA (Quarterly analytical sample survey of lending rates), which collects information on interest rates from a sample of banks on household clients. The sample of banks sends information on mortgage loans both at origination (among others: interest rate, TAEG, and outstanding amount) and on outstanding loans (numeri computistici, interest paid, charges). This dataset covers the period from 2004 onwards, on a quarterly basis. For the needs of this paper, from the section covering only new loans, we took: the so-called *TAEG* (annual percentage rate of charge, i.e. the interest rate with all charges) at origination, the loan amount issued at origination, and the interest rate fixation period (IRF).

From the section covering outstanding loans, we took interest paid quarterly, the product of days and capital outstanding (numeri computistici, which highlights from quarter to quarter how much the debtor has to repay in capital line) as a proxy to validate the consistency of estimated interest rates and maturities.[1]

Importantly, TAXIA only covers exposures above €75.000 per borrower–bank relationship, which limits its coverage to larger credit exposures. We use the more comprehensive Italian Central Credit Register (Centrale dei Rischi, or CR) with

[1]By dividing the numeri computistici by a number hovering 90, we get a proxy for the outstanding capital quarterly.

a threshold of €30.000, managed by the Banca d'Italia, only as a complementary source for mortgage loans, as it does not contain information on interest rates or interest rate fixation periods. The CR includes data from all financial institutions, covering, for the scope of this paper: monthly outstanding value (used to estimate the monthly capital repayment) and information on the presence of collateral (including type).

Maturity at origination is provided only in classes in both sources, and thus needs to be estimated. We assume annuity amortization and use the following formula, where the installment C is interpreted as the annual payment (including both capital and interest). This value is projected from the quarterly change in outstanding amounts:

$$A = \frac{\ln\left(-P\,R/(C\,T - P\,R)\right)}{P\,\ln\left(1+\frac{T}{P}\right)}$$

where

A = number of years to repay the loan,

C = principal (loan amount at origination from TAXIA),

T = annual interest rate (TAEG, from TAXIA),

P = number of payment periods per year (12, as we took the delta in capital from CR from a month to another),

R = periodic payment amount (sum of 12× capital monthly repayment from CR and 4× interest paid quarterly from TAXIA).

We used different estimates, over different periods, and cross-validated using the maturity (and IRF for fixed rate) class information provided in TAXIA and CR, which serves as a benchmark for plausibility. When values are implausible, we input the minimum value to satisfy the class of belonging (e.g. above 5 but below 10, we input 5.1). We drop all observations which do not satisfy any condition based on the default information given by the two sources.

For more information, see:
https://www.bancaditalia.it/statistiche/raccolta-dati/centrale-rischi/index.html

For consumer credit and revolving credit, we rely on data from the Consorzio Tutela del Credito (CTC), a privately managed credit registry. CTC collects data from a sample of banks and other financial companies that participate, with a focus on exposures below €30.000. The dataset is available from December 2021 onwards on a quarterly frequency and includes information on collateral and maturity. The latter is thus reported directly and does not require any estimation. Although interest rates are not available, the outstanding amount typically includes the bulk of interest paid over the life of the loan, thus we cannot get the actual capital taken as loan by the debtor. IRFs are not available. However, since we know from other

sources that consumer credit in Italy is almost always fixed rate, we assume the IRF equals the maturity.

Loan classification is based on self-explanatory variables available in each dataset. In TAXIA, mortgage loans are explicitly labeled as such and identified as loans for house purchase. In the CTC dataset, consumer credit is identified as loans with a declared purpose, or those labeled as personal loans or income-backed loans. Revolving credit includes credit cards and overdraft-like instruments, distinguished by their structure and repayment flexibility. No additional assumptions are required for classification, as the datasets provide direct identifiers for loan purpose and structure. As a final remark, the TAXIA-CR database managed by Bank of Italy and the CTC cannot be connected in any case as they must be considered two distinct databases with no key in common.

A.6 LT - Lithuania

The Lithuanian Household Credit Register (Namų Ūkių Finansinės Stebėsenos Informacinė Sistema or NŪFSIS) is managed by the Bank of Lithuania (BoL) and provides quarterly data on credit obligations of resident natural persons (debtors) and their collateralization, information on the household composition of the debtor, income received and taxes paid, and additional details on real estate used as collateral. Data are collected at the most granular level, so that person-household-loan-creditor-collateral combinations are observed.

As there are several variables related to the purpose of the loan and the type of instrument in the register, the following assumptions are made to distinguish between credit lines, consumer credit, and housing loans:

- **Credit lines:** we consider a loan to be a credit line if its instrument type is any of the following: 'overdrafts', 'credit card debt', 'revolving credit other than overdrafts and credit card debt' or 'credit lines other than revolving credit'.
- **Consumer credit**: we categorize a loan as consumer credit if the purpose of the loan to the household is 'credit for consumption', 'credit for house purchase' or 'other credit' and its purpose is none of the following: 'investment in first residential property for owner-occupation', 'investment in residential property for rental', 'other investment in residential property', 'purchase of first residential property for owner-occupation', 'purchase of residential property for rental', 'other purchase of residential property' and the credit is issued according to the consumer credit Directive 2008/48/EC.
- **Housing loan**: we consider a loan to be a housing loan if the purpose of the loan to the household is 'Lending for house purchase'; the loan is related to real estate in accordance with the Responsible Lending Regulations (RLR), including cases where the application status of the RLR has not been reported. Also, if the purpose of the loan to the household is either 'Other lending' or not reported; the purpose of the loan is either 'construction invest-

ment in first residential real estate for own use', 'construction investment in residential real estate for renting', 'other construction investment in residential real estate', 'purchase of first residential real estate purchase for own use', 'purchase of residential real estate for renting', 'other purchase of residential real estate'; the loan is related to real estate in accordance with Responsible Lending Regulations (RLR) including cases where the application status of RLR was not reported.

Loans that do not fall into any of these groups are categorized as 'other loans' and are therefore excluded from the analysis.

A.7 LV - Latvia

The Latvian Credit Register is a national information system established and managed by Latvijas Banka, in which information is collected regarding credit obligations of individuals and legal persons, the guarantees received and provided, and late payments. The Credit Register data is provided by credit institutions, subsidiaries of credit institutions (leasing companies), other commercial companies, insurers, credit unions, JSC, Development Finance Institution Altum and the Treasury. Information on the Credit Register is available at https://www.bank.lv/en/operational-areas/credit-register. See Latvijas Banka (2024) for an example of the use of this Credit Register in policy analysis for Latvia, in particular focusing on housing lending across Latvia's regions (pp. 29-36) and refinancing costs of housing loans (Box 1, pp.11-12). [2].

A.8 PT - Portugal

Information on the household credit register is available at https://www.bportugal.pt/en/perguntas-frequentes/crc. The Portuguese household credit register includes sole proprietorships. We exclude these borrowers from our analysis, as their loans can be used for both personal and professional use, having different risk profiles.

A.9 SK - Slovakia

The data on loans to households are compiled by the National Bank of Slovakia (NBS) primarily for supervisory purposes and are confidential. The NBS has the mandate to impose the reporting obligation on any entity that provides loans to the retail sector. A loan is understood as a loan provided based on a loan agreement between the client and the bank or a branch of a foreign bank, including a refinancing loan and a renegotiated loan. Only loans provided to individuals (Sector S.143, 144) are reported, excluding loans granted to individuals who are entrepreneurs. All loans that are in the bank's portfolio as of the reporting date are reported, i.e.,

[2]Latvijas Banka (2024) "Financing of the Economy, 2024", ISSN 2592-9887, https://datnes.latvijasbanka.lv/fpp/FPP_2024_EN.pdf

loans for which the loan agreement has been signed by all contracting parties as of the reporting date, regardless of the actual loan disbursement. Approved loans for which the loan agreement has not been signed by all contracting parties are not reported. The data are reported on an individual basis, that is, the bank does not report retail loans provided by its subsidiary companies (e.g., installment sales and leasing companies).

Definitions of loan types Mortgage loans represent (housing) loans that are secured by residential real estate, flats, or non-residential spaces. These loans are intended to acquire ownership rights to real estate intended for housing. Collateral does not necessarily have to be the subject of purchase (it might be existing land, other real estate intended for housing, construction of real estate intended for housing, etc.). Consumer loans are non-collateralized loans with amounts between 100 EUR and 75,000 EUR. These loans are not intended for the acquisition of ownership rights in real estate intended for housing. Revolving loans include consumer loans in the form of credit cards and overdrafts. New loans refer to "pure new loans". Refinancing and renegotiated loans are excluded, as they are granted under very different circumstances compared to "pure new loans".

Data adjustments and assumptions Loan maturities are calculated as a difference (in months) between the date of repayment (the date of full repayment) and the drawn date (the date of the loan withdrawal) minus one month (to take into account the possibility of withdrawing the loan one month before the start of the repayment schedule). Information about the interest rate on the date of granting of revolving loans is not available. Therefore, it is replaced by the interest rate at the reporting date (at the end of June or December, respectively). Loans that were already repaid before the reporting, but for some reason were not excluded from the reports, were excluded from the stock analysis.

B Literature using the underlying micro-data

The literature on the transmission of monetary policy to household credit markets is extensive, though it typically relies on aggregate or country-specific data.[3] Our study, by contrast, seeks to integrate insights from a diverse set of countries within a harmonized methodological framework, complementing the work of Badarinza et al. (2018) and De Stefani and Mano (2025), who analyze credit-market dynamics using aggregated cross-country microdata.[4] What follows is a selective overview of recent household credit register-based studies from our sample of countries. It highlights the range of questions that household credit registers can address—but it is by no means exhaustive.

Granular data from national credit registries provide valuable insights into the distribution of household debt and lender-borrower interactions. Using data from the **Belgian** household credit registry, Emiris et al. (2025) show that local bank competition and borrower characteristics (credit worthiness, impatience, and switching costs) significantly influence refinancing outcomes. Emiris and Koulischer (2023) use the same dataset to examine the impact of interest rate changes on debt distribution and find that older households with preexisting housing wealth increased their borrowing as interest rates declined.

The **Spanish** Credit Registry has been extensively used for research, particularly concerning non-financial corporations (NFCs).[5] In the household sector, Mayordomo et al. (2024) identify the presence of over-appraisals of mortgage collateral values aimed at reducing bank capital requirements. Bover et al. (2022) compare the Spanish Survey of Household Finances with the Spanish Credit Registry, finding no significant differences in the levels of debt calculated from both datasets. Furthermore, this data set is frequently used in policy reports, for instance, to discuss the transmission of monetary policy to interest payments on bank debt for households and firms.

Using data from the **Hungarian** credit registry, Verner and Gyöngyösi (2020) show the detrimental effects of the revaluation of foreign currency-denominated mortgages (following the depreciation of the local currency in the wake of the 2008-9 financial crisis) on economic activity. They use geographic variation in the prevalence of foreign currency-denominated mortgages to show that the revaluation has led to a worse local recession, driven by a decline in local demand, and negative spillover effects on nearby borrowers without foreign currency debt. Briglevics et al. (2024) use data from the Hungarian credit registry to show that the introduction

[3]For instance, see Benetton et al. (2025), Beraja et al. (2018), Berger et al. (2021), Bosshardt et al. (2024), Drechsler et al. (2022), Emiris and Koulischer (2023), Flodén et al. (2020), Indarte (2023), Liebersohn and Rothstein (2025).

[4]When it comes to corporate credit, an expanding literature exploits contract-level data across countries—much of it enabled by AnaCredit in the euro area (see e.g. Vilerts et al. (2025) and references therein).

[5]For instance, Jiménez et al. (2012) and Jiménez et al. (2014) investigate the unique role of bank lending to firms in the transmission of monetary policy to the real economy. Furthermore, various aspects of NFC access to credit have been examined, such as the effects of housing booms (Martín et al. (2021)) or the impact of unconventional monetary policies of the European Central Bank (Arce et al. (2020)

of positive information into the credit registry (as opposed to the earlier practice of reporting only delinquencies) has led to an overall increase in credit access measured by both the probability of loan application acceptance and the credit amount. While credit access increased, default rates decreased after the introduction of more information in the credit registry.

Dirma and Karmelavičius (2023) extensively use household-level credit data in **Lithuania** to assess the adequacy of Borrower-Based Measures (BBMs). They build a novel lifetime expected credit loss framework that is founded on actual loan-level default and household income data. They show that the BBM package effectively contains mortgage credit risk and that housing loans are more resilient to stress than in the pre-regulatory era in Lithuania.

Using **Portuguese** Credit Register data, Farinha and Lacerda (2010) explores household indebtedness profiles, revealing significant differences in delinquency across credit products. Farinha and Costa (2011) further assess the role of foreign banks in housing loans and their impact on deleveraging during financial instability. Oliveira and Queiro (2022) analyze macroprudential policies on mortgage contracts using an overlapping generations model, showing that while LTV caps reduce mortgage debt and defaults, they also lower household welfare, particularly for low-income and low-wealth households. Bonfim and Zhao (2024) document a climate risk premium on mortgages exposed to wildfire risk and find that tighter monetary policy reduces this premium. Their results suggest that climate risk is managed primarily through pricing rather than quantities, with reduced risk sensitivity in more profitable environments.

Granular household credit register data of **Slovakia**, originally compiled for supervisory purposes, is increasingly utilized in macroprudential analyses and enhances macro stress testing. Micro-level data on individual retail loans improves estimates of nonperforming loans, particularly during periods of economic stress, such as the COVID-19 pandemic (Klacso (2024)). Moreover, detailed retail credit data facilitate a more precise cost-benefit analysis of borrower-based measures (Cesnak et al. (2021)) as well as analyzing how the presence and role of financial advisors shape the impact of macroprudential policies on loan characteristics (Cesnak et al. (2025)).

C Summary Statistics by Product and Country

This appendix provides descriptive evidence on the structure of the granular loan-level data used in the analysis. The tables document key characteristics of newly originated household loans across nine European countries, distinguishing between two different loan product types: *mortgages* and *consumer credit*. All statistics are derived from narrowly defined bins constructed over combinations of country, time, lender, borrower characteristics (including age), and loan features such as collateral and maturity.

Table C.1 The first table in this appendix presents the distribution of the number of new loan contracts per bin, reported separately by loan type. Each panel of the table corresponds to a distinct loan product category. For each country and product type, the table reports the total number of observations (i.e., bins with at least five contracts), along with the mean and selected percentiles of the within-bin number of new loan contracts. This serves as a measure of the representativeness and density of the underlying microdata across different country-product combinations.

Tables C.2 and C.3 The subsequent tables offer a more detailed breakdown of within-bin summary statistics for each of the two loan product types, separately. Each table focuses on a single product: mortgages (C.2) or consumer credit (C.3). These tables present statistics across six dimensions:

- Panel A reports the average loan amount per bin;
- Panel B shows the standard deviation of loan amounts;
- Panel C provides the coefficient of variation for loan amounts, offering a scale-free measure of dispersion;
- Panel D presents the average interest rate within each bin;
- Panel E gives the standard deviation of interest rates;
- Panel F reports the coefficient of variation for interest rates.

All monetary values are expressed in euros, while interest rates are shown in percentage terms. For each panel, the number of bins, as well as measures of central tendency and dispersion (mean and percentiles), are reported at the country level. The breakdown by product type and by panel enables comparisons in loan size and pricing heterogeneity across products and countries.

Table C.1: Number of observations: by product and country

Panel A: Number of Observations - Mortgages

	count	mean	p5	p10	p25	p50	p75	p90	p95
BE	126	4432	9	22	208	1416	6078	11835	19387
ES	508	2360	9	12	55	379	1193	6837	12288
HU	392	431	6	11	30	177	638	1245	1541
IE	249	430	10	16	44	137	498	1181	1947
IT	726	1084	6	8	16	80	360	1793	5386
LT	94	534	12	14	36	89	474	1926	3824
LV	174	149	5	6	11	46	114	470	792
PT	423	799	9	11	30	89	471	2002	4498
SK	308	779	6	9	15	58	458	1688	2871

Panel B: Number of Observations - Consumer Credit

	count	mean	p5	p10	p25	p50	p75	p90	p95
BE	235	7265	65	163	1092	3736	10351	20383	24136
ES	906	18158	9	15	78	786	15665	72918	95554
HU	844	2177	8	12	32	368	1190	7441	13739
IE	398	5764	19	32	144	1179	8608	19094	29123
IT	643	21164	20	33	120	4930	25340	64450	101314
LT	606	1717	11	14	29	146	2354	5207	7155
LV	626	1138	6	10	34	506	1615	2998	3659
PT	1209	2076	8	12	39	239	1025	6207	11505
SK	261	4018	7	11	268	1811	4943	9166	23967

D Aggregate Household Credit Developments

This appendix presents graphical evidence on the evolution of household credit across nine European countries during the period 2022–2024. The figures offer a visual summary of key features of new loan origination, disaggregated by product type and country.

Figures D.1–D.9 These figures display developments in new mortgage and consumer loan contracts for each country separately. For each country, four panels are shown:

- The top-left panel reports the time series of the weighted average amount and interest rate for newly originated mortgage loans.
- The top-right panel presents the same two variables for new consumer credit.
- The bottom-left panel shows the total volume (in million euros) and the number of new mortgage contracts over time.
- The bottom-right panel provides the corresponding totals for consumer credit.

Each panel covers semiannual periods from the first half of 2022 through the first half of 2024 (with data for the second half of 2024 included where available). This layout facilitates both cross-country and within-country comparisons of household borrowing trends over time.

Table C.2: Mortgages: summary statistics by country

	count	mean	p5	p10	p25	p50	p75	p90	p95
Panel A: Average amount									
BE	126	172429	117087	118302	133845	169069	194047	252048	262869
ES	508	114114	46313	54595	76244	115689	151880	167623	179748
HU	392	34769	8628	10351	14304	32533	47228	62026	70693
IE	249	186817	80303	98080	137896	185998	236787	283527	300847
IT	726	156183	109180	116180	128434	145514	169116	210469	251524
LT	94	73369	30149	31932	47577	74693	100177	116318	118986
LV	174	75483	31163	35110	44778	69738	99366	127048	141133
PT	423	74913	33388	40045	58005	77283	91988	103543	108806
SK	308	71200	30409	34275	43986	67695	94854	113339	121812
Panel B: SD Amount									
BE	126	132409	83153	93462	109801	127258	159803	176381	191351
ES	508	79938	36693	43803	59026	81397	98603	113027	121141
HU	392	22931	5988	7067	10012	22004	31252	41953	49639
IE	249	120525	50881	59949	82337	116698	150622	183376	200583
IT	726	93772	40127	47408	63311	84714	113281	150039	182191
LT	94	49580	15183	25810	33957	48429	61189	76040	82343
LV	174	42369	13839	15875	27668	41614	56400	68307	75779
PT	423	53853	28929	36842	46727	53795	61068	69032	73728
SK	308	49869	18745	22788	36733	48470	62241	74958	84213
Panel C: Coefficient of variation - Amount									
BE	126	0.78	0.52	0.56	0.65	0.76	0.93	1.05	1.10
ES	508	0.80	0.37	0.42	0.54	0.67	0.89	1.53	1.82
HU	392	0.69	0.35	0.43	0.53	0.67	0.80	0.98	1.13
IE	249	0.68	0.40	0.44	0.52	0.63	0.77	0.95	1.12
IT	726	0.59	0.33	0.37	0.45	0.58	0.69	0.82	0.93
LT	94	0.70	0.48	0.50	0.55	0.68	0.78	0.92	1.09
LV	174	0.58	0.31	0.37	0.45	0.57	0.69	0.82	0.89
PT	423	0.76	0.51	0.53	0.61	0.72	0.87	1.05	1.25
SK	308	0.73	0.41	0.46	0.57	0.71	0.85	1.02	1.13
Panel D: Average interest rate									
BE	99	3.43	1.67	1.83	2.89	3.46	3.90	4.69	5.56
ES	508	3.11	1.41	1.63	2.50	3.15	3.79	4.35	4.75
HU	392	7.65	4.66	5.11	6.10	7.13	8.37	10.87	13.49
IE	249	3.64	2.42	2.50	2.89	3.81	4.22	4.44	4.53
IT	726	3.93	1.74	2.06	3.02	4.20	4.84	5.43	5.66
LT	94	4.78	2.38	2.67	3.73	5.41	5.88	6.23	6.53
LV	173	4.74	2.02	2.52	3.97	5.11	5.70	5.94	6.19
PT	423	3.47	1.13	2.13	3.08	3.73	4.12	4.41	4.59
SK	308	3.64	1.29	1.44	2.95	4.07	4.59	4.91	5.10
Panel E: SD interest rate									
BE	99	1.43	0.51	0.55	0.62	1.09	1.78	2.37	3.10
ES	508	0.97	0.40	0.51	0.74	0.96	1.21	1.38	1.54
HU	392	1.46	0.42	0.51	0.74	1.31	2.05	2.57	3.04
IE	249	0.61	0.29	0.33	0.43	0.53	0.71	1.00	1.23
IT	726	0.94	0.52	0.61	0.74	0.91	1.11	1.33	1.46
LT	94	1.08	0.57	0.66	0.80	0.98	1.28	1.53	1.81
LV	172	0.58	0.23	0.30	0.44	0.56	0.70	0.90	0.95
PT	423	0.84	0.26	0.29	0.46	0.73	1.07	1.68	1.85
SK	308	0.68	0.27	0.31	0.44	0.60	0.81	1.21	1.44
Panel F: Coefficient of variation - Interest rate									
BE	99	0.41	0.15	0.16	0.22	0.35	0.53	0.73	0.87
ES	508	0.34	0.12	0.17	0.24	0.31	0.42	0.55	0.62
HU	392	0.21	0.06	0.07	0.09	0.17	0.28	0.41	0.49
IE	249	0.17	0.09	0.10	0.12	0.15	0.20	0.26	0.31
IT	726	0.26	0.13	0.14	0.19	0.24	0.34	0.40	0.44
LT	94	0.25	0.10	0.12	0.15	0.23	0.35	0.41	0.48
LV	172	0.14	0.04	0.06	0.08	0.12	0.17	0.25	0.27
PT	423	0.27	0.07	0.08	0.13	0.22	0.38	0.53	0.63
SK	308	0.23	0.06	0.07	0.11	0.18	0.29	0.42	0.61

Table C.3: Consumer Credit: summary statistics by country

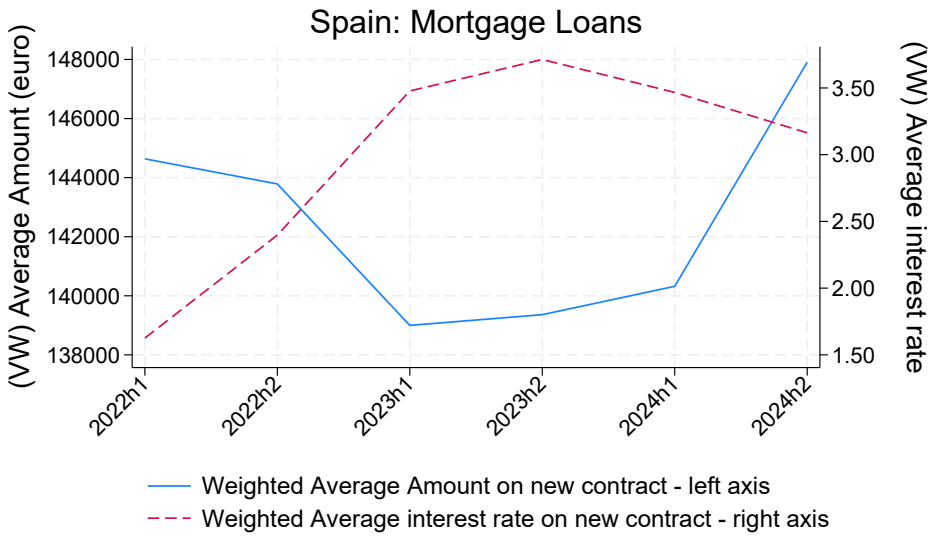
	count	mean	p5	p10	p25	p50	p75	p90	p95
Panel A: Average amount									
BE	235	23709	1484	2047	4715	19554	26277	62820	76832
ES	906	19883	742	1407	7113	16534	24142	36143	55428
HU	844	8290	404	626	1013	3827	10904	25963	27492
IE	398	21264	2307	4449	10681	21236	25859	29205	42278
IT	643	17015	724	1020	3626	11416	26032	40313	50128
LT	606	9035	602	755	1377	7241	15485	21073	22109
LV	626	4849	489	564	970	3802	6837	10083	14220
PT	1209	15358	1991	2545	6933	12449	16065	29061	45423
SK	261	8975	754	816	1234	5436	17380	21282	22380
Panel B: SD Amount									
BE	235	14908	2329	3740	6013	14336	22299	29089	32746
ES	906	15796	917	2201	6604	10563	19506	38400	49513
HU	844	3818	216	315	616	2465	5495	10295	11764
IE	398	14488	3144	3844	6413	12173	14609	20074	55612
IT	643	10229	602	1276	3359	9458	15800	21029	22449
LT	606	5185	867	1038	1576	4796	8069	9862	10673
LV	626	2883	402	464	1015	2788	4509	5757	6322
PT	1209	13809	1647	2387	5729	8216	14817	34035	48847
SK	261	6081	862	998	1408	5959	9858	11475	13122
Panel C: Coefficient of variation - Amount									
BE	235	1.12	0.29	0.37	0.55	0.83	1.35	2.36	2.81
ES	906	1.07	0.35	0.39	0.56	0.83	1.29	1.90	2.69
HU	844	0.66	0.10	0.24	0.44	0.65	0.84	1.09	1.27
IE	398	0.75	0.41	0.46	0.53	0.62	0.81	1.09	1.38
IT	643	0.86	0.39	0.44	0.57	0.71	0.92	1.29	1.45
LT	606	0.84	0.39	0.43	0.50	0.73	1.03	1.34	1.85
LV	626	0.82	0.33	0.43	0.62	0.82	1.01	1.22	1.35
PT	1209	0.99	0.42	0.47	0.60	0.84	1.04	1.43	1.91
SK	261	0.96	0.47	0.49	0.63	0.92	1.25	1.46	1.56
Panel D: Average interest rate									
BE	Not recorded								
ES	884	7.32	2.53	3.60	5.51	7.80	8.93	10.06	10.95
HU	843	17.22	8.02	8.78	12.16	15.94	22.29	25.60	28.97
IE	398	7.52	4.97	5.55	6.51	7.78	8.52	8.97	9.30
IT	Not recorded								
LT	543	13.51	3.24	4.38	6.68	10.21	17.61	25.83	37.72
LV	625	20.11	1.44	4.89	13.40	20.40	26.66	34.80	40.77
PT	1209	6.77	1.56	3.30	5.33	7.33	8.48	9.42	9.98
SK	261	10.66	3.26	3.92	6.41	10.45	14.49	17.03	19.40
Panel E: SD interest rate									
BE	Not recorded								
ES	883	2.85	0.52	0.94	1.60	2.83	3.90	4.96	5.77
HU	839	4.15	0.57	0.86	1.68	3.59	6.03	8.61	10.09
IE	398	2.60	1.43	1.69	1.98	2.41	3.01	3.78	4.43
IT	Not recorded								
LT	537	6.25	0.60	0.75	1.43	3.21	8.94	18.08	22.93
LV	625	8.05	0.26	0.43	3.02	7.48	11.94	16.45	17.63
PT	1209	2.39	0.94	1.32	1.68	2.12	3.08	4.04	4.40
SK	261	5.53	0.36	0.58	0.97	3.95	8.67	13.32	15.75
Panel F: Coefficient of variation - Interest rate									
BE	Not recorded								
ES	883	0.46	0.07	0.15	0.25	0.38	0.48	0.87	1.35
HU	839	0.23	0.06	0.08	0.13	0.21	0.30	0.40	0.48
IE	398	0.37	0.18	0.20	0.24	0.31	0.47	0.57	0.66
IT	Not recorded								
LT	537	0.39	0.10	0.12	0.19	0.39	0.53	0.68	0.78
LV	625	0.40	0.05	0.10	0.23	0.35	0.55	0.71	0.90
PT	1208	0.55	0.14	0.17	0.21	0.30	0.51	1.03	2.00
SK	261	0.45	0.07	0.10	0.19	0.38	0.65	0.88	0.96

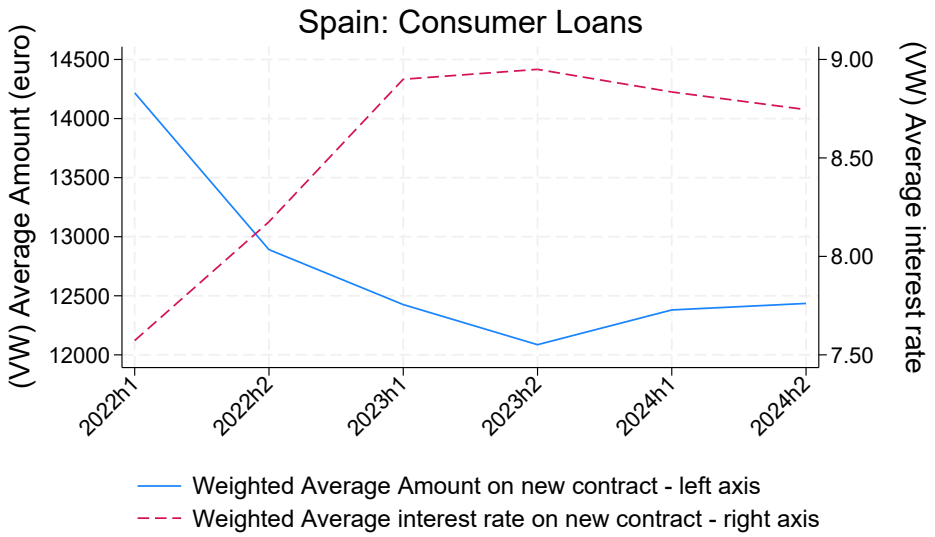
All figures are based on aggregated data computed from highly disaggregated bins defined by time, country, loan type, creditor, borrower age, initial maturity, and interest rate fixation period. The plotted statistics correspond to either weighted averages or totals, as noted in the figure labels and axis annotations.

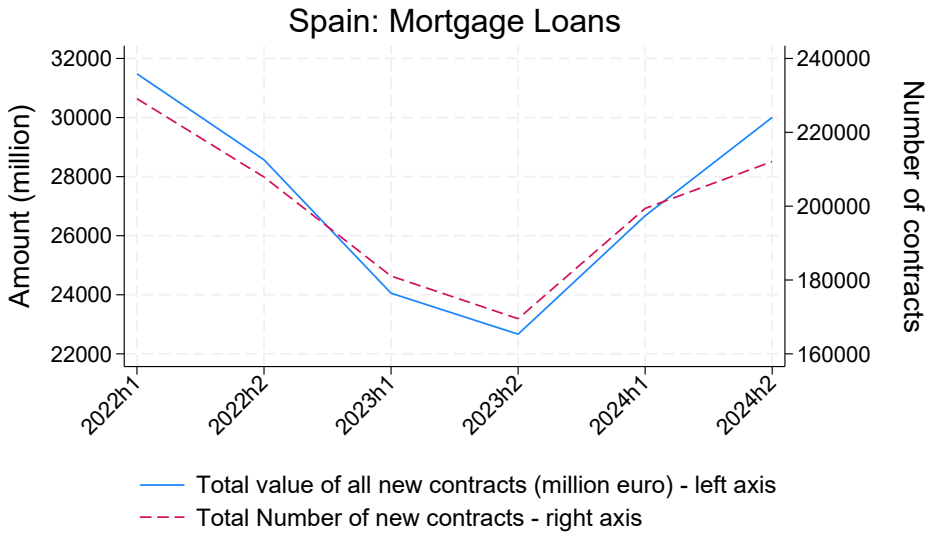
The sequence of figures is: Belgium (D.1), Spain (D.2), Hungary (D.3), Ireland (D.4), Italy (D.5), Lithuania (D.6), Latvia (D.7), Portugal (D.8), and Slovakia (D.9).

Figure D.1: Household credit in Belgium during 2022-2024

Figure D.2: Household credit in Spain during 2022-2024







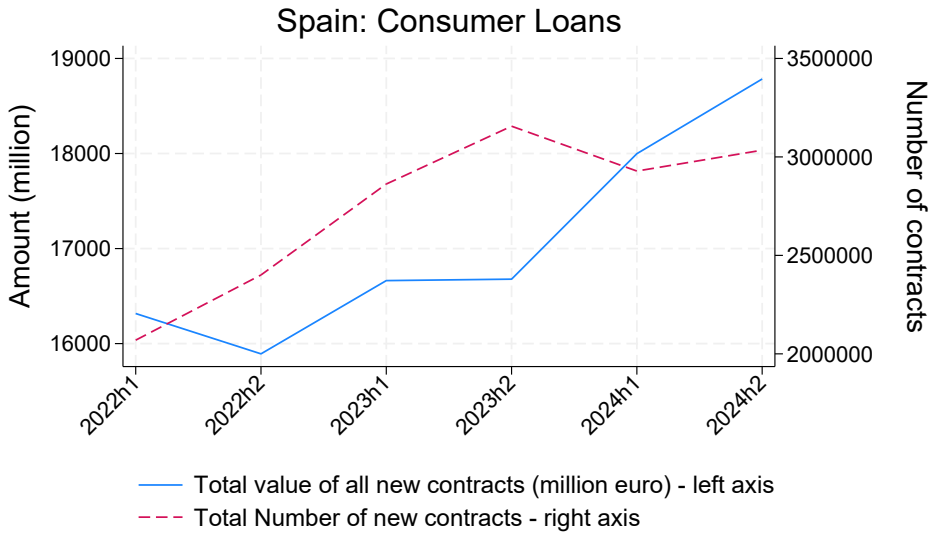
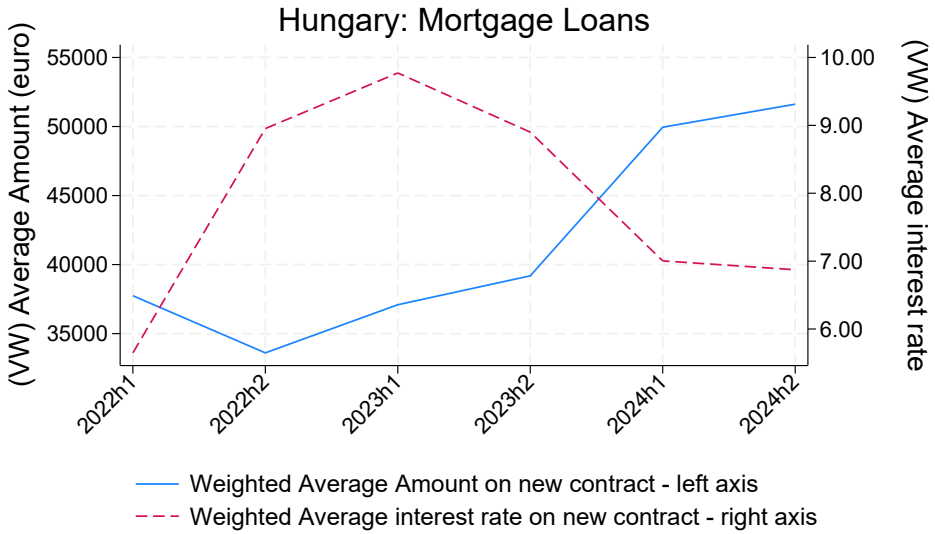
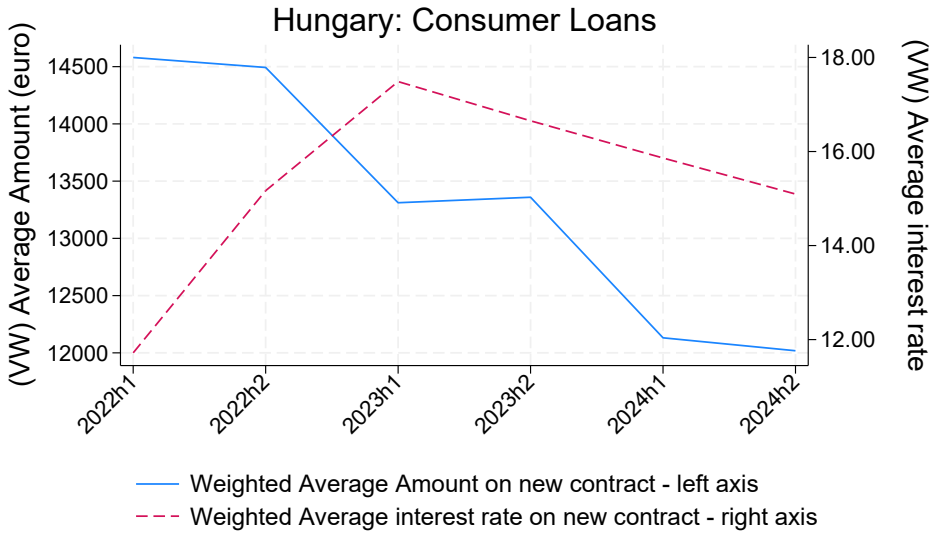
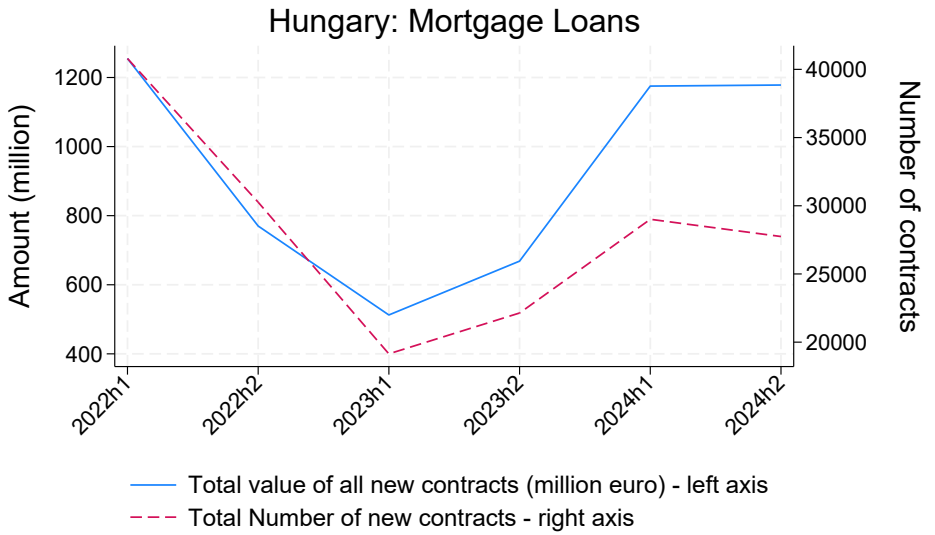


Figure D.3: Household credit in Hungary during 2022-2024







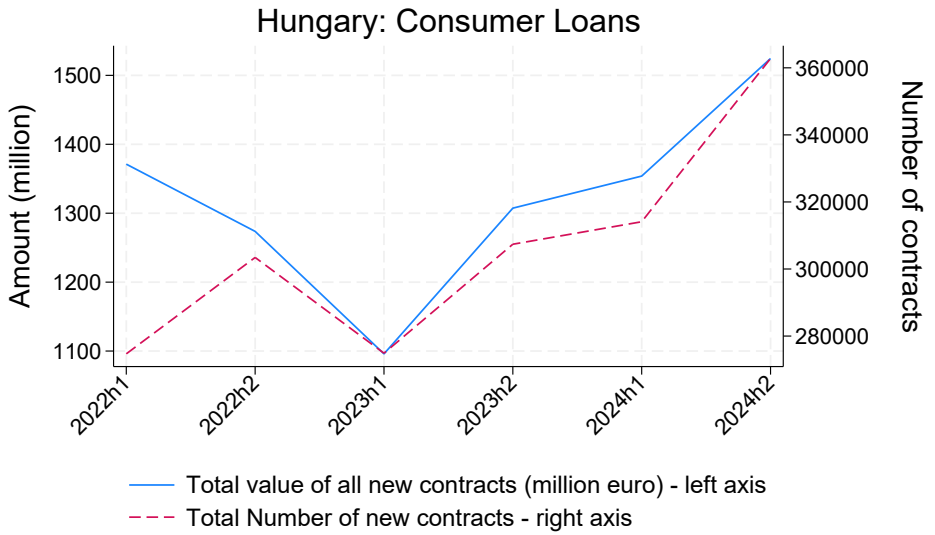
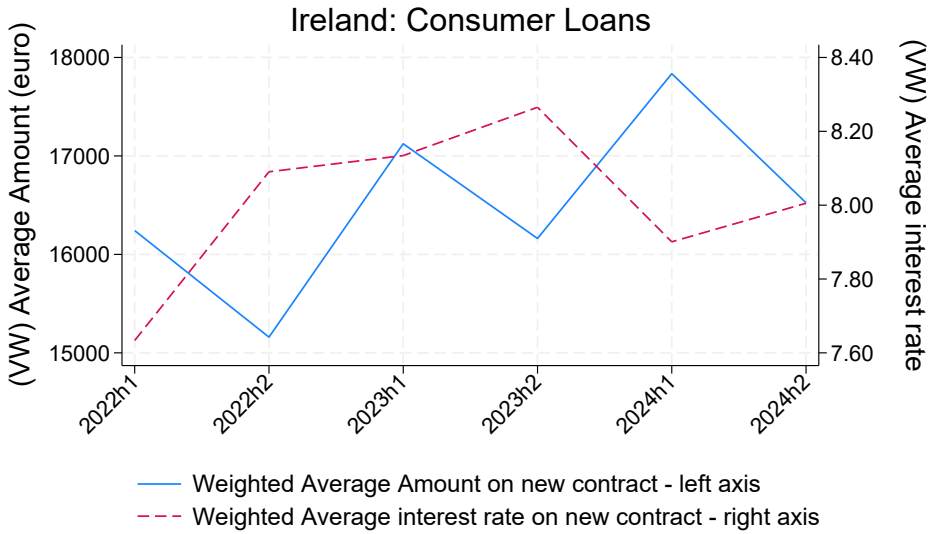
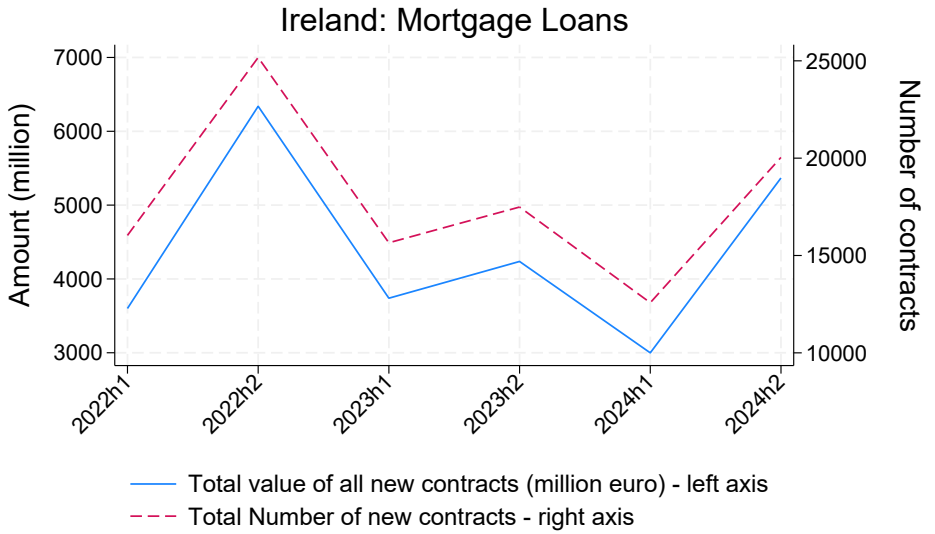


Figure D.4: Household credit in Ireland during 2022-2024





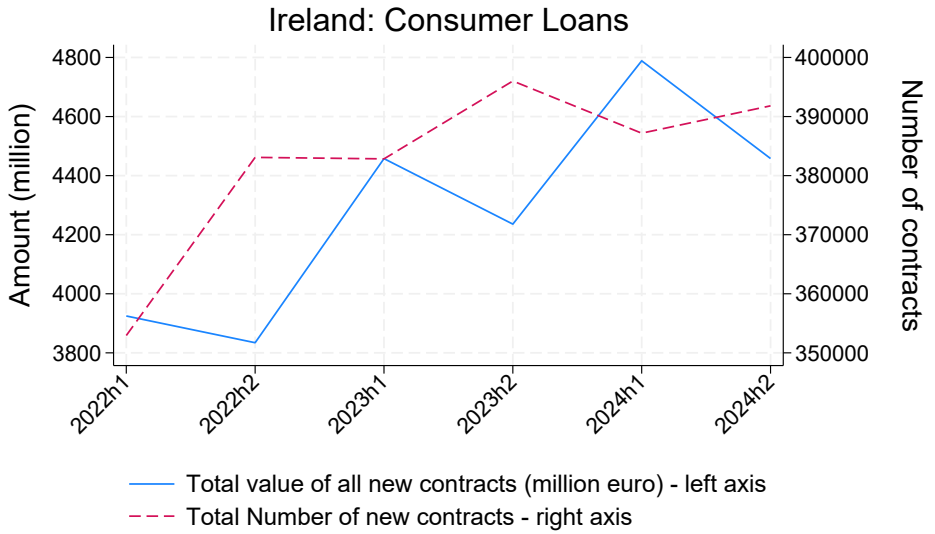
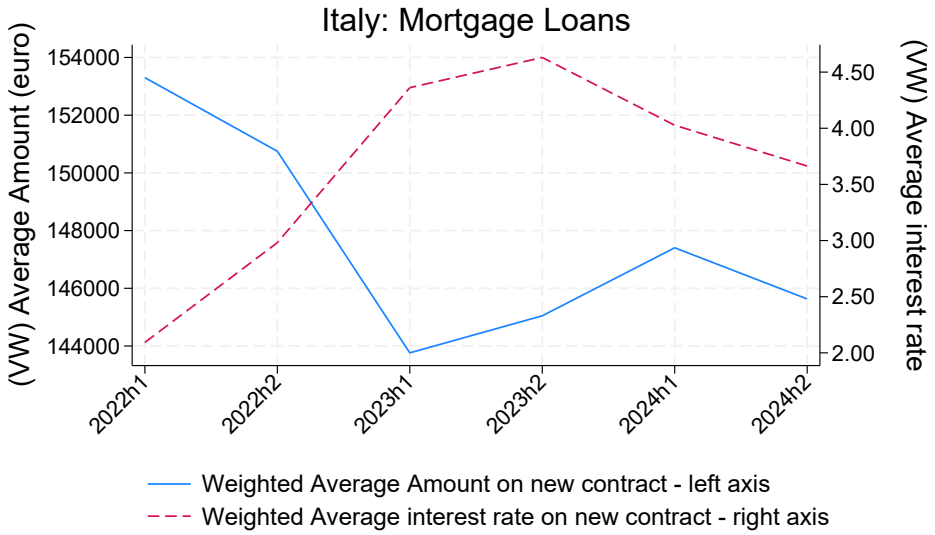
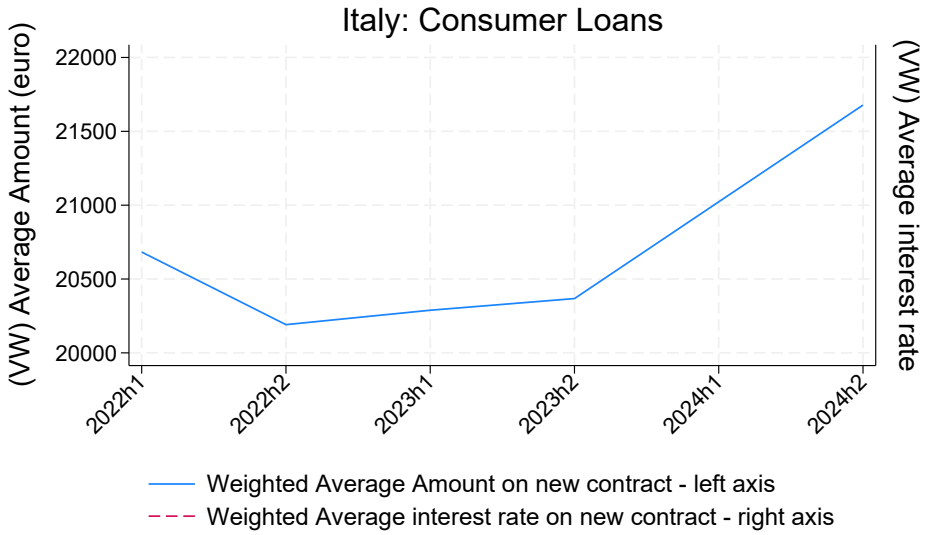
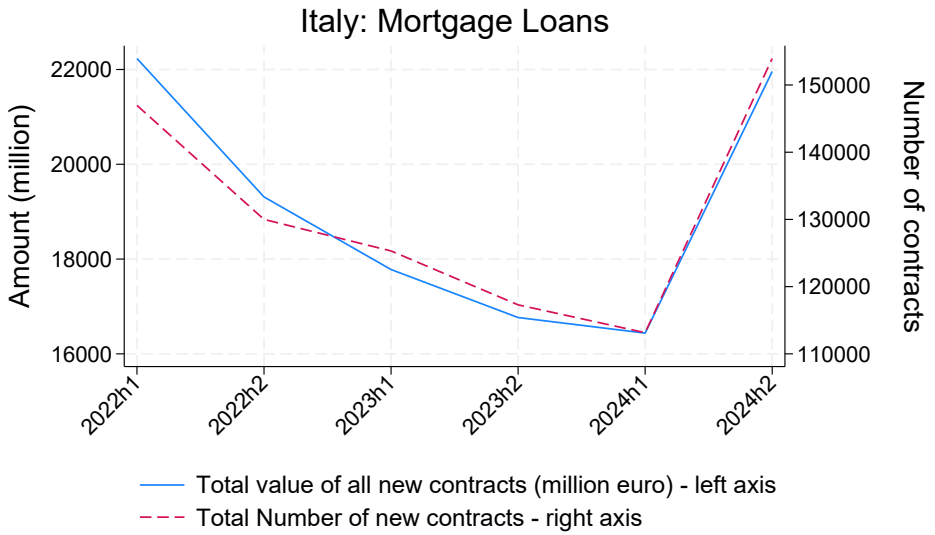


Figure D.5: Household credit in Italy during 2022-2024







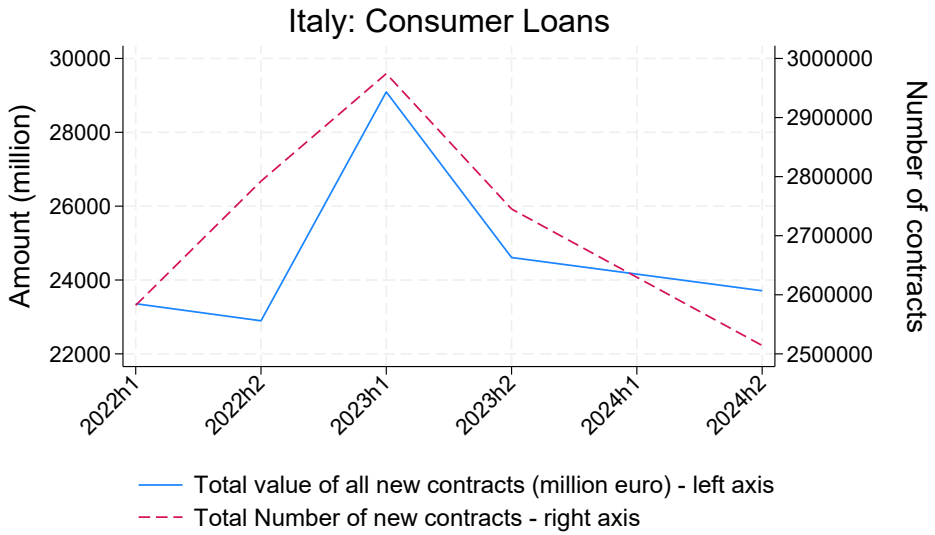
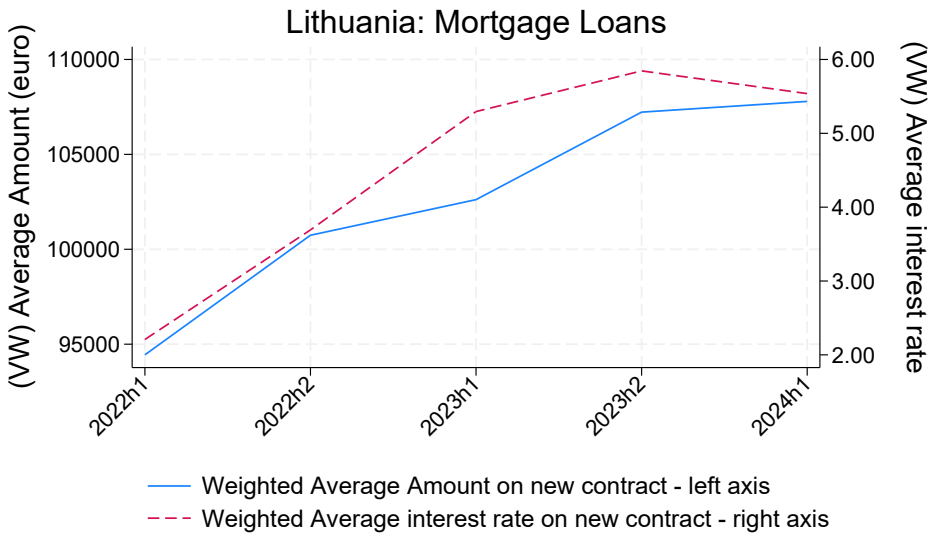
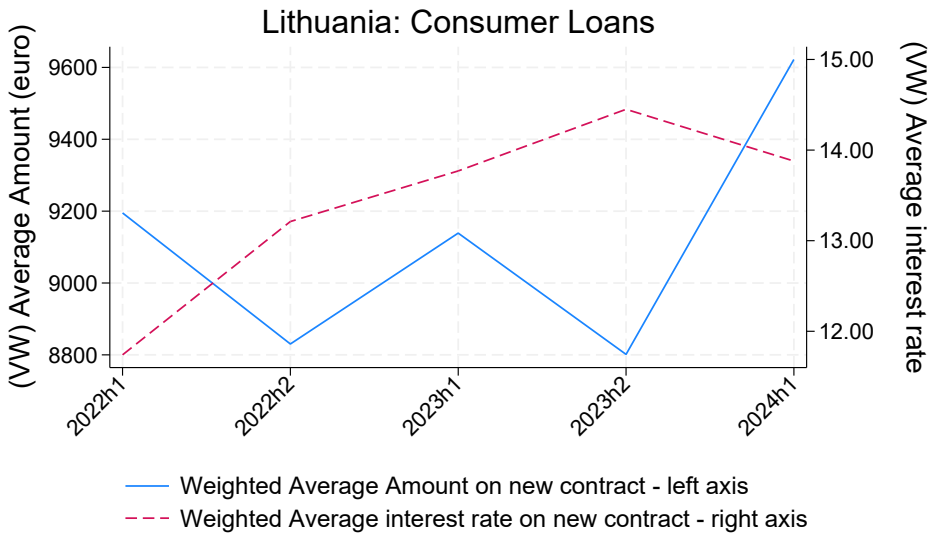
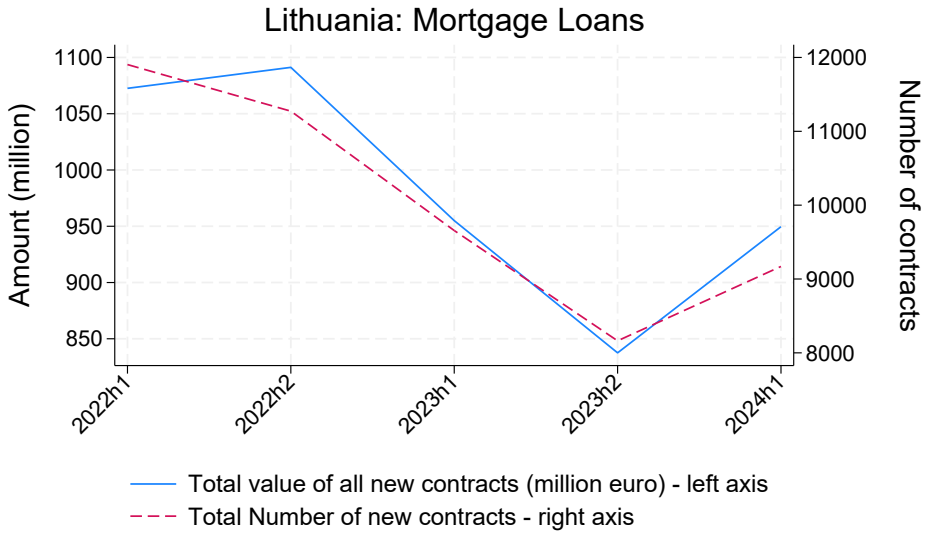


Figure D.6: Household credit in Lithuania during 2022-2024







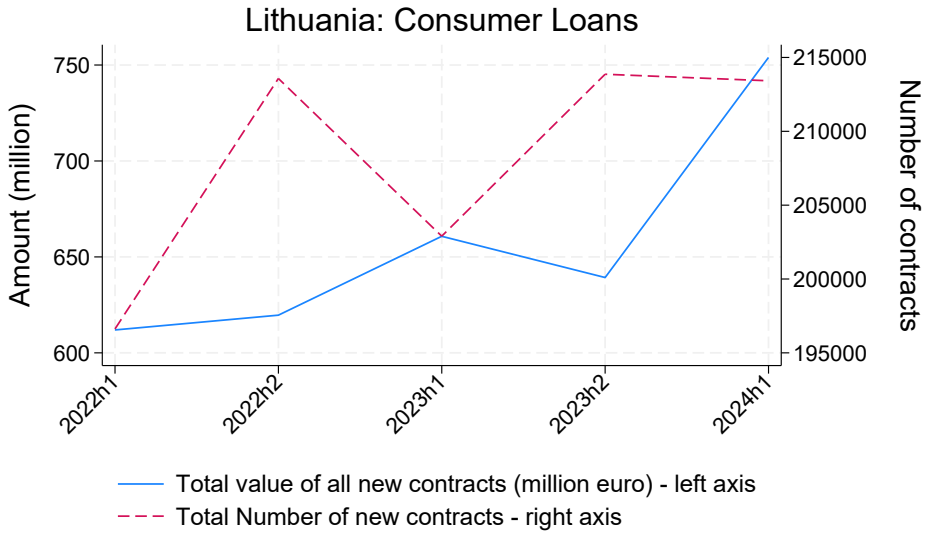
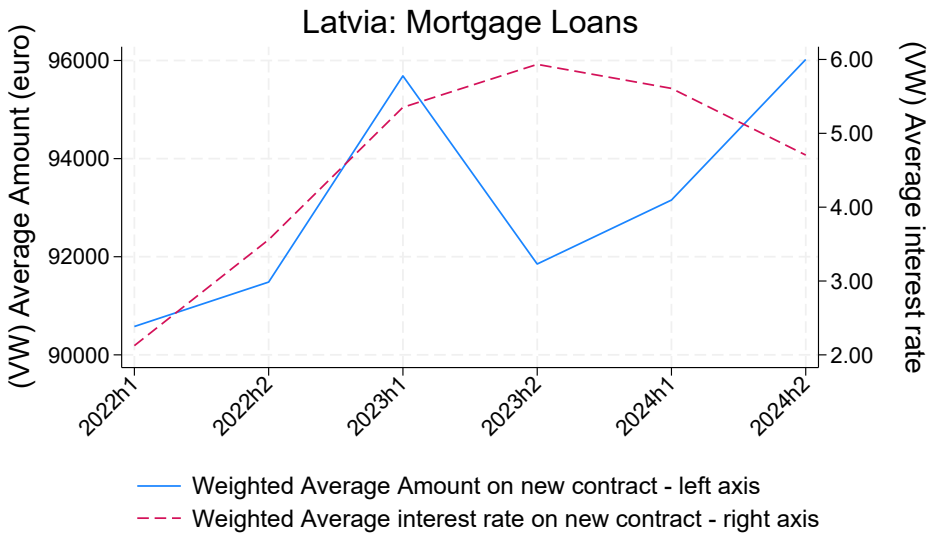
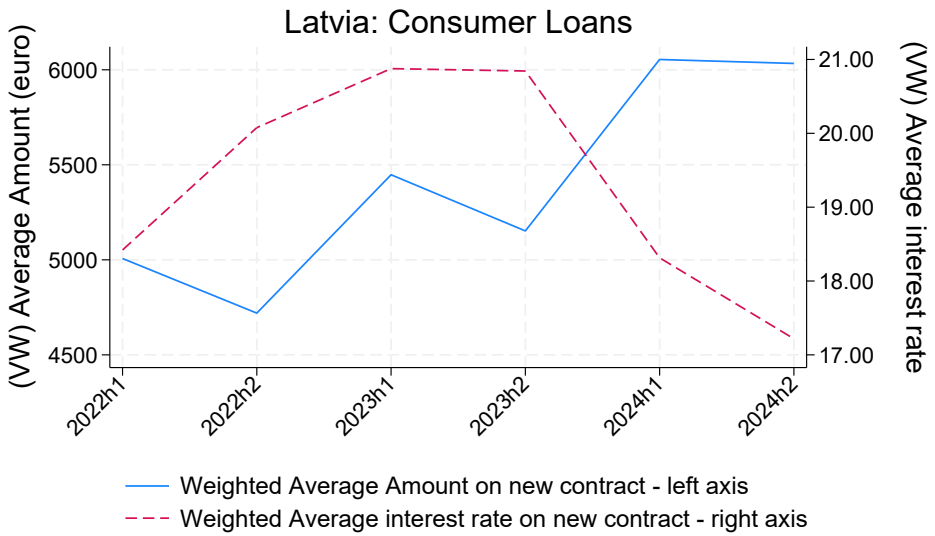
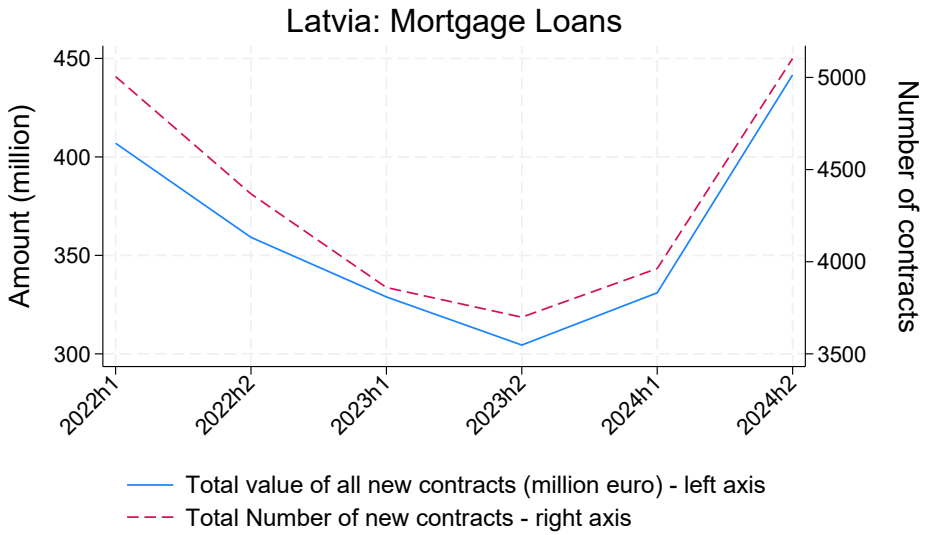


Figure D.7: Household credit in Latvia during 2022-2024







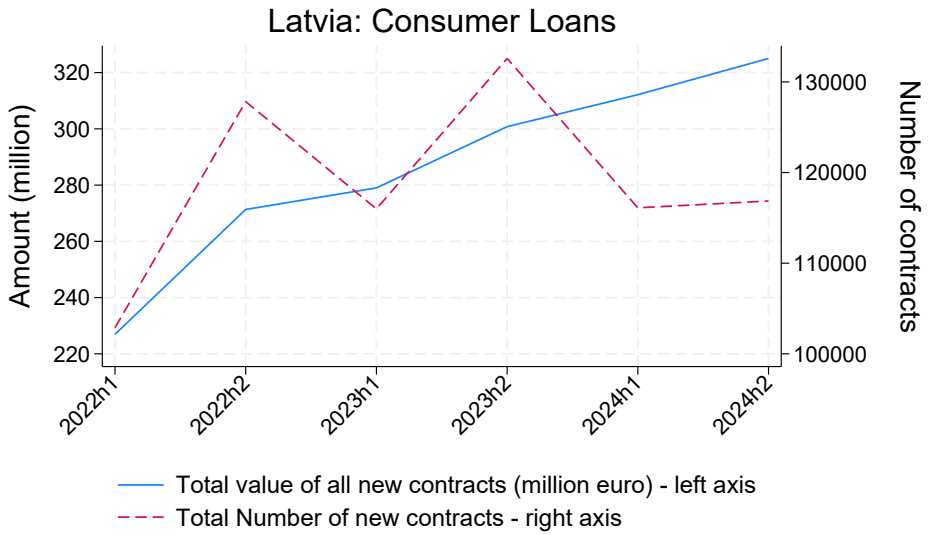
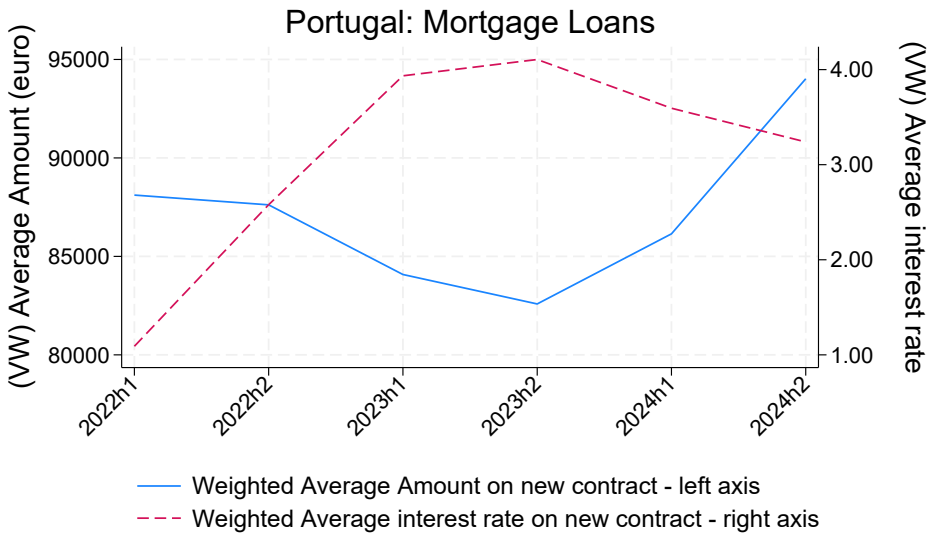
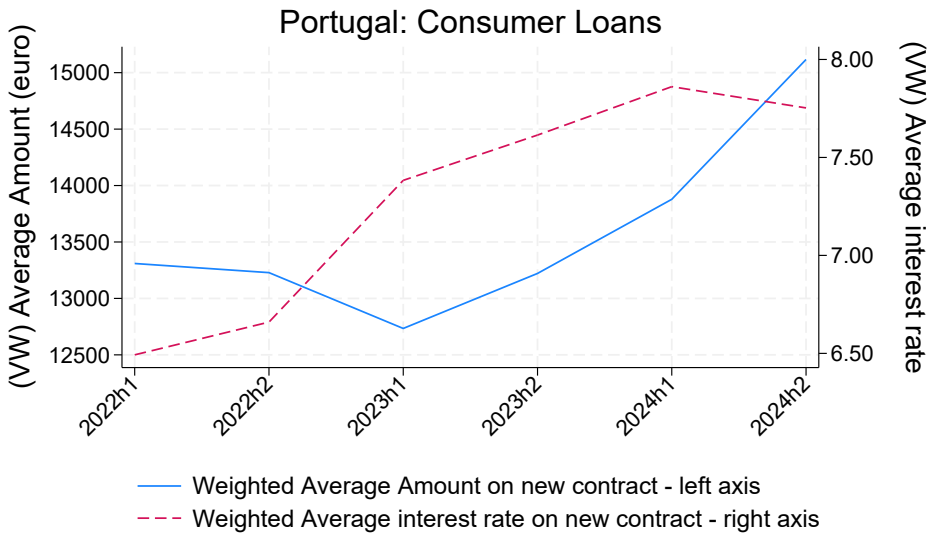
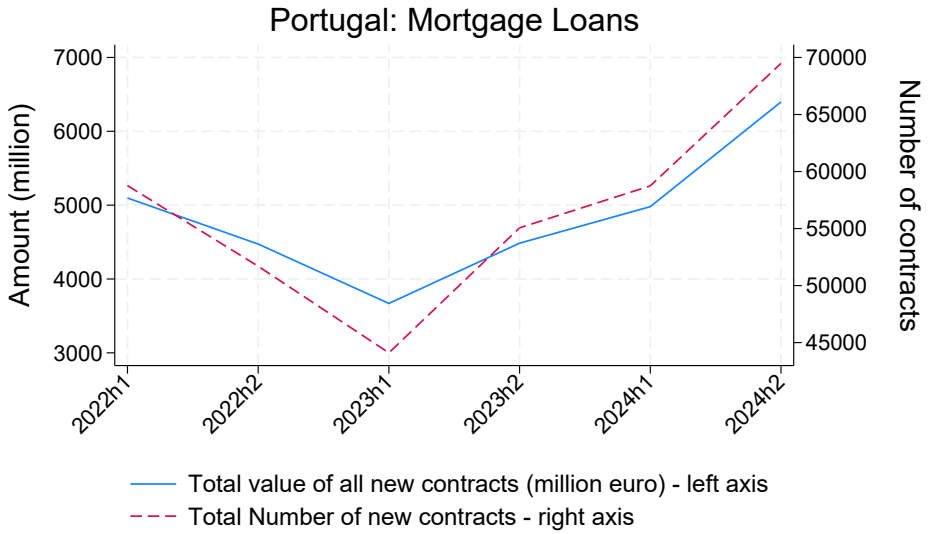


Figure D.8: Household credit in Portugal during 2022-2024







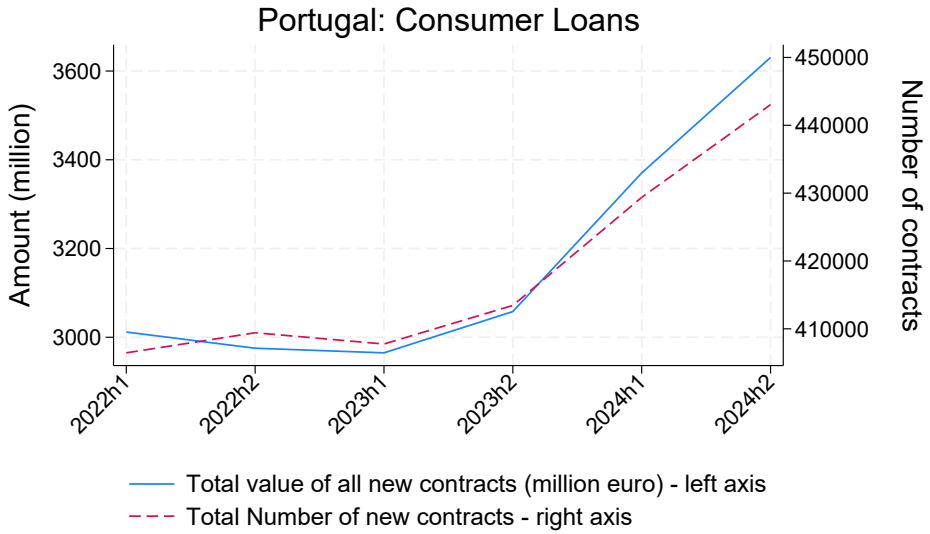
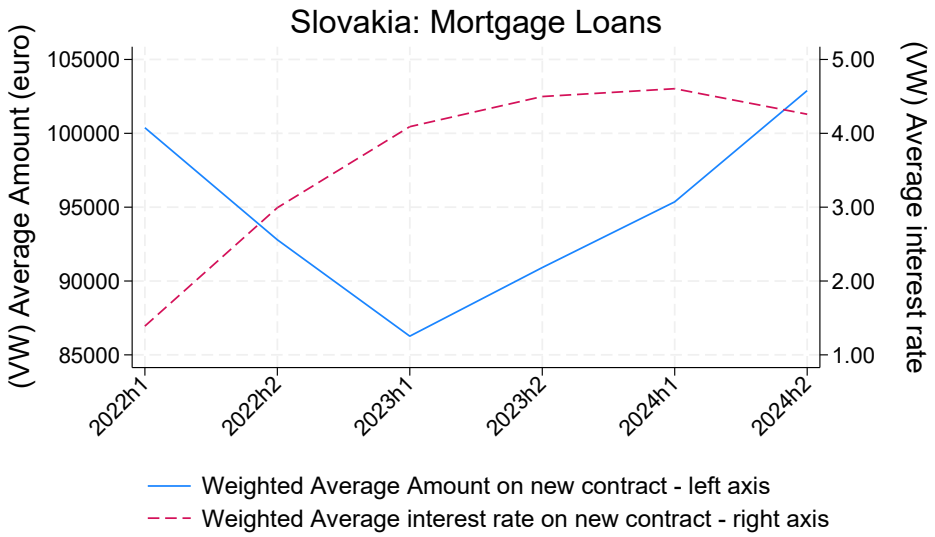
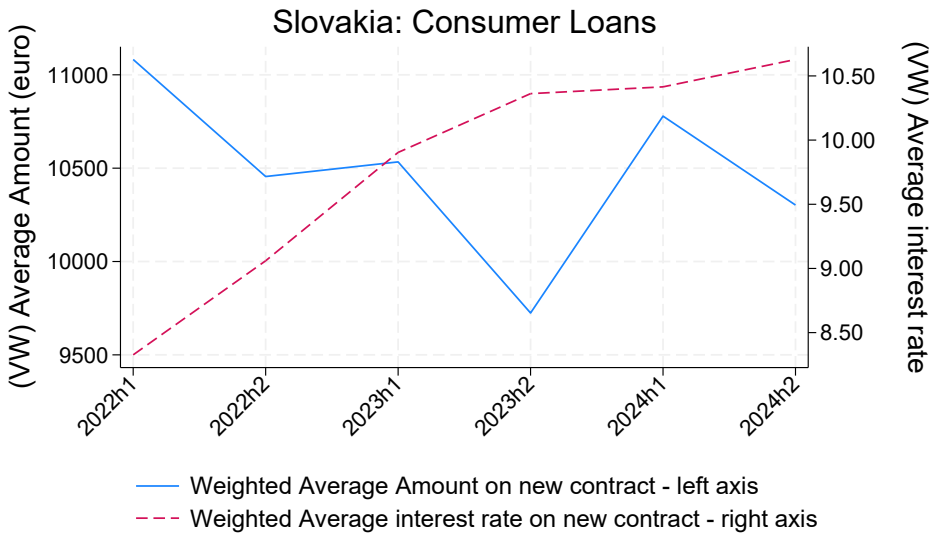
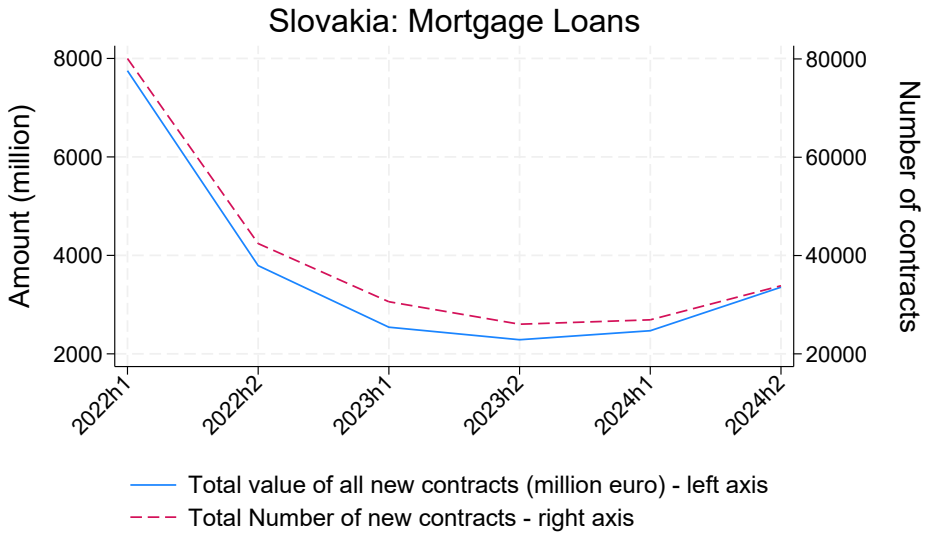
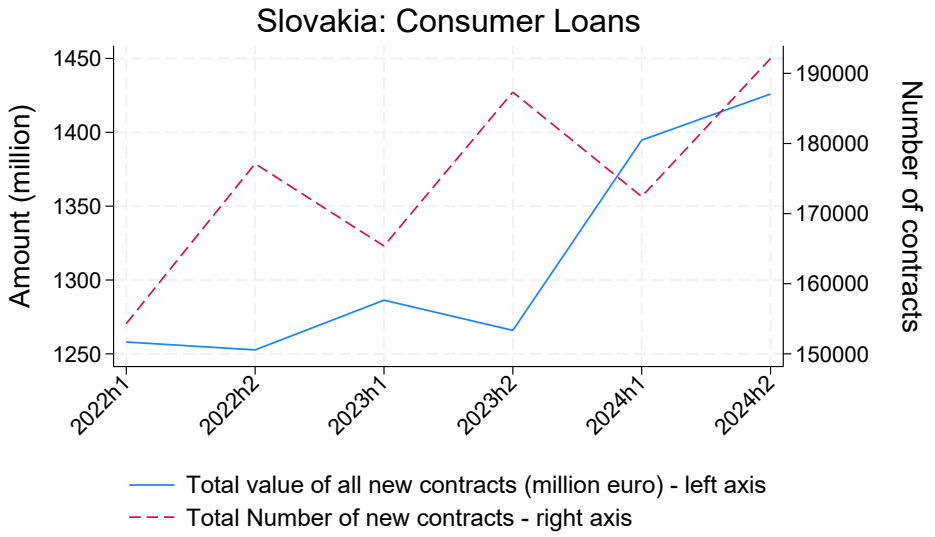


Figure D.9: Household credit in Slovakia during 2022-2024









E Household credit: Split by initial maturity

Figures E.1–E.9 This set of figures displays the evolution of household loan characteristics, disaggregated by the initial maturity of the loan. Each figure corresponds to a specific country and covers the semiannual periods from 2022:H1 through 2024:H2.

For each country, the figure is structured into four panels:

- The top-left panel shows the average interest rate on newly originated **mortgage loans**, split by maturity group.
- The top-right panel presents the same statistic for new **consumer loans**.
- The bottom-left panel reports the average amount of new **mortgage loans**, again disaggregated by maturity group.
- The bottom-right panel shows the average amount of new **consumer loans** by maturity.

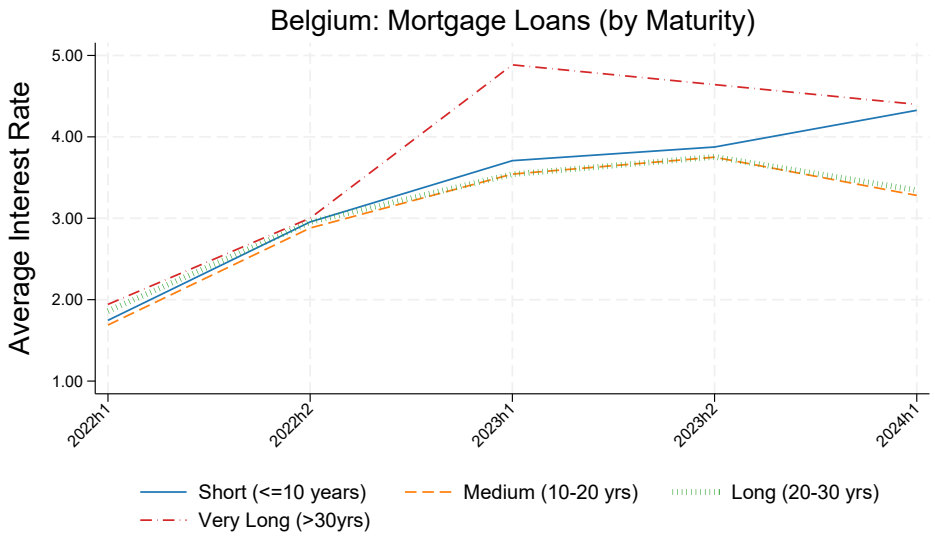
The maturity groups are defined as follows:

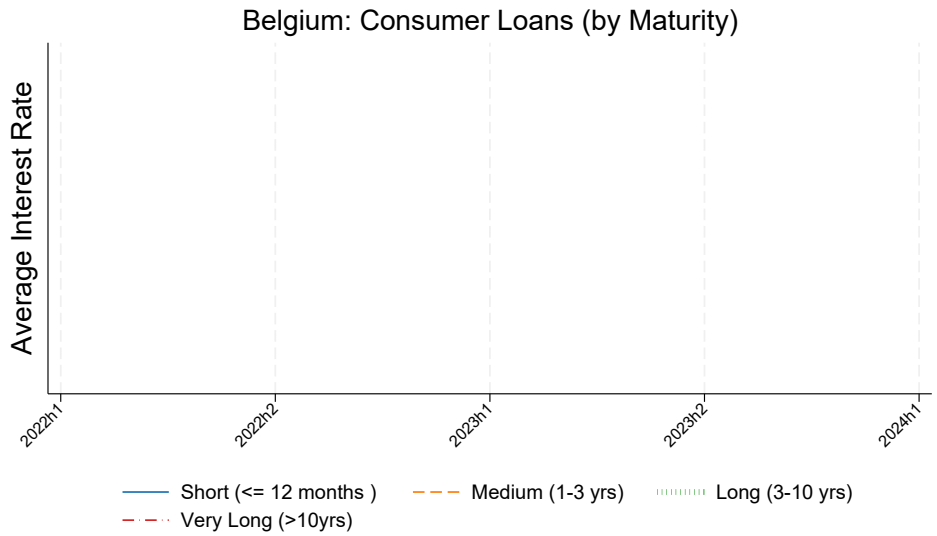
- For mortgage loans: *Short* ($\leq$10 years), *Medium* (10–20 years), *Long* (20–30 years), and *Very Long* (>30 years);
- For consumer loans: *Short* ($\leq$12 months), *Medium* (1–3 years), *Long* (3–10 years), and *Very Long* (>10 years).

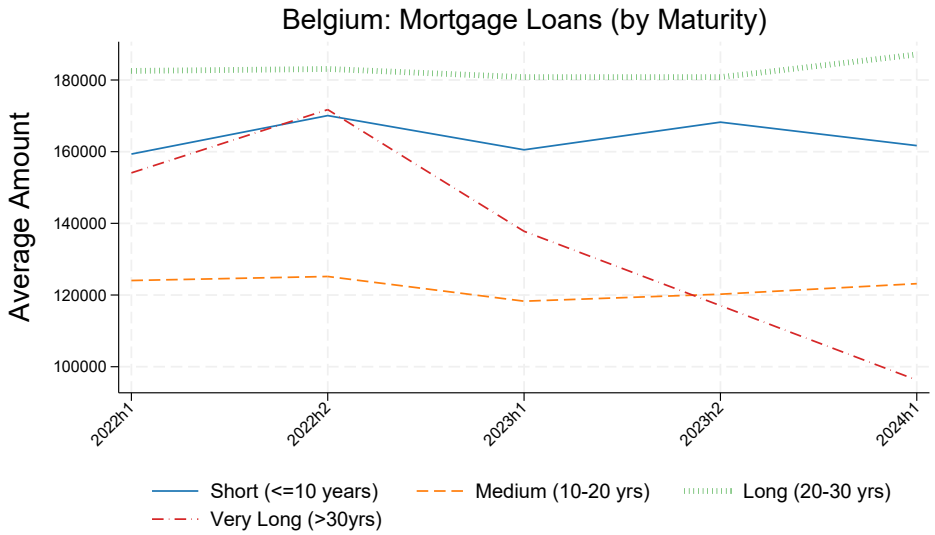
The figures provide a dynamic view of how the pricing (interest rates) and scale (loan amounts) of new household borrowing vary over time and across maturity segments. This breakdown allows for the inspection of potential shifts in the distribution of new lending, as well as the differential response of short- and long-term credit to changes in economic or financial conditions.

Countries included in this series are: Belgium (E.1), Spain (E.2), Hungary (E.3), Ireland (E.4), Italy (E.5), Lithuania (E.6), Latvia (E.7), Portugal (E.8), and Slovakia (E.9).

Figure E.1: Maturity breakdown: Belgium







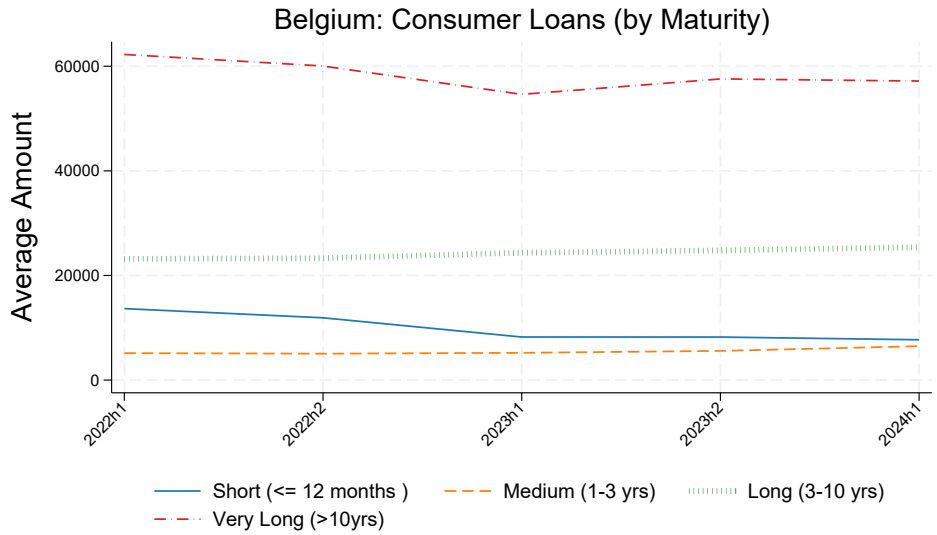
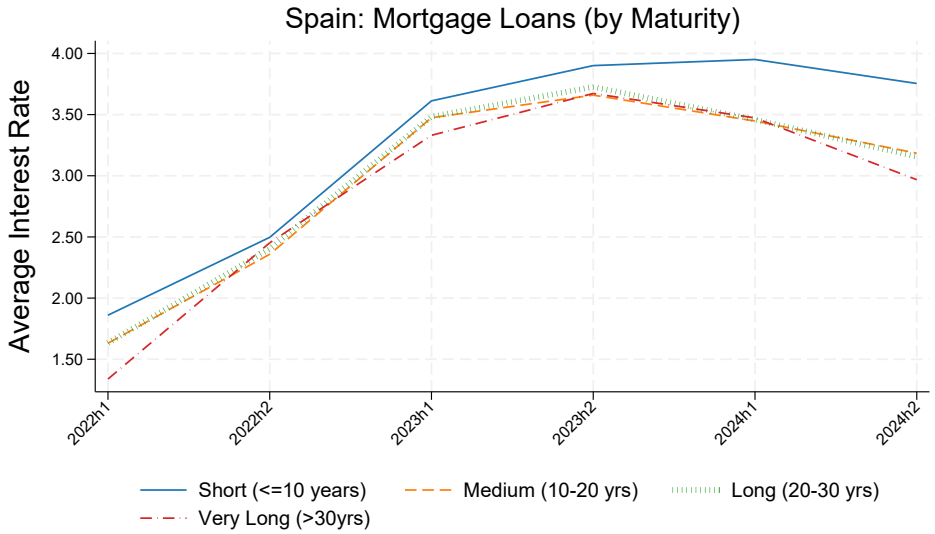
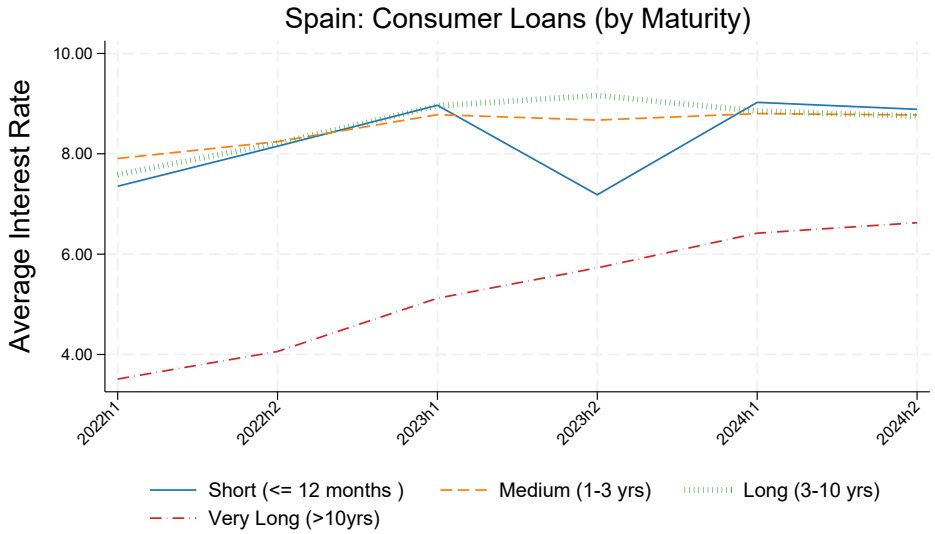
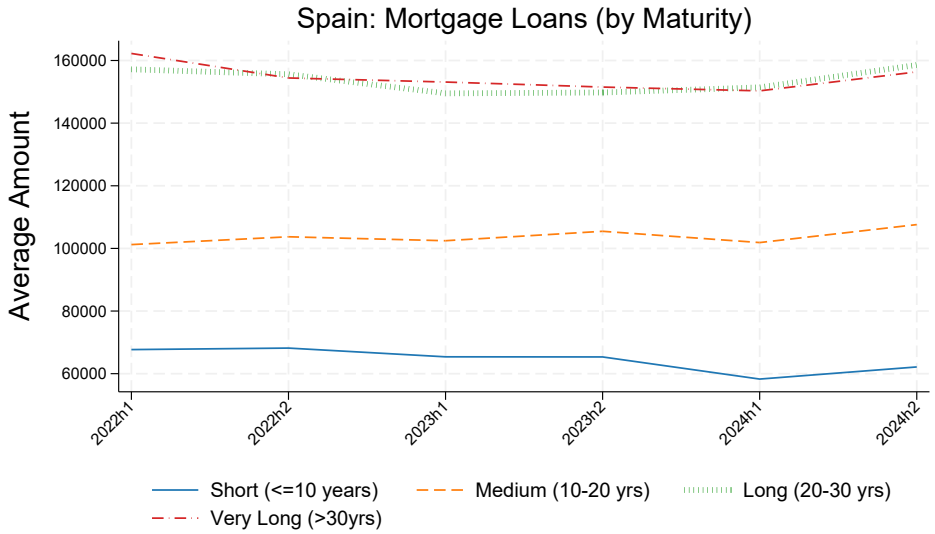


Figure E.2: Maturity breakdown: Spain







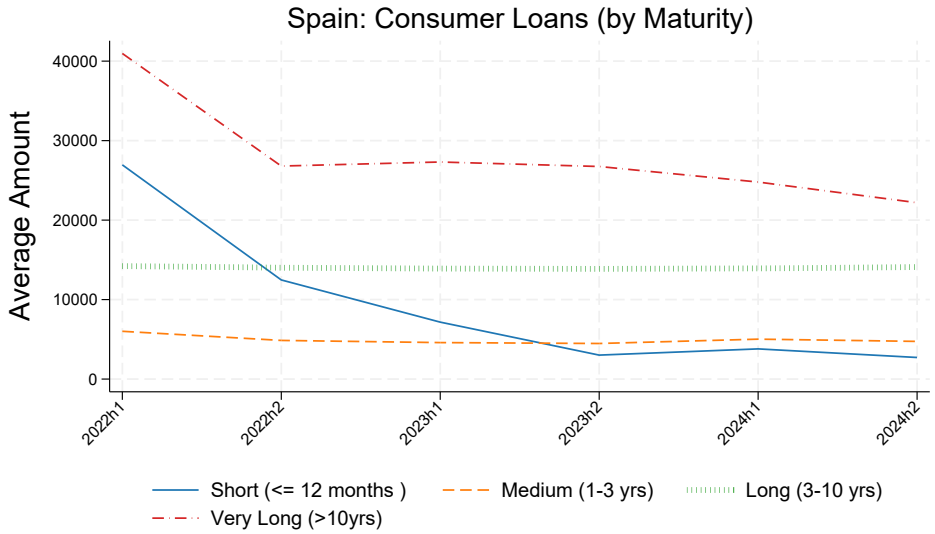
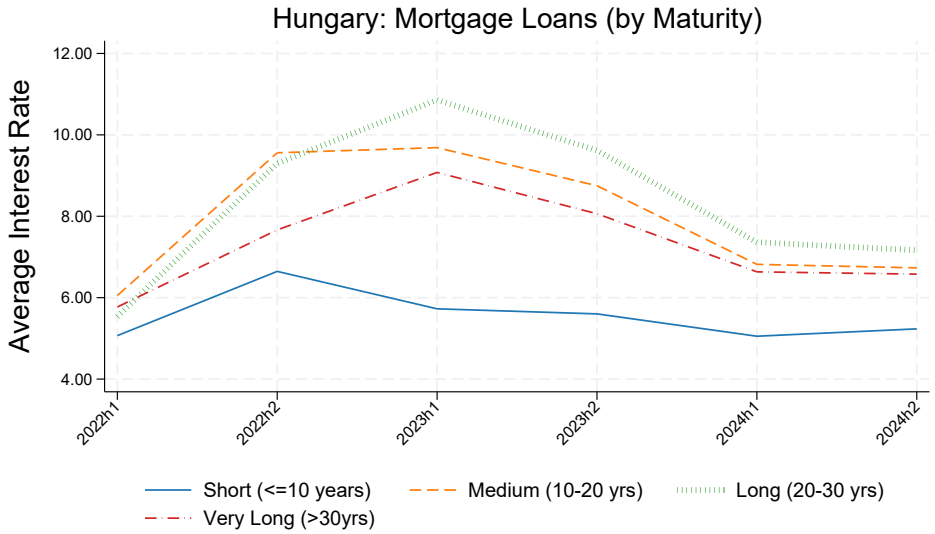
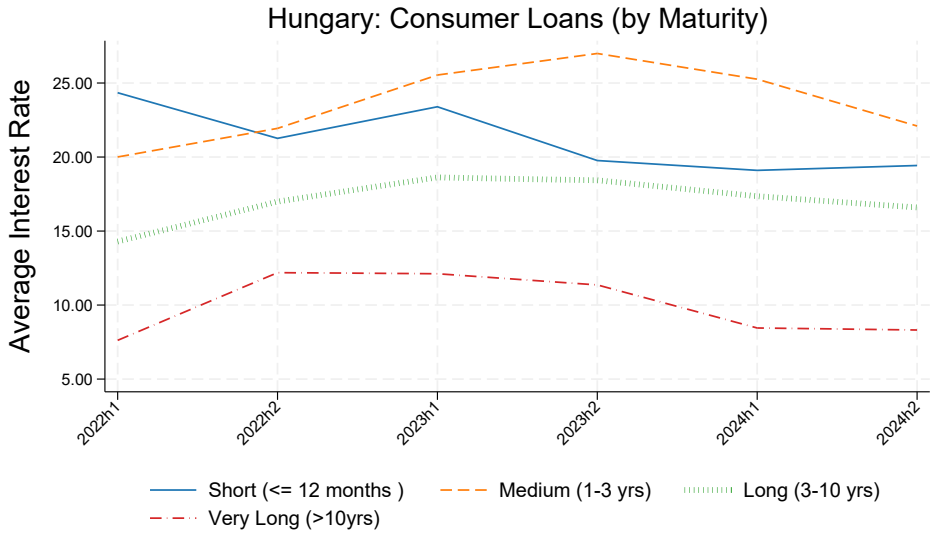
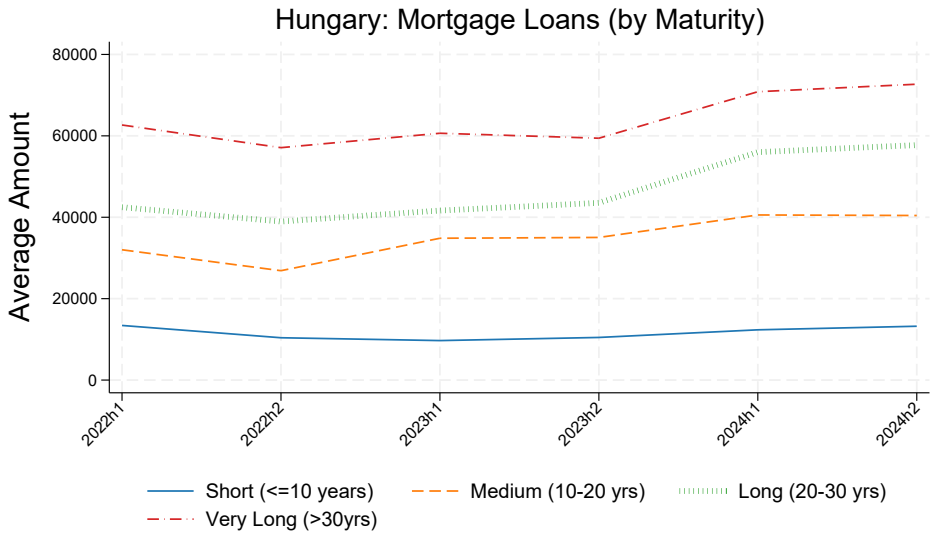


Figure E.3: Maturity breakdown: Hungary







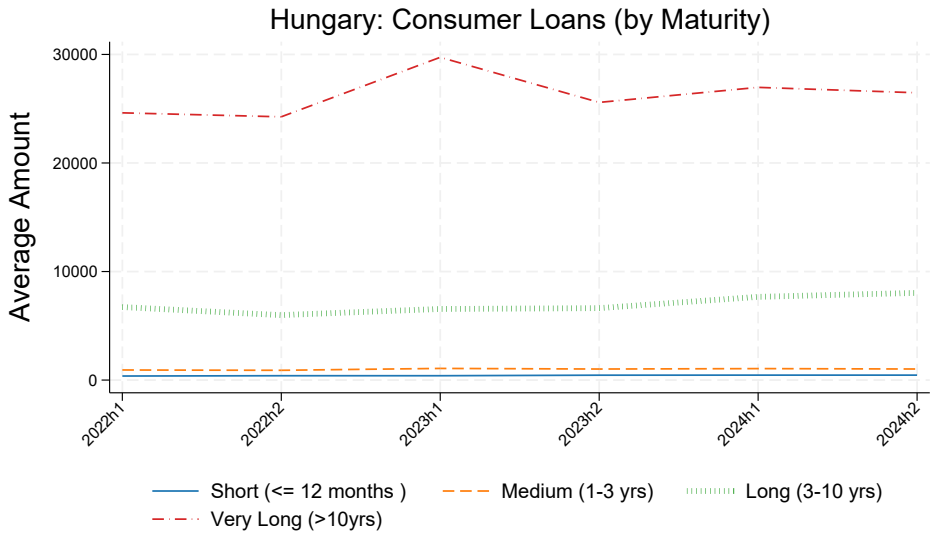
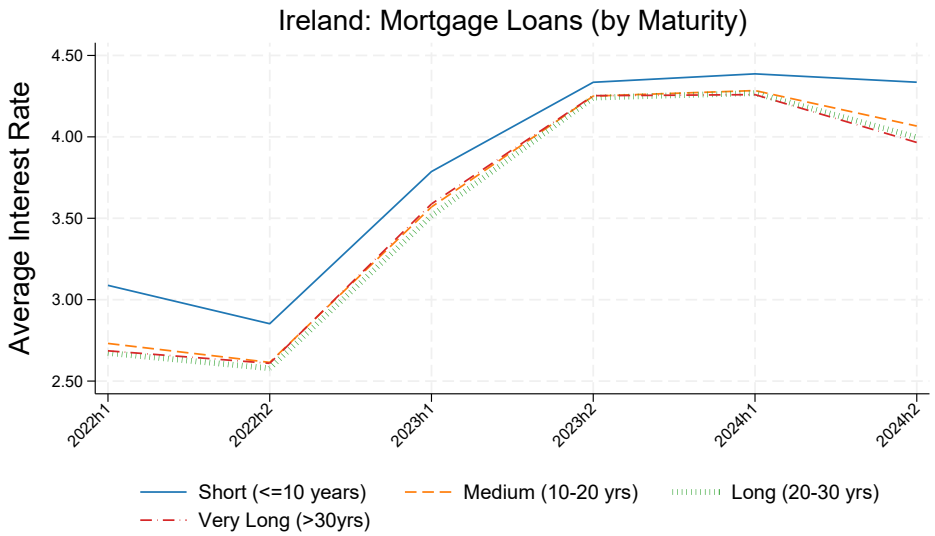
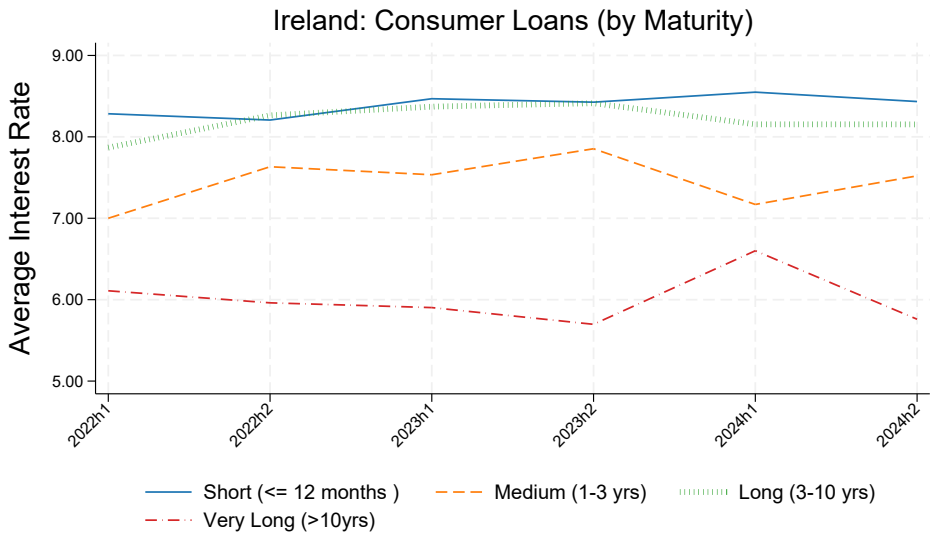
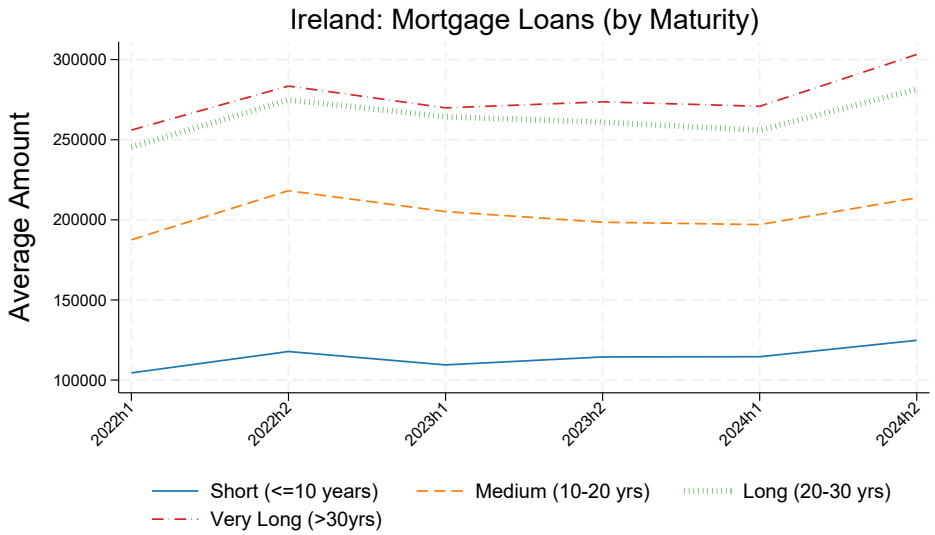


Figure E.4: Maturity breakdown: Ireland







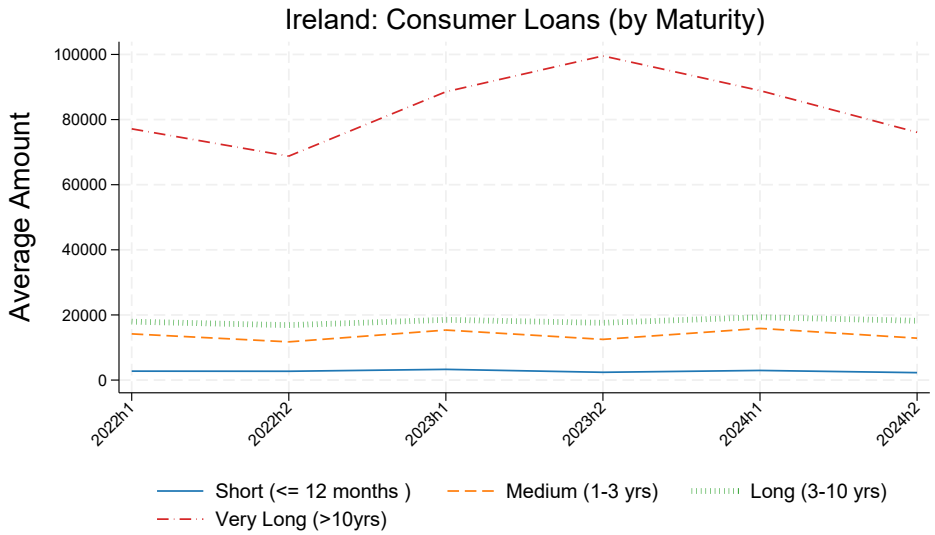
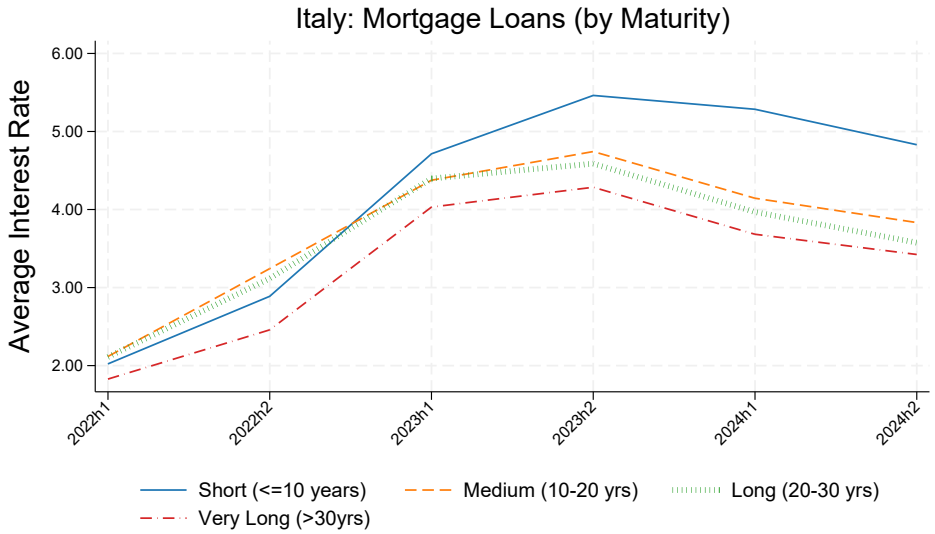
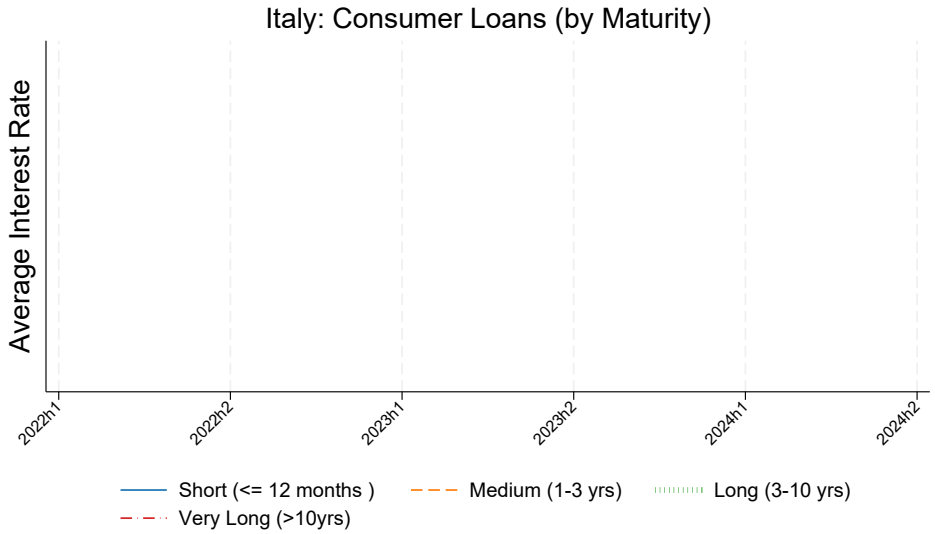
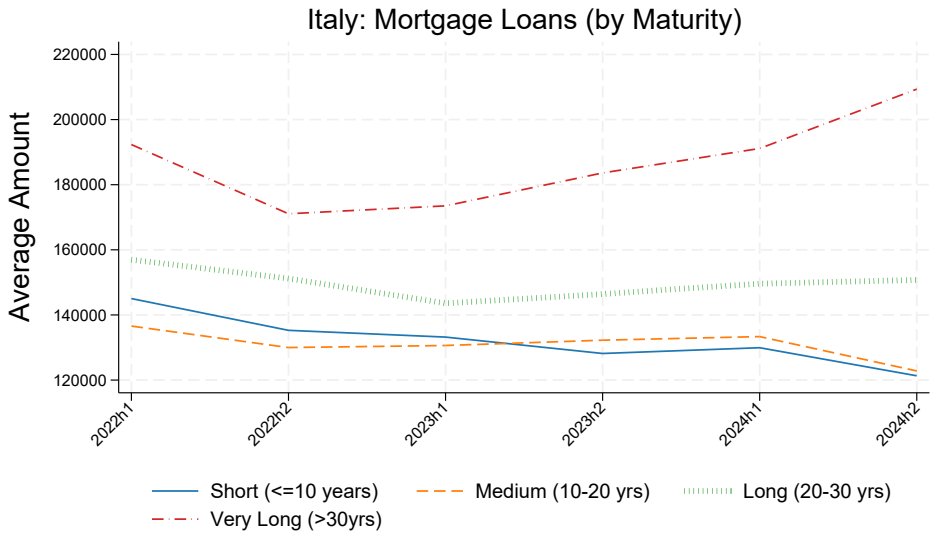


Figure E.5: Maturity breakdown: Italy







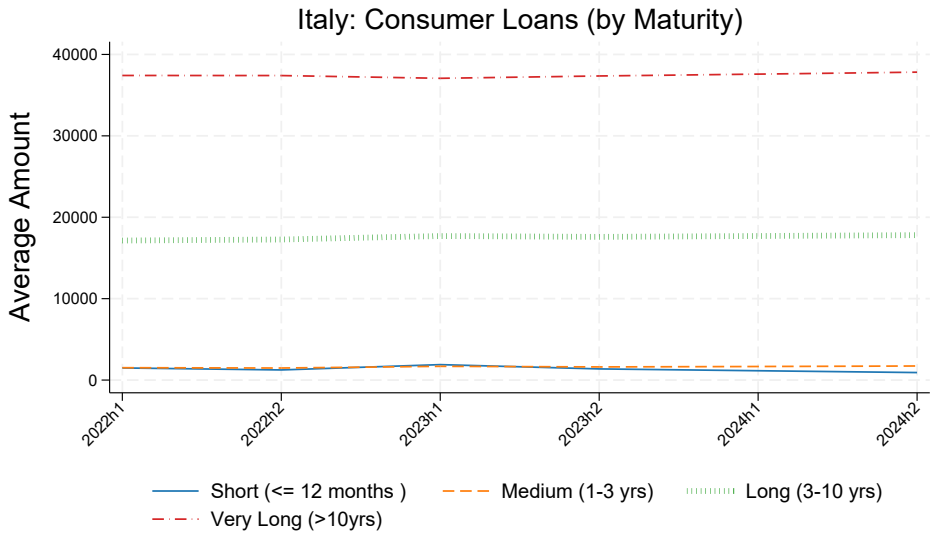
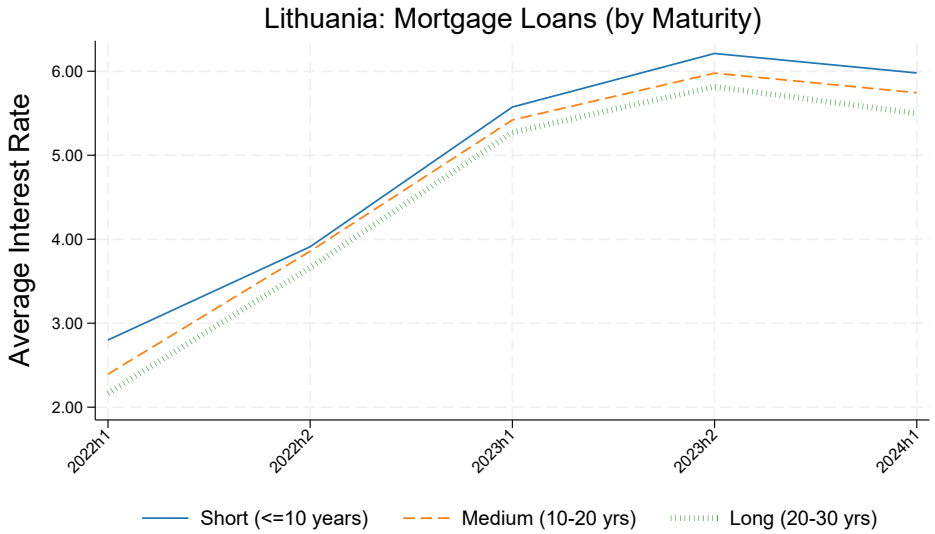
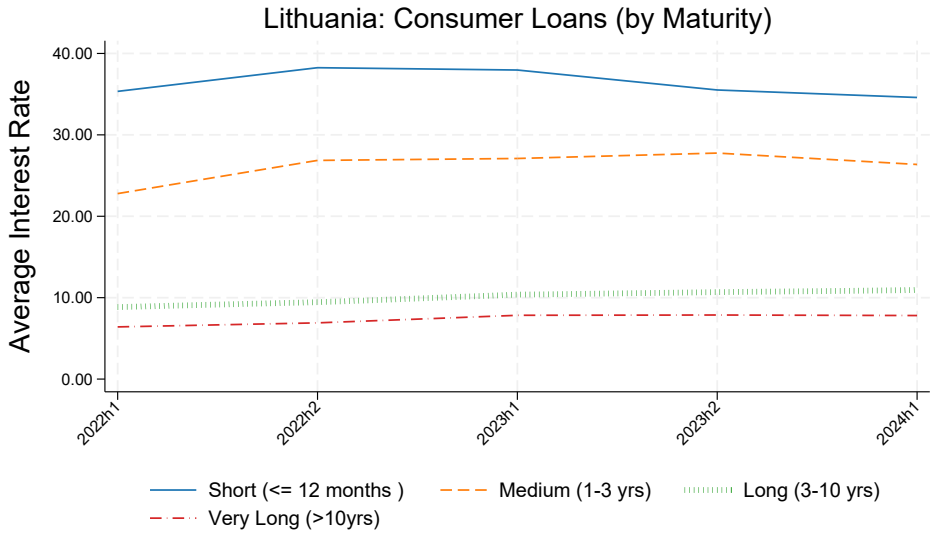
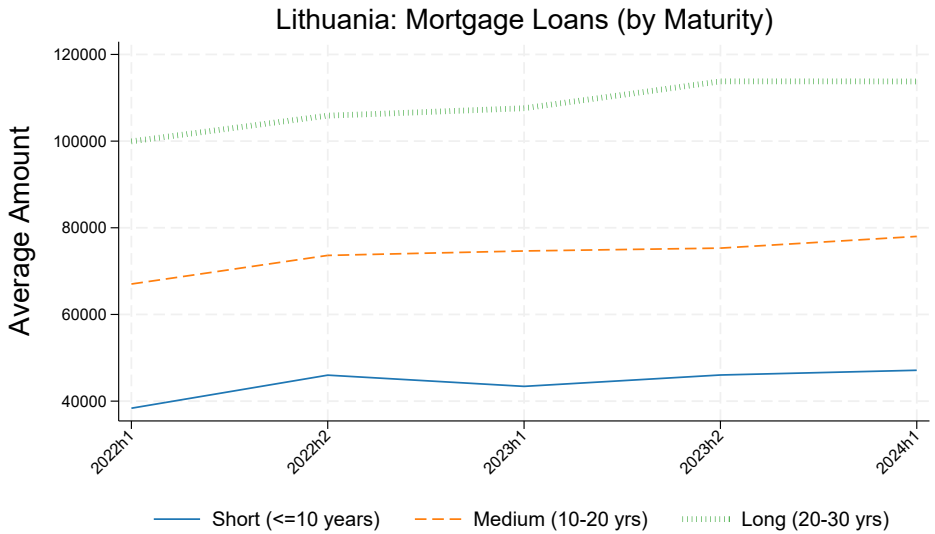


Figure E.6: Maturity breakdown: Lithuania







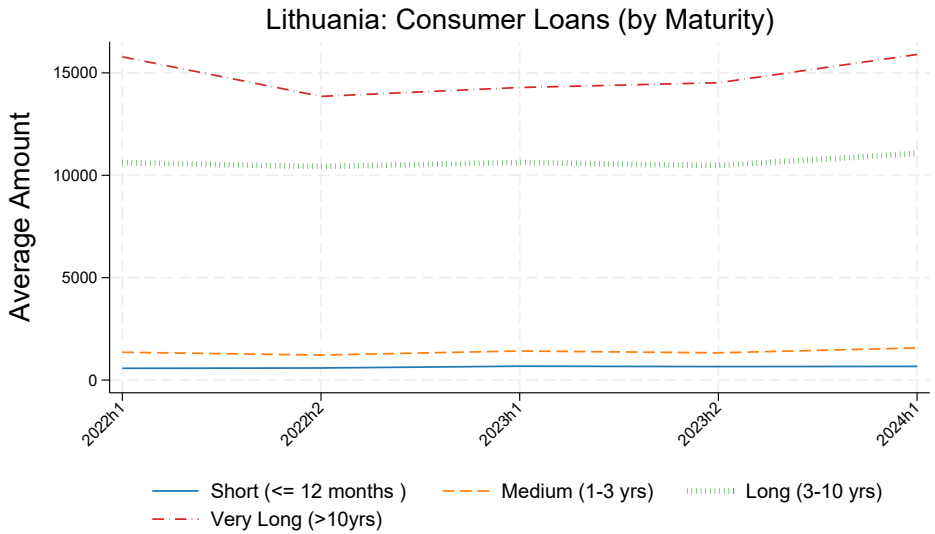
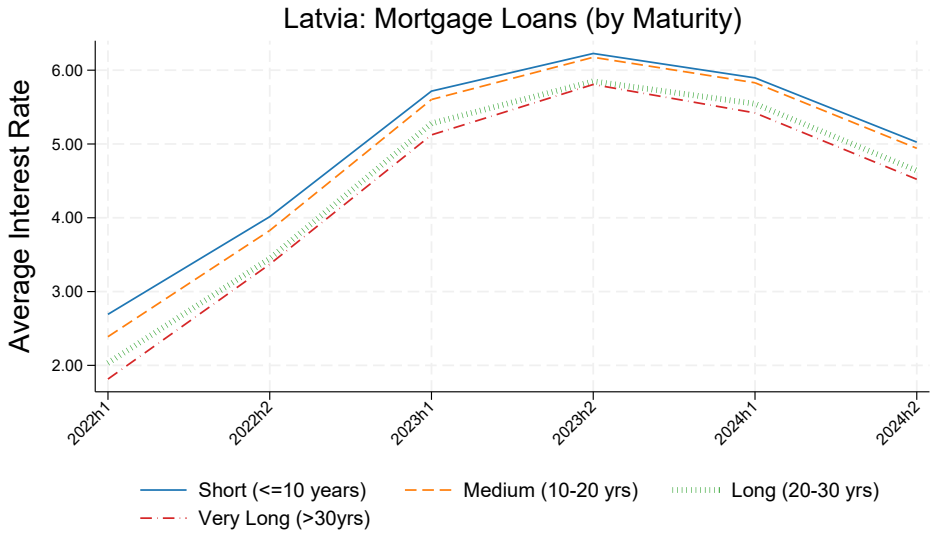
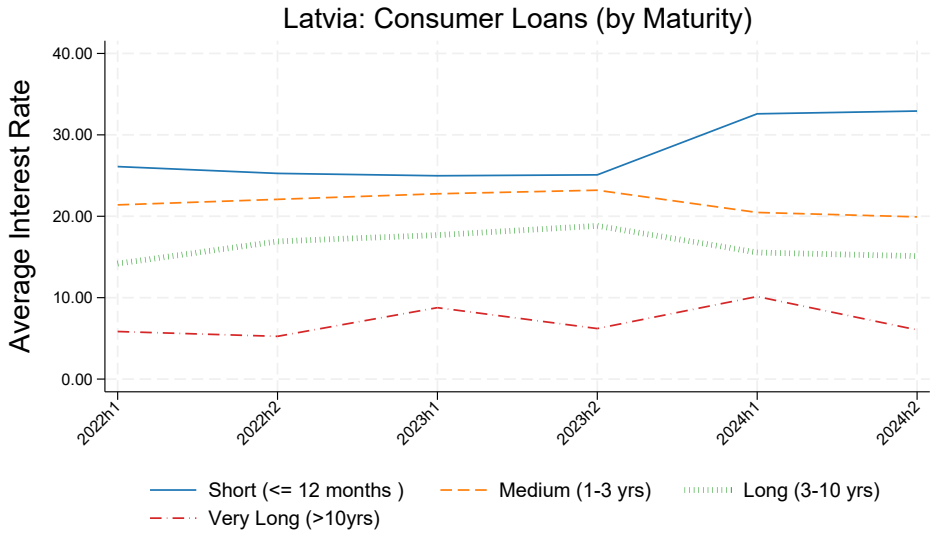
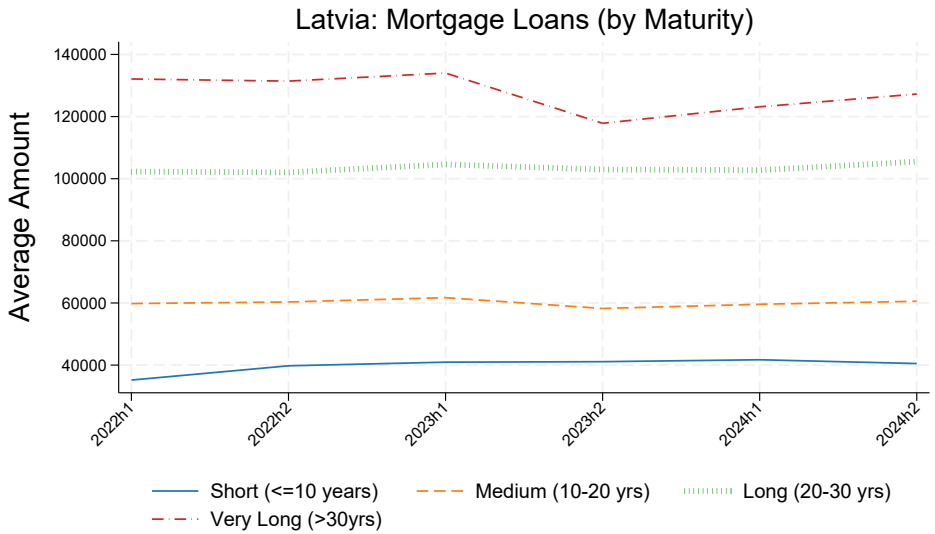


Figure E.7: Maturity breakdown: Latvia







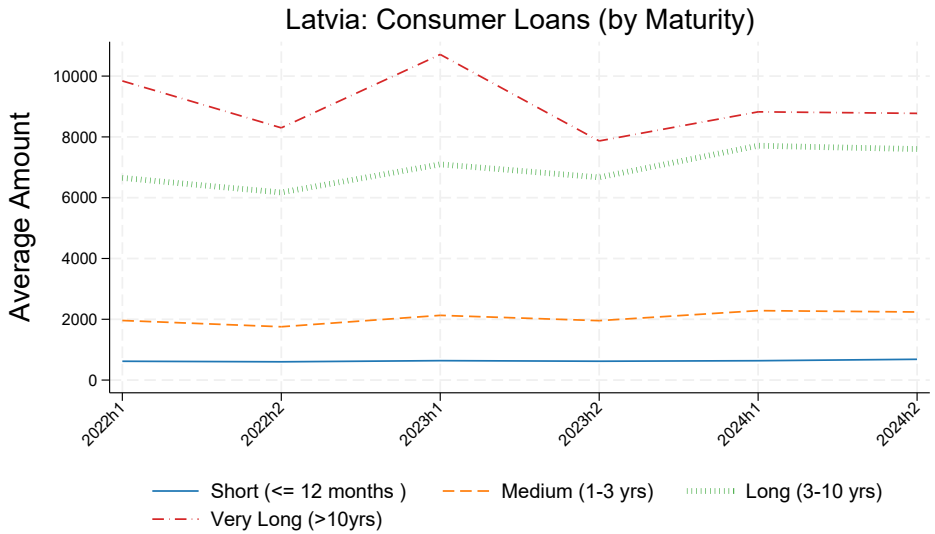
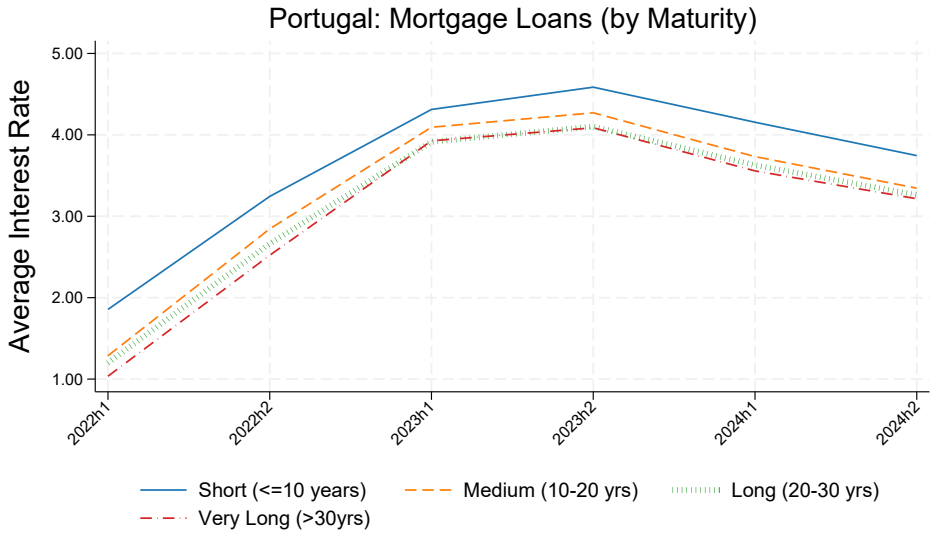
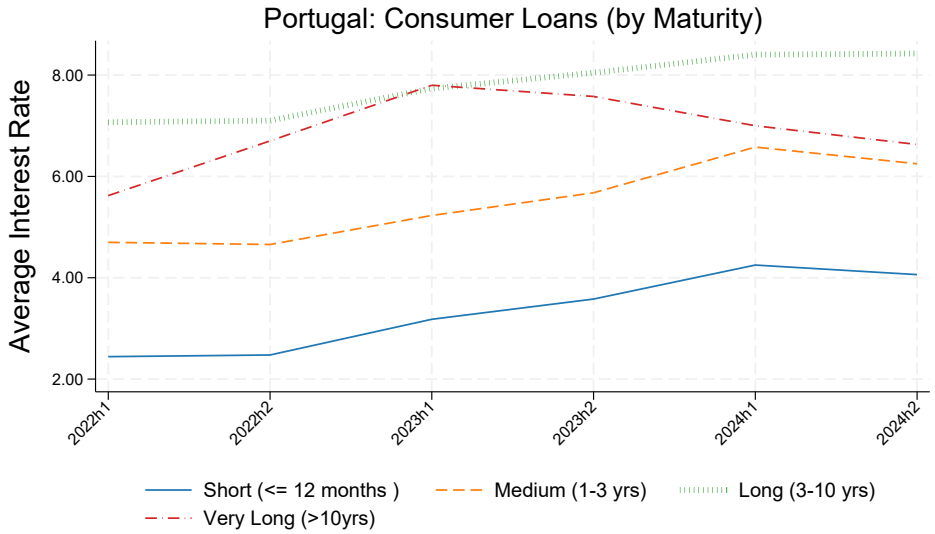
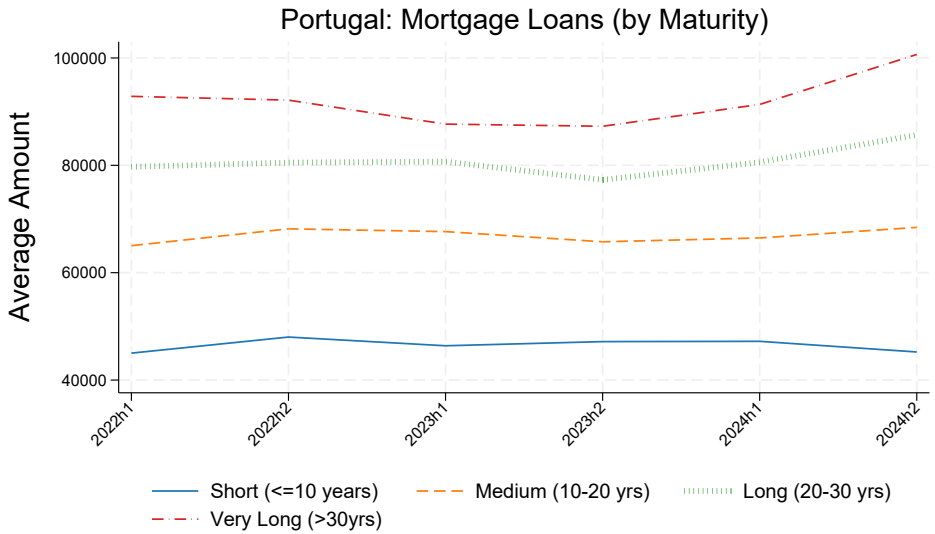


Figure E.8: Maturity breakdown: Portugal







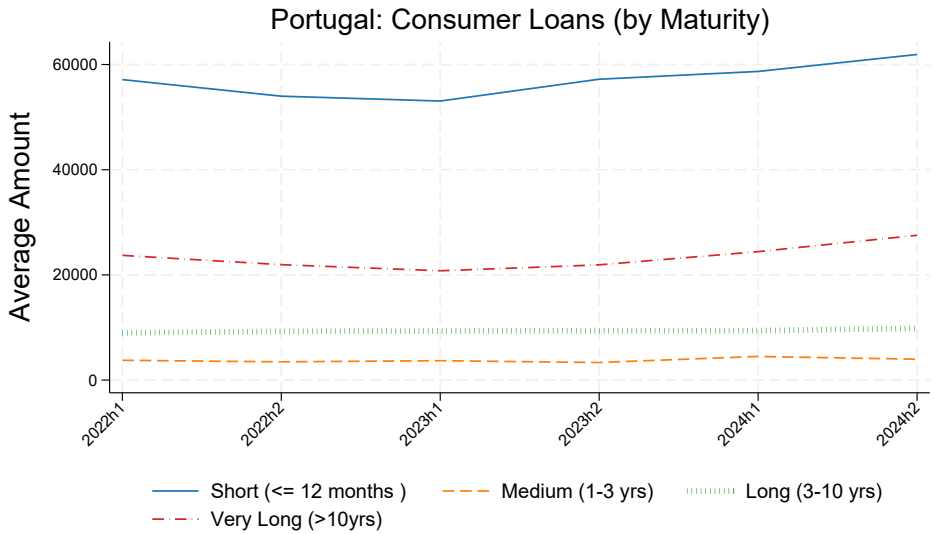
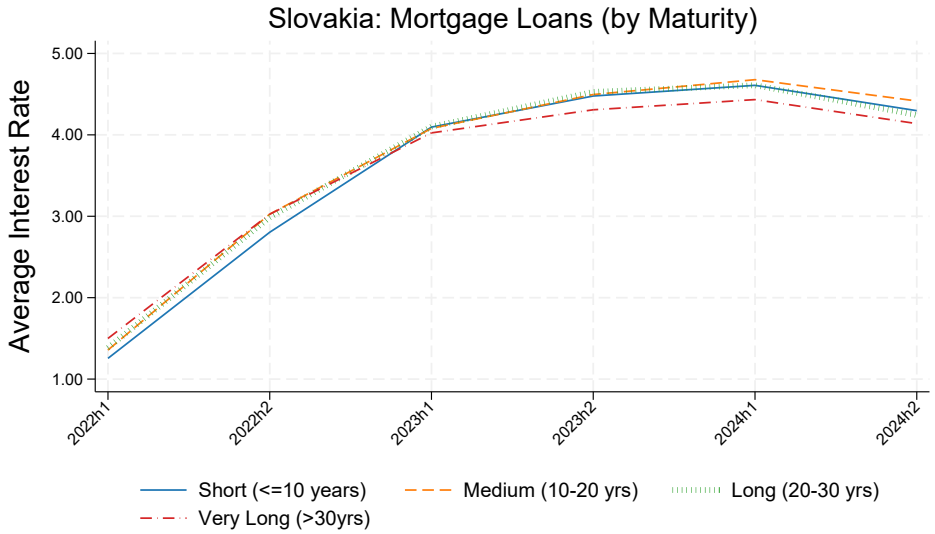
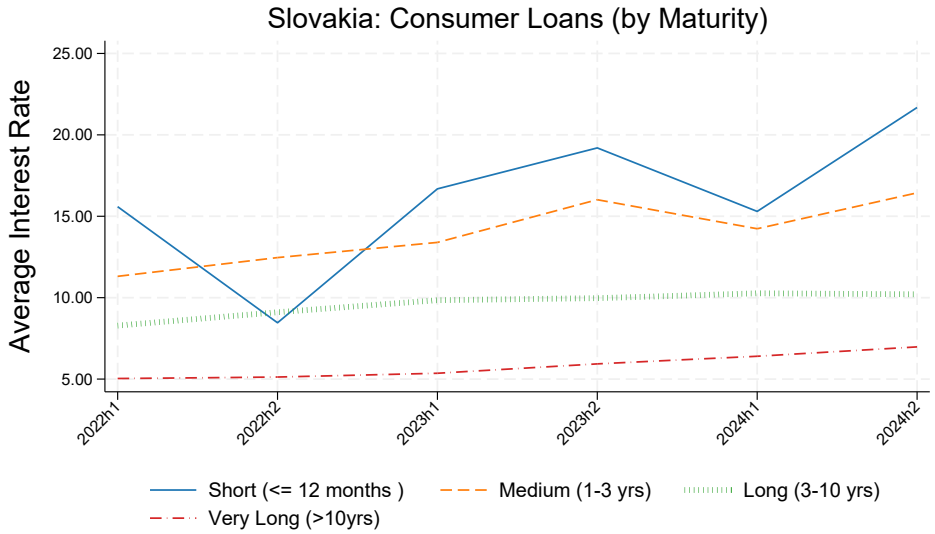
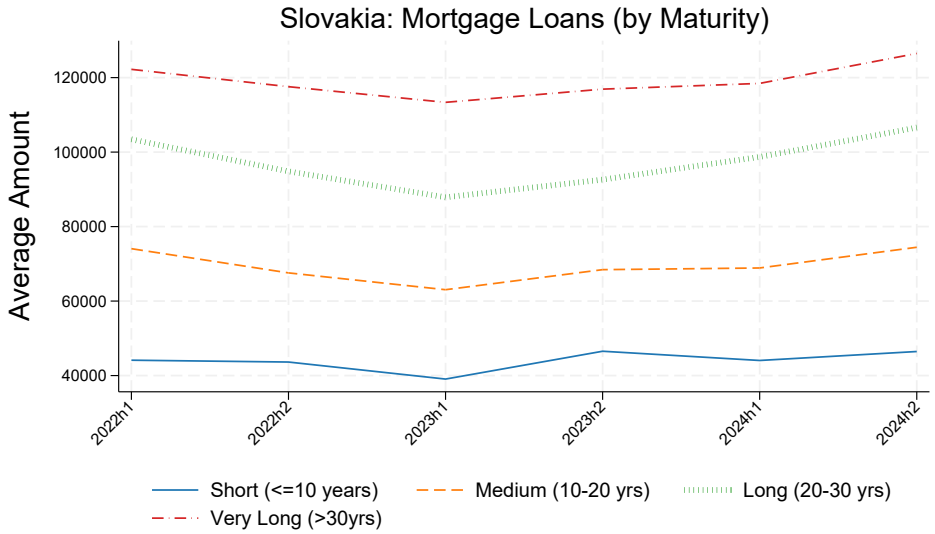
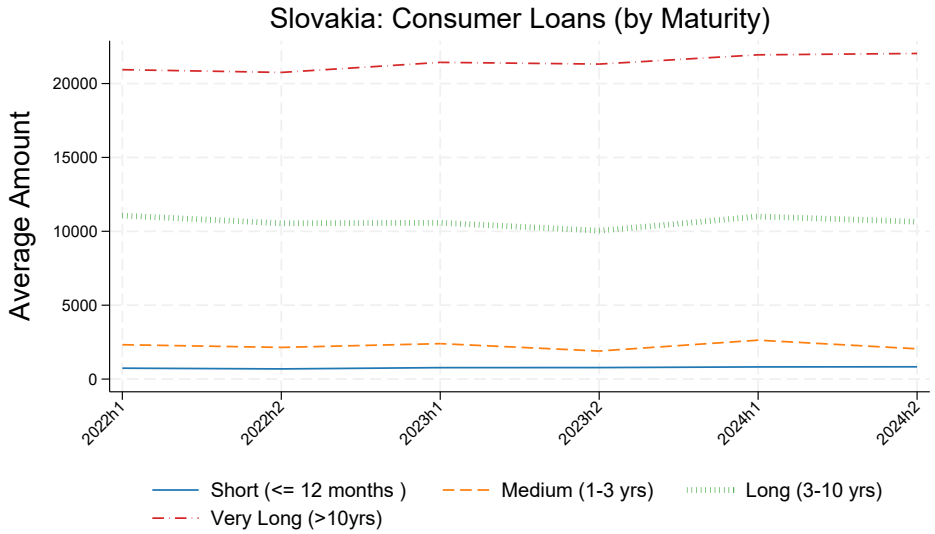


Figure E.9: Maturity breakdown: Slovakia









F Household credit: split by borrower age

Figures F.1–F.9 This set of figures presents a breakdown of new household loans by the age group of the borrower. Each figure corresponds to a single country and covers the period from 2022:H1 to 2024:H2.

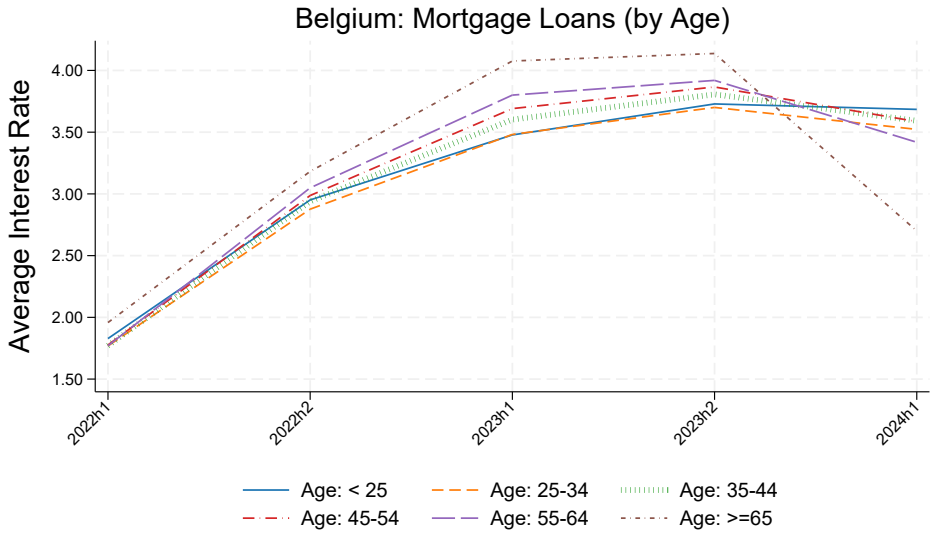
For each country, the figure is structured into four panels:

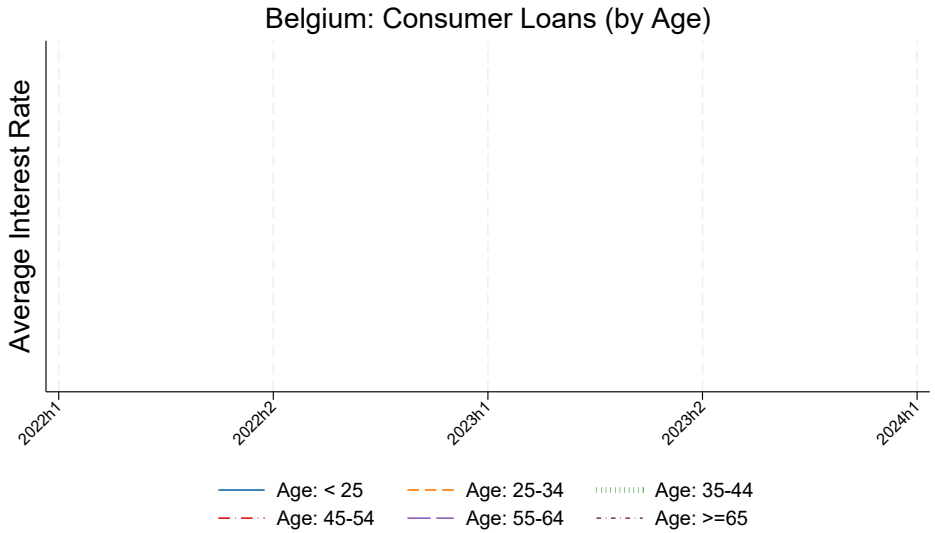
- The top-left panel shows the average interest rate on newly originated **mortgage loans**, disaggregated by borrower age.
- The top-right panel presents the same statistic for new **consumer loans**.
- The bottom-left panel reports the average loan amount for new **mortgage loans** by borrower age.
- The bottom-right panel shows the average amount of new **consumer loans** by age group.

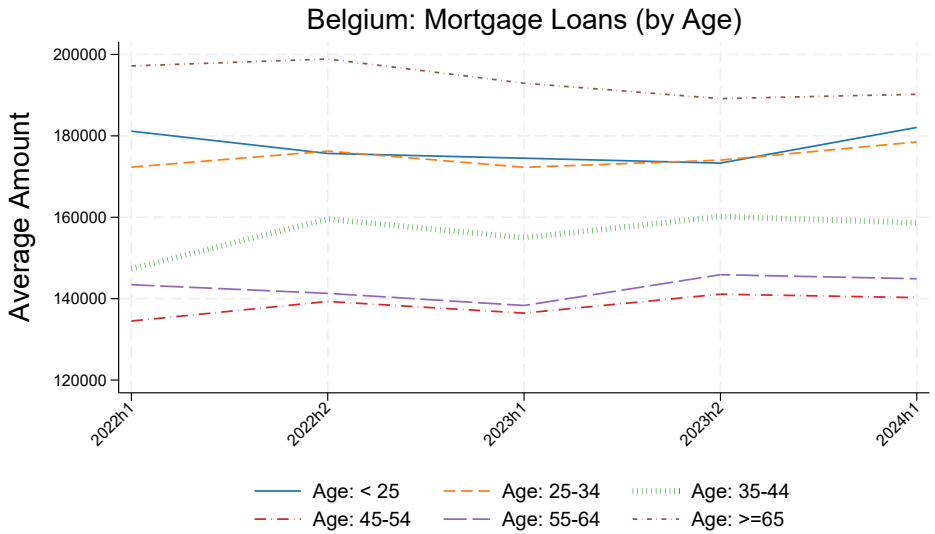
Borrowers are grouped into six age categories: *Under 25*, *25–34*, *35–44*, *45–54*, *55–64*, and *65 and older*. The graphical layout enables an assessment of how borrowing terms and loan sizes differ across age cohorts and evolve over time.

These figures facilitate comparisons of both price and volume of household credit across age groups, helping to uncover demographic patterns in credit market access, demand, and pricing. The countries included are: Belgium (F.1), Spain (F.2), Ireland (F.3), Italy (F.4), Hungary (F.5), Lithuania (F.6), Latvia (F.7), Portugal (F.8), and Slovakia (F.9).

Figure F.1: Age breakdown: Belgium







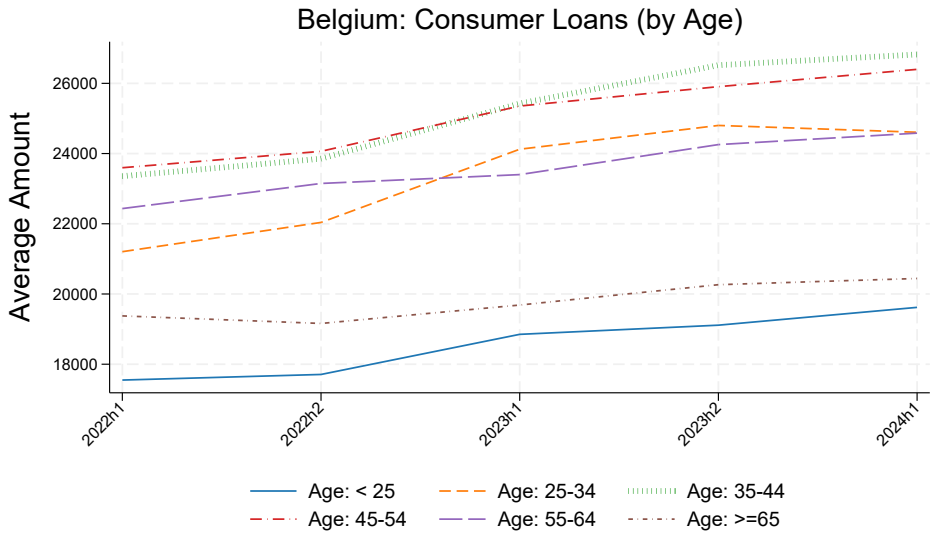
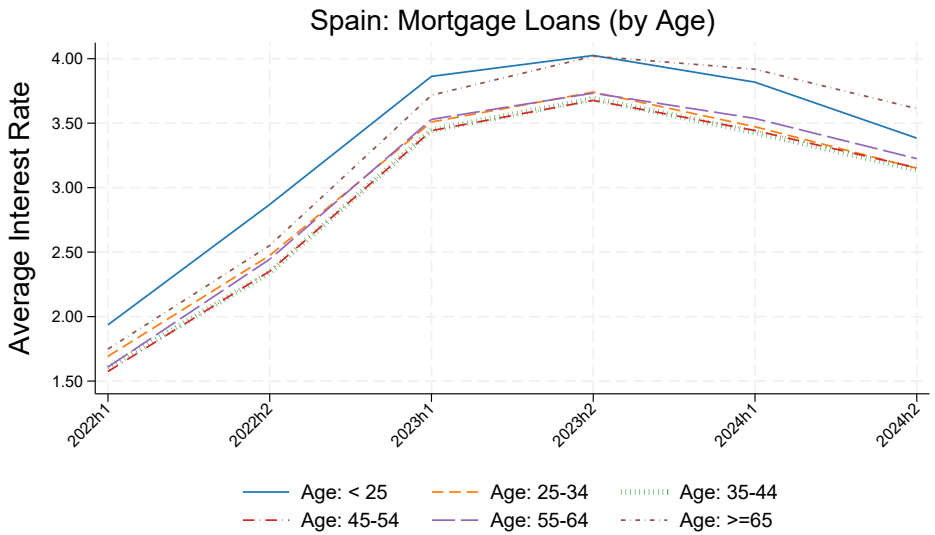
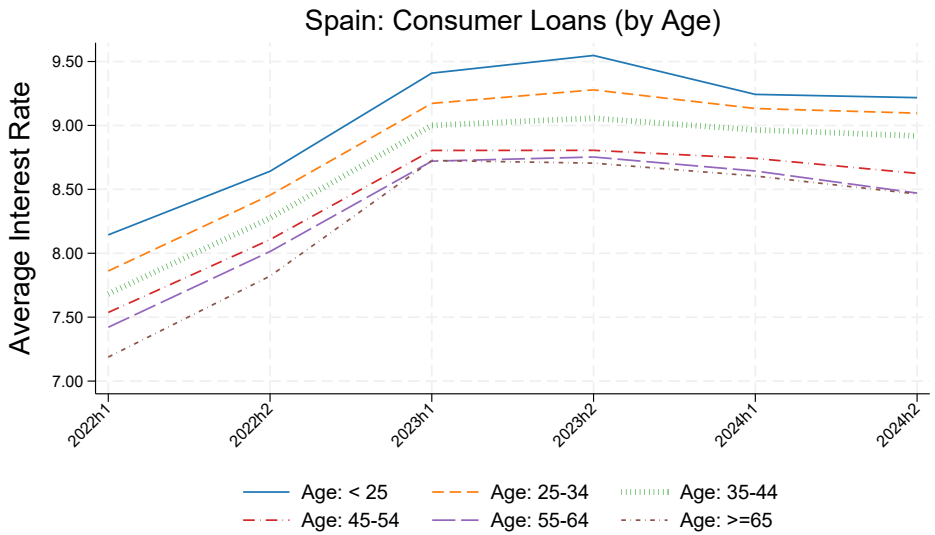
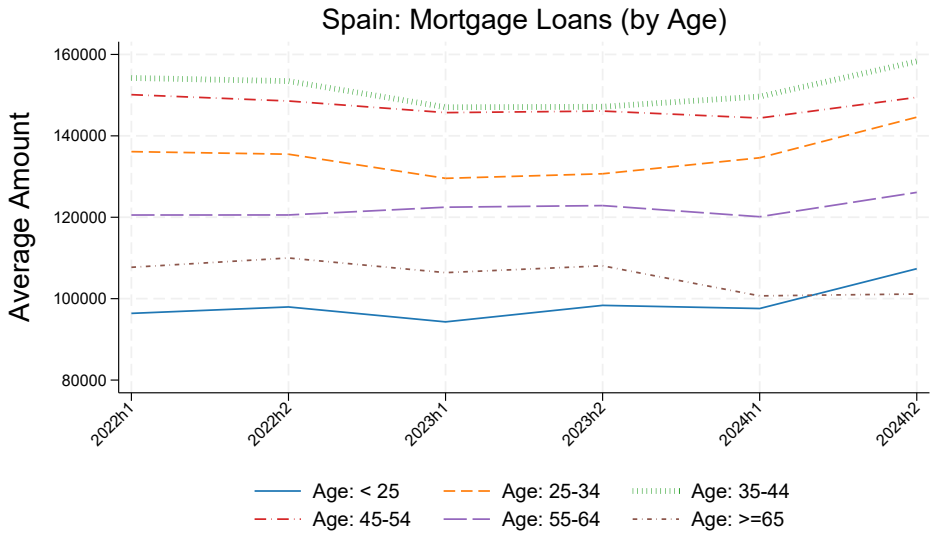


Figure F.2: Age breakdown: Spain







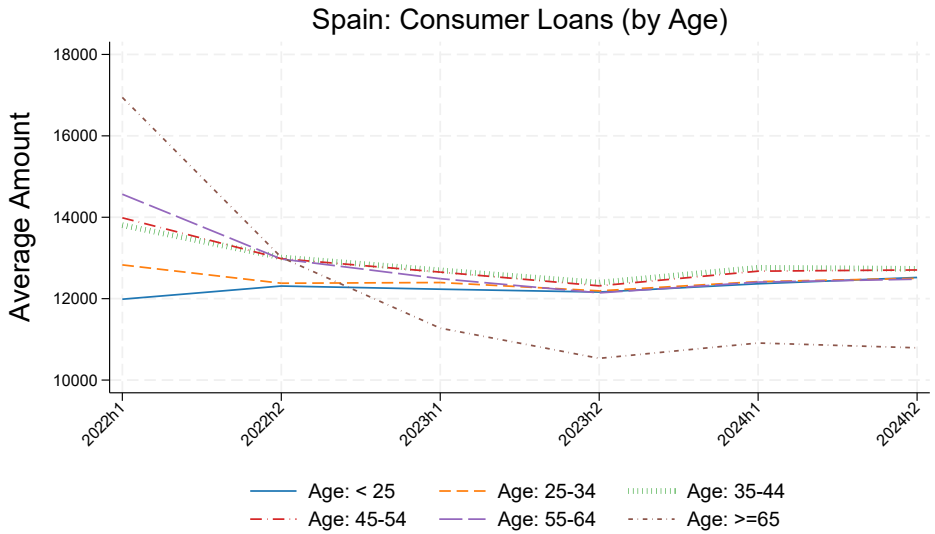
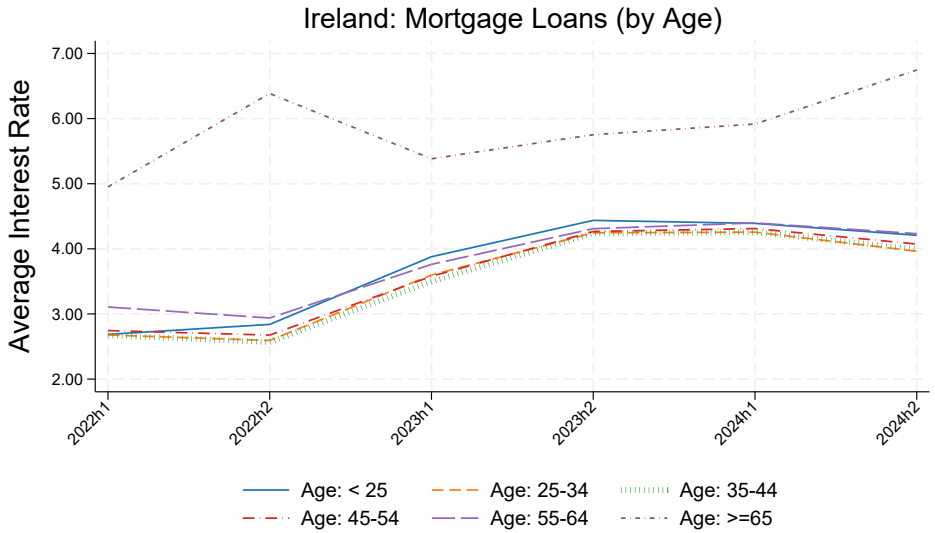
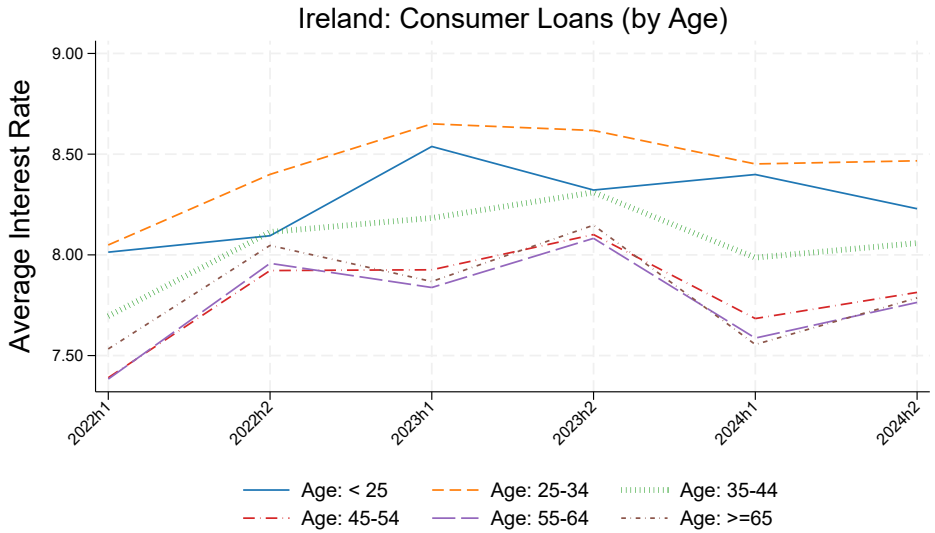
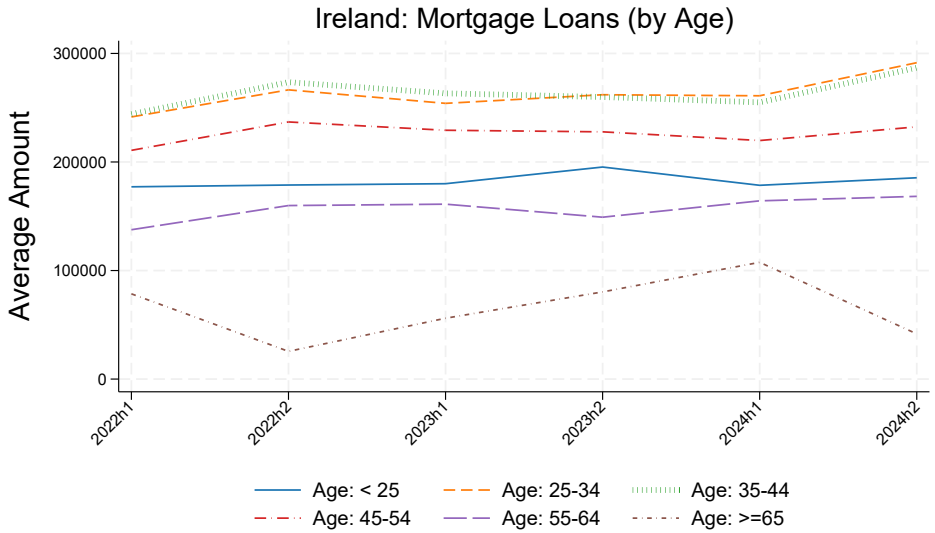


Figure F.3: Age breakdown: Ireland







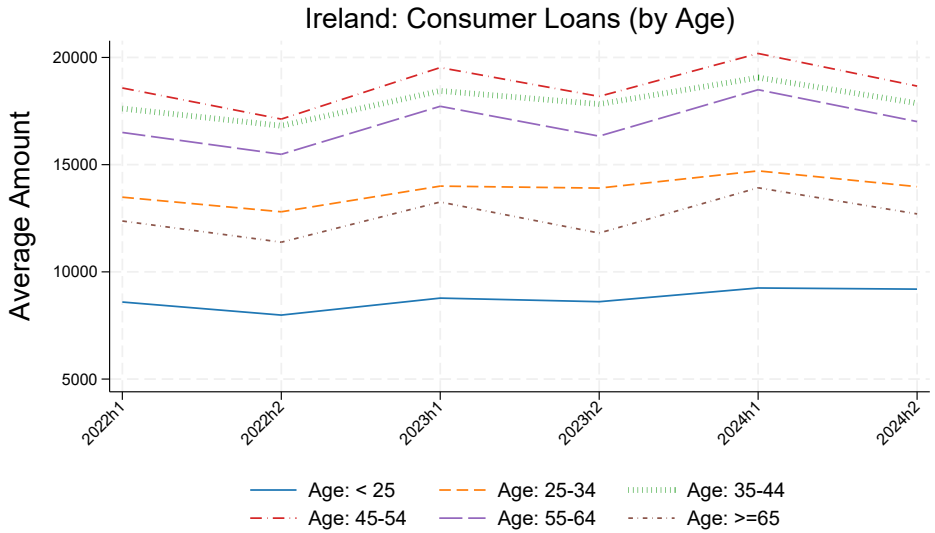
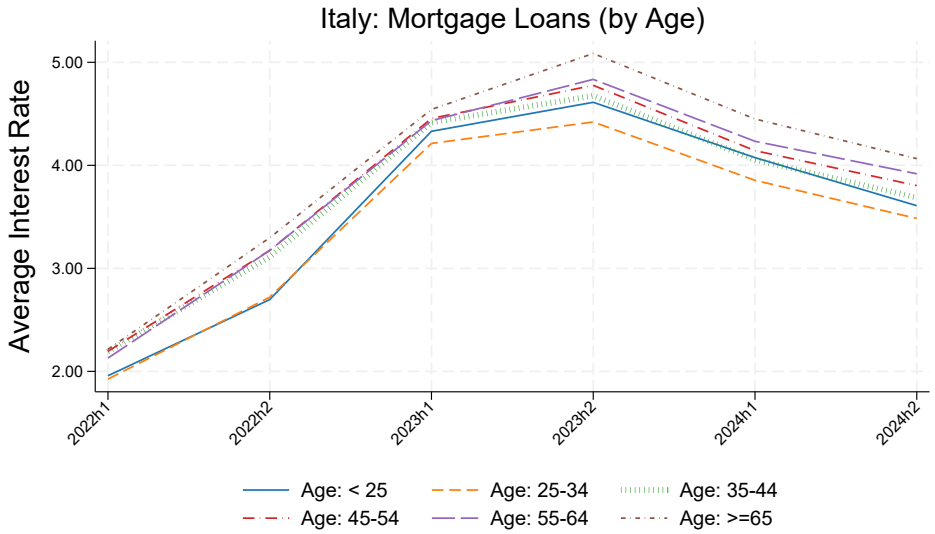
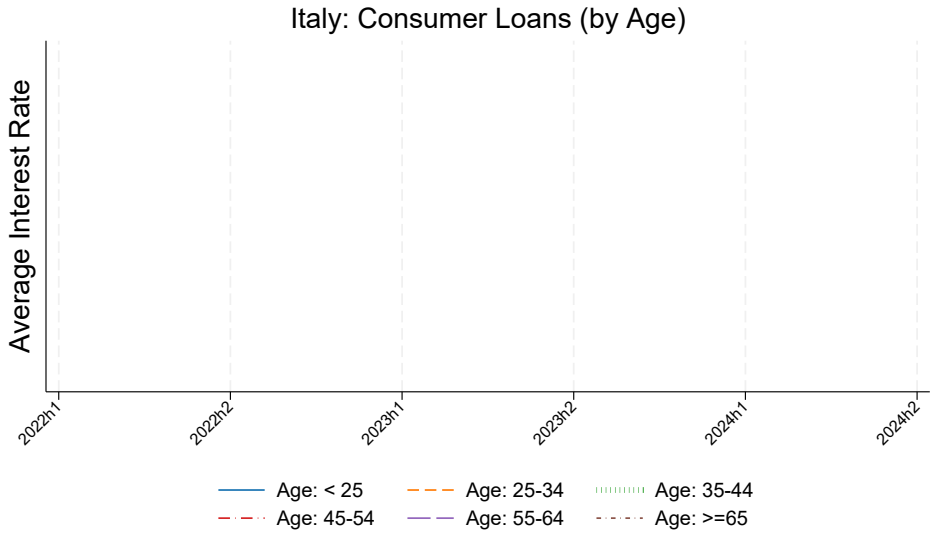
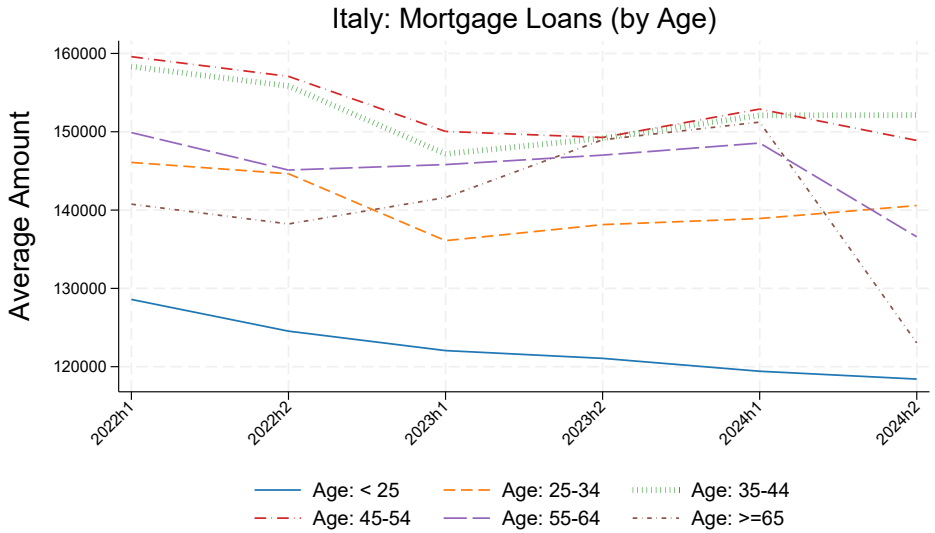


Figure F.4: Age breakdown: Italy







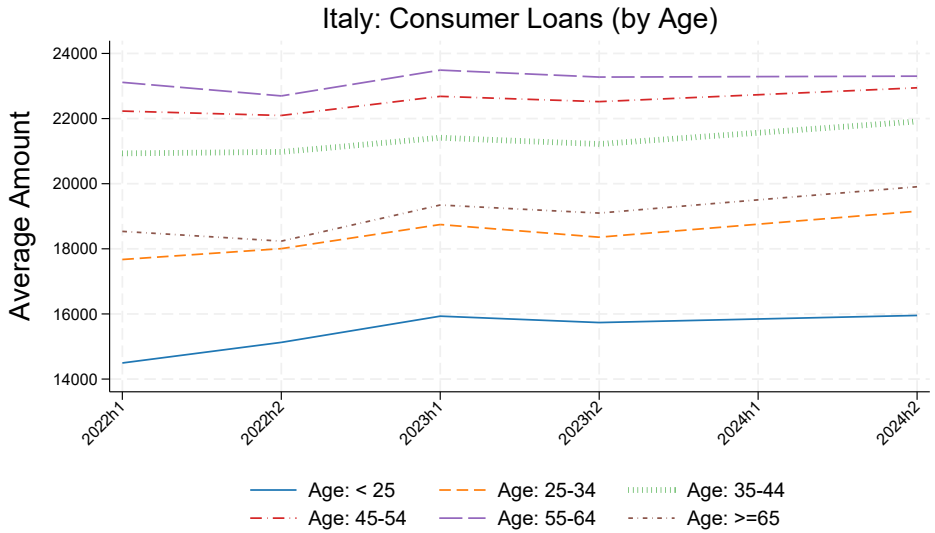
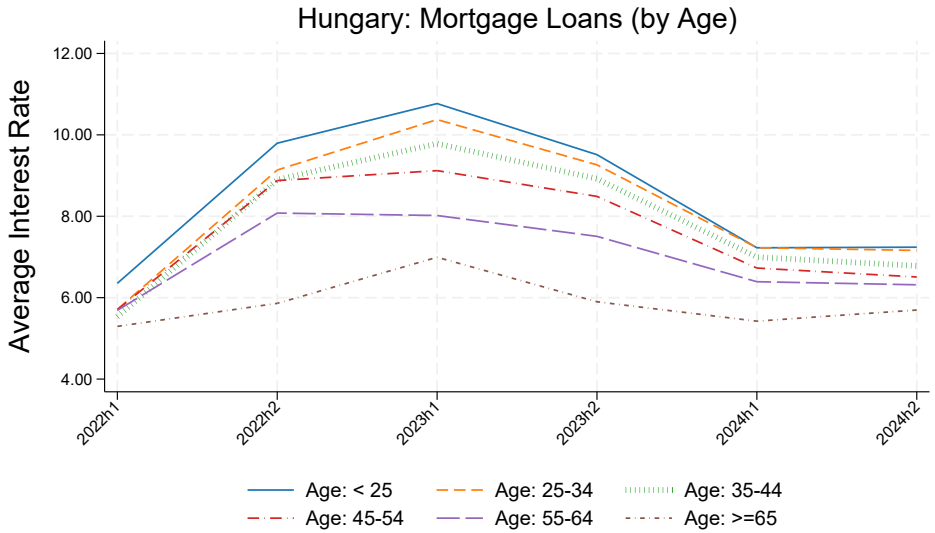
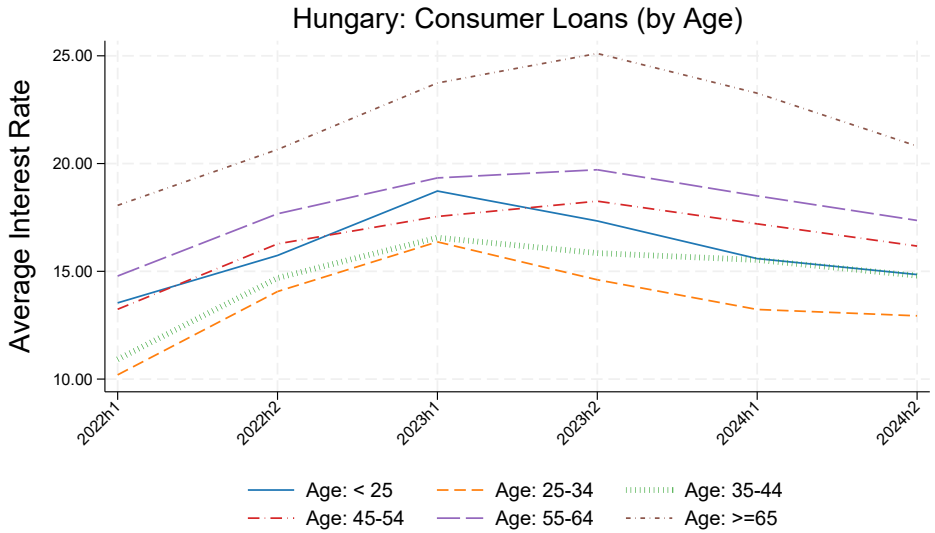
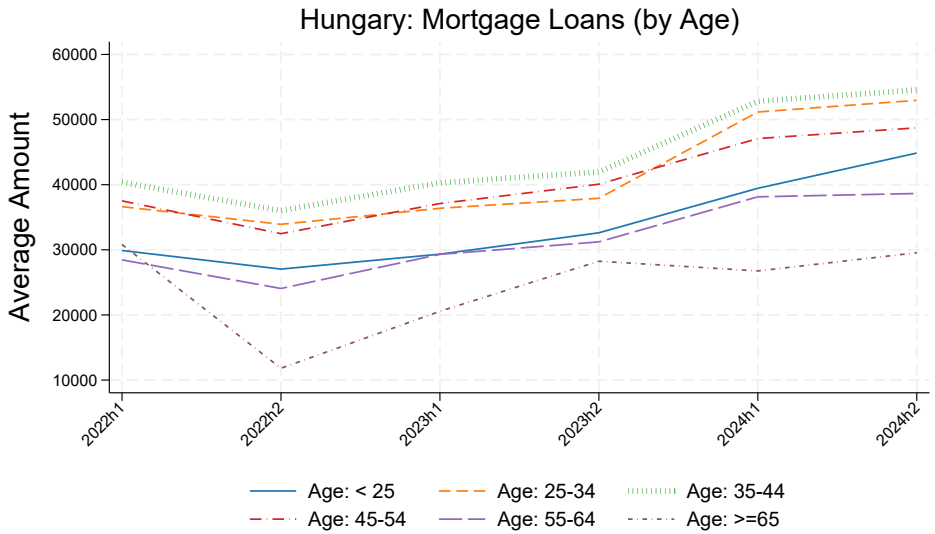


Figure F.5: Age breakdown: Hungary







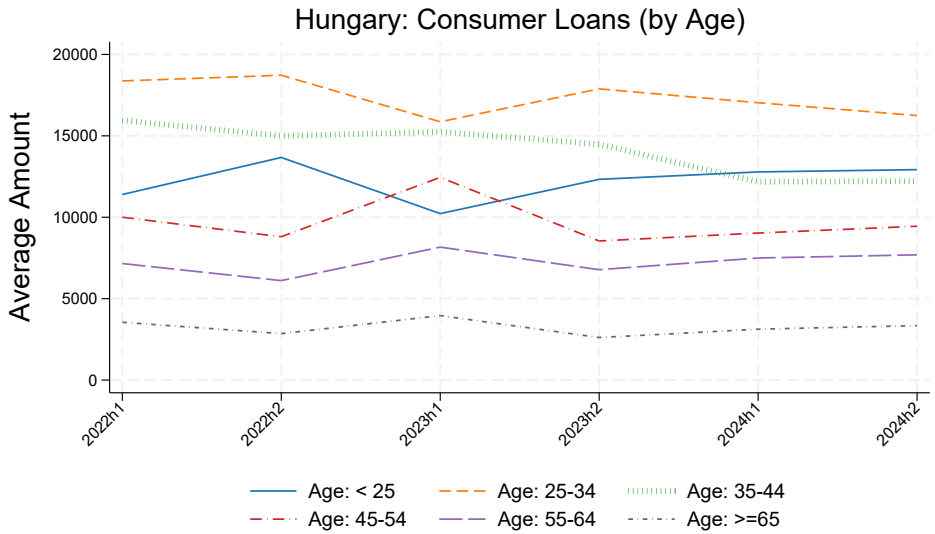
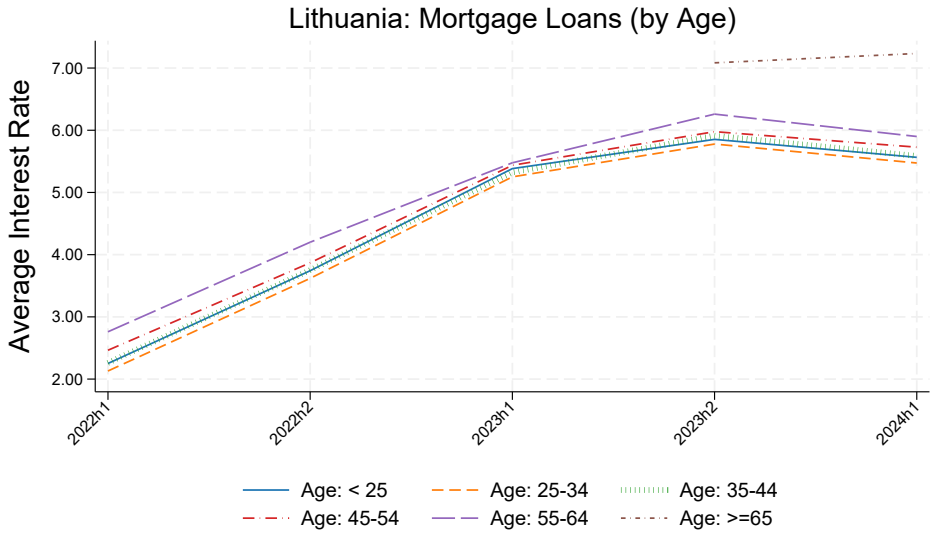
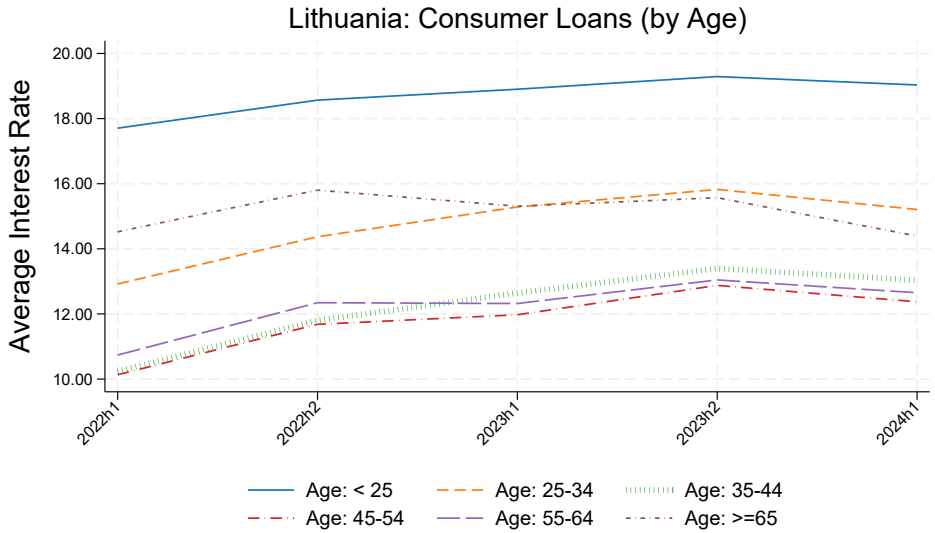
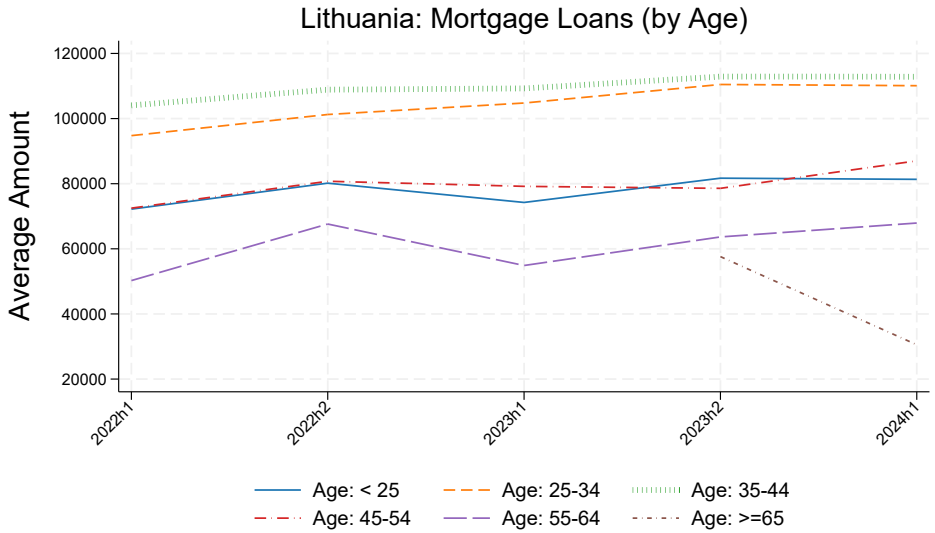


Figure F.6: Age breakdown: Lithuania







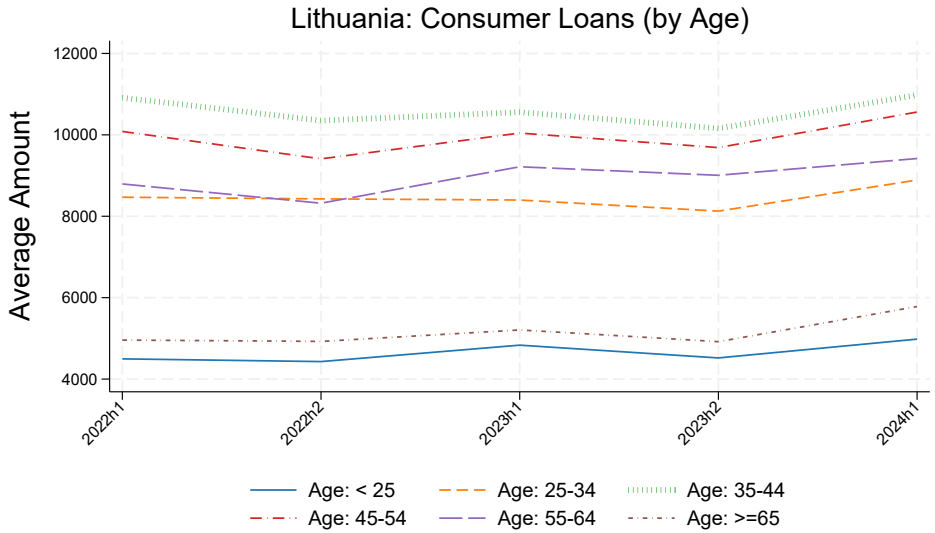
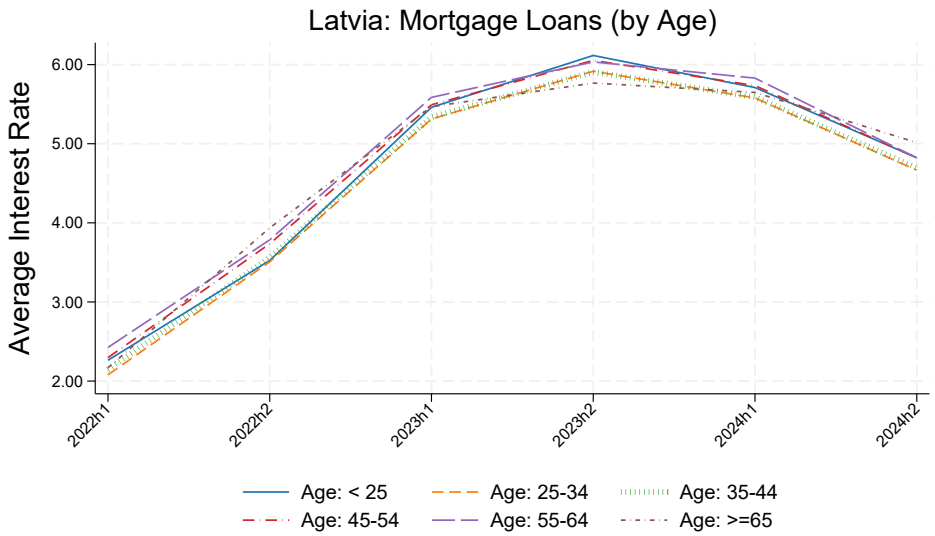
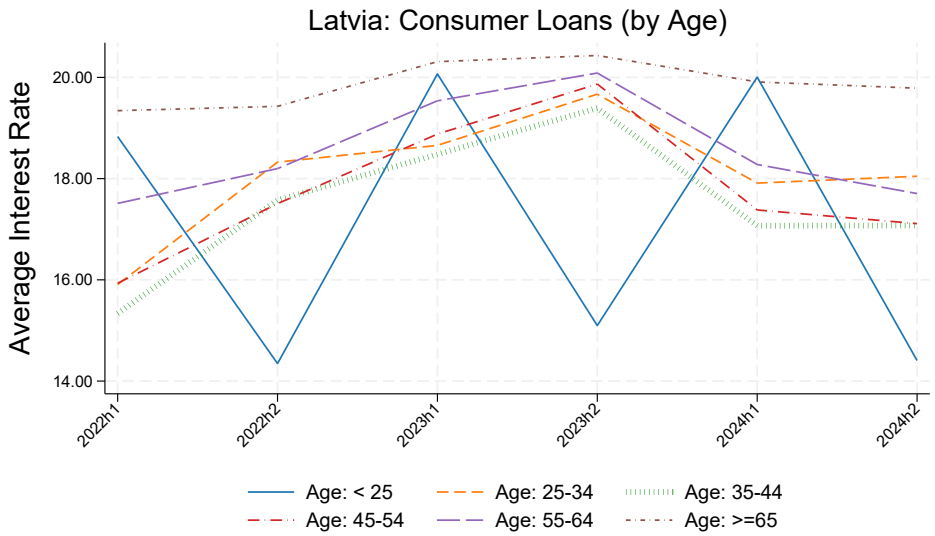
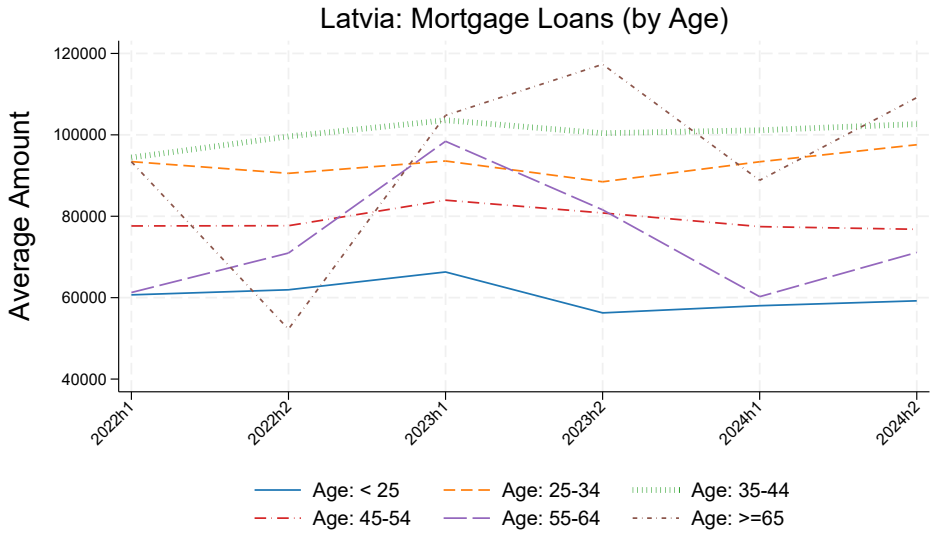


Figure F.7: Age breakdown: Latvia







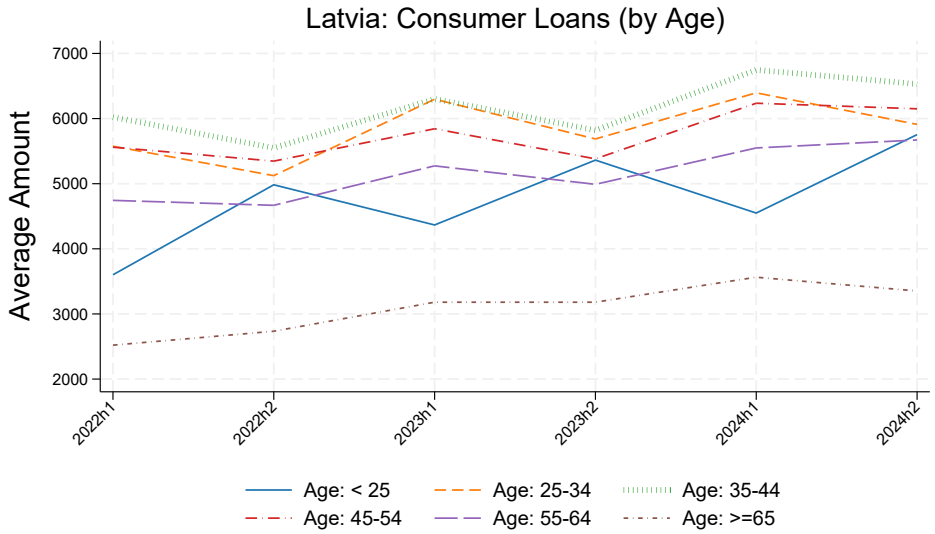
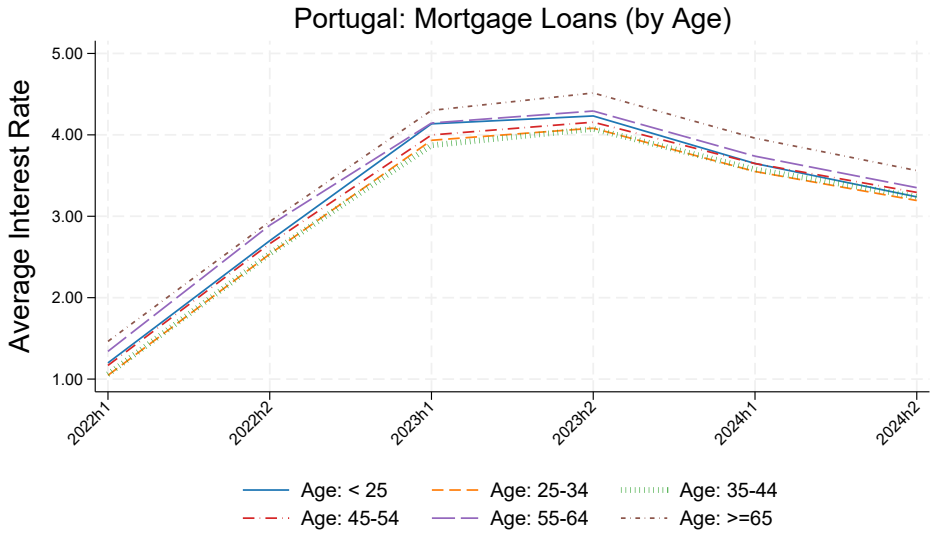
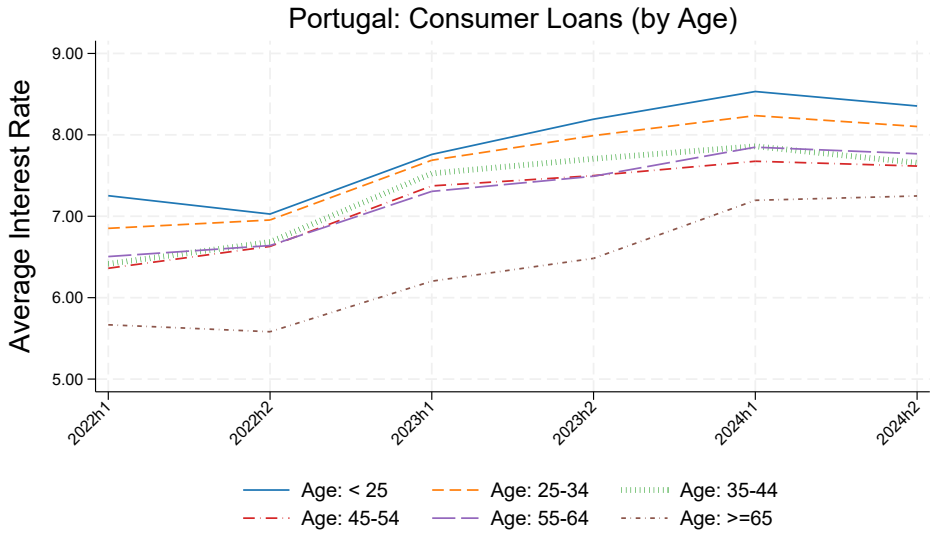
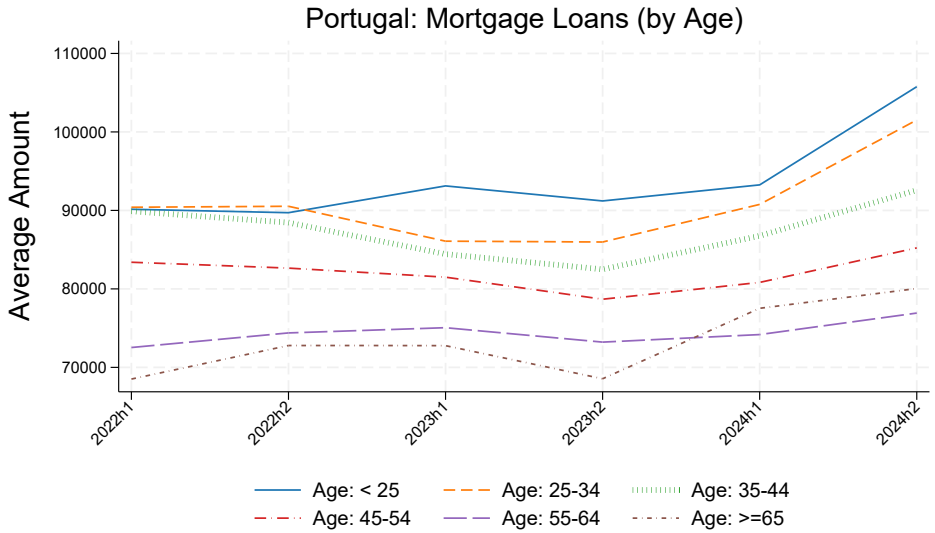


Figure F.8: Age breakdown: Portugal







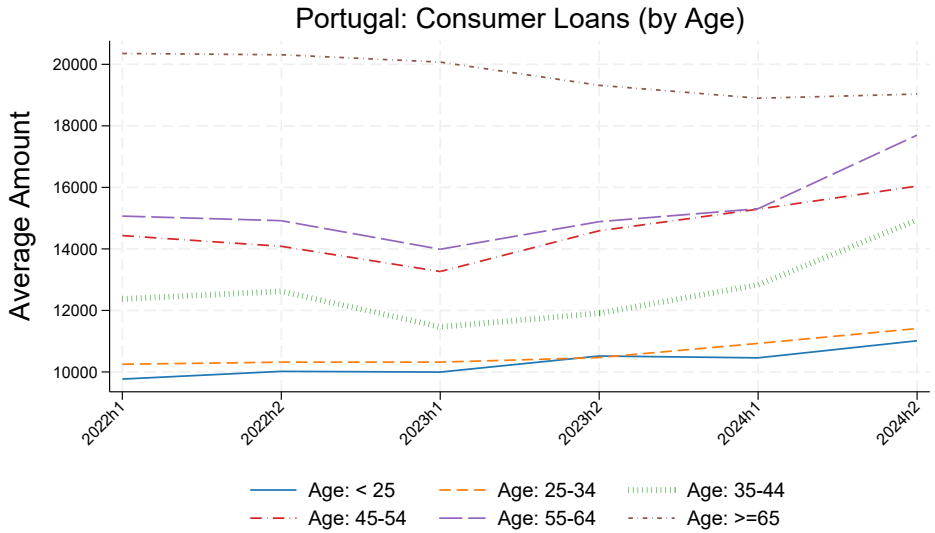
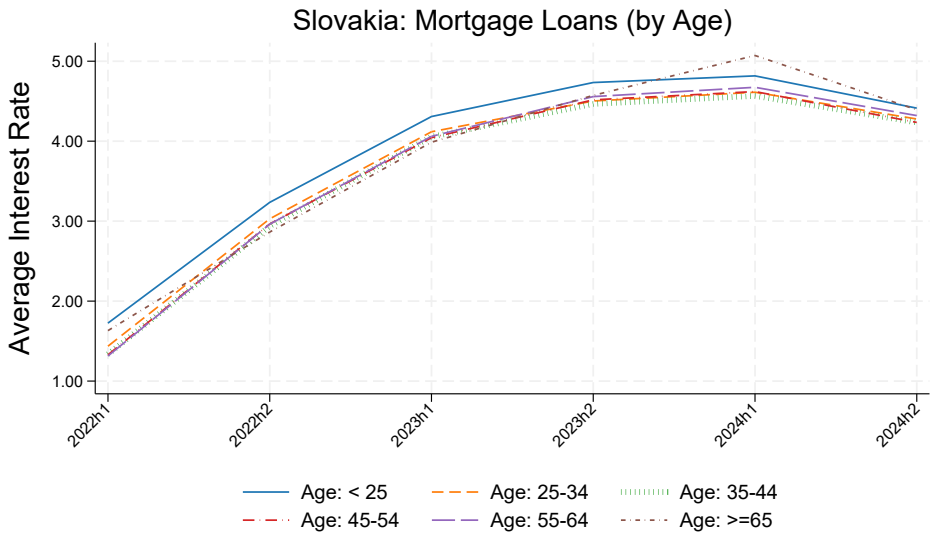
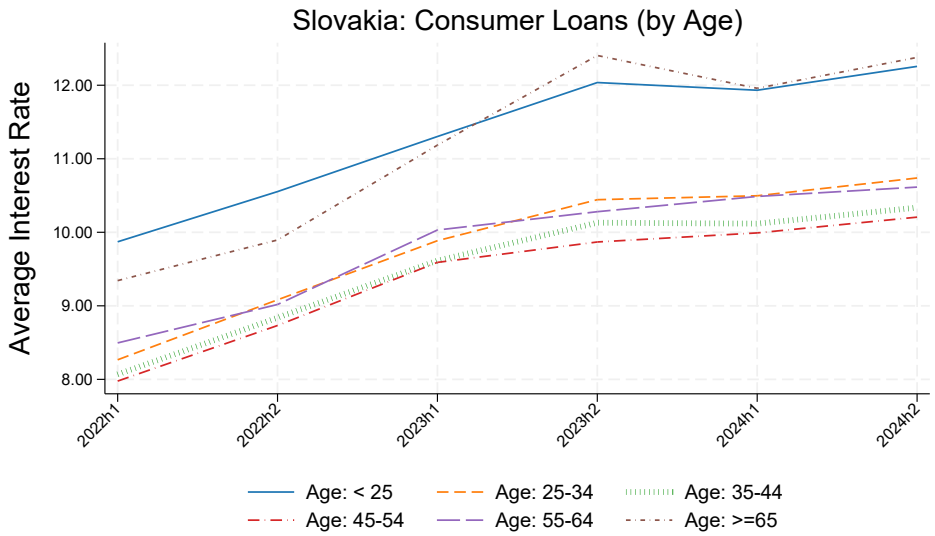
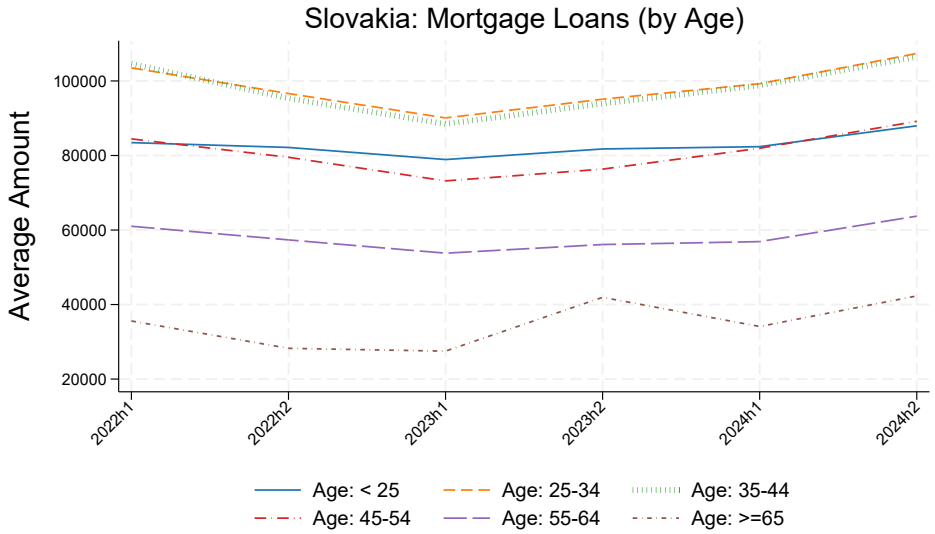
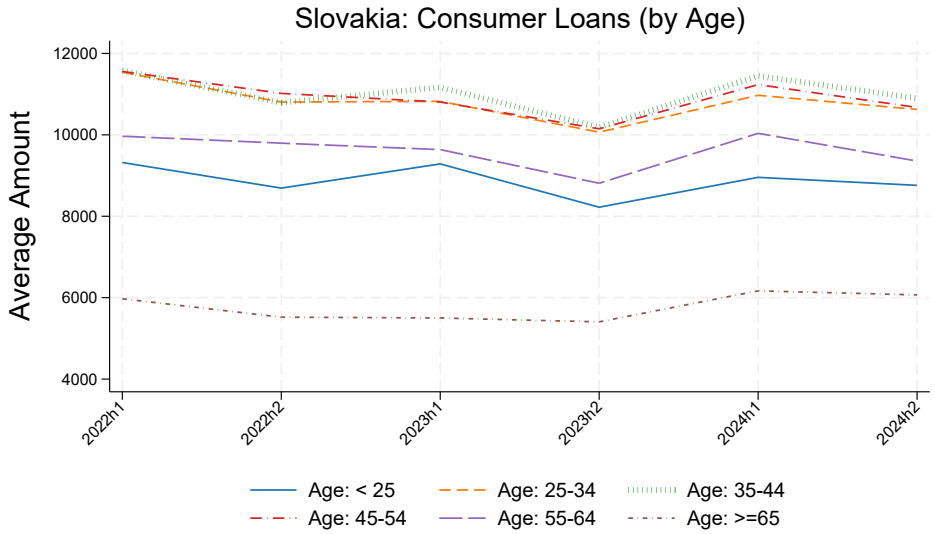


Figure F.9: Age breakdown: Slovakia



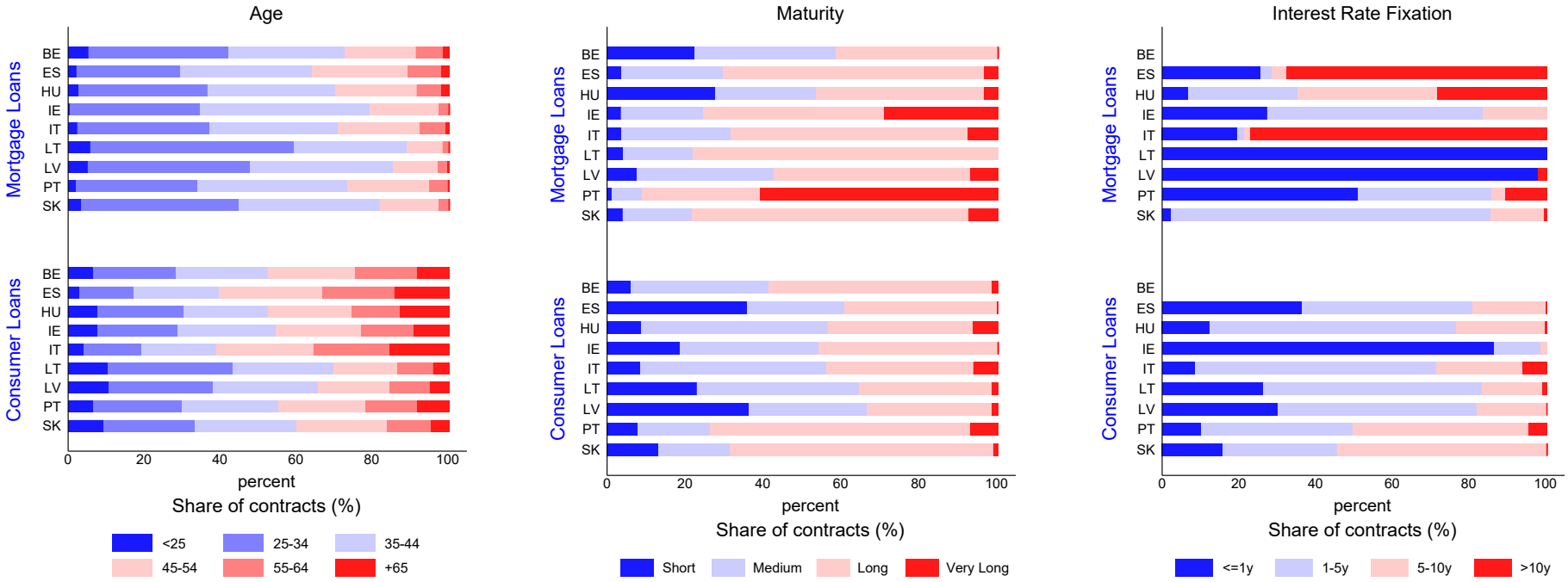






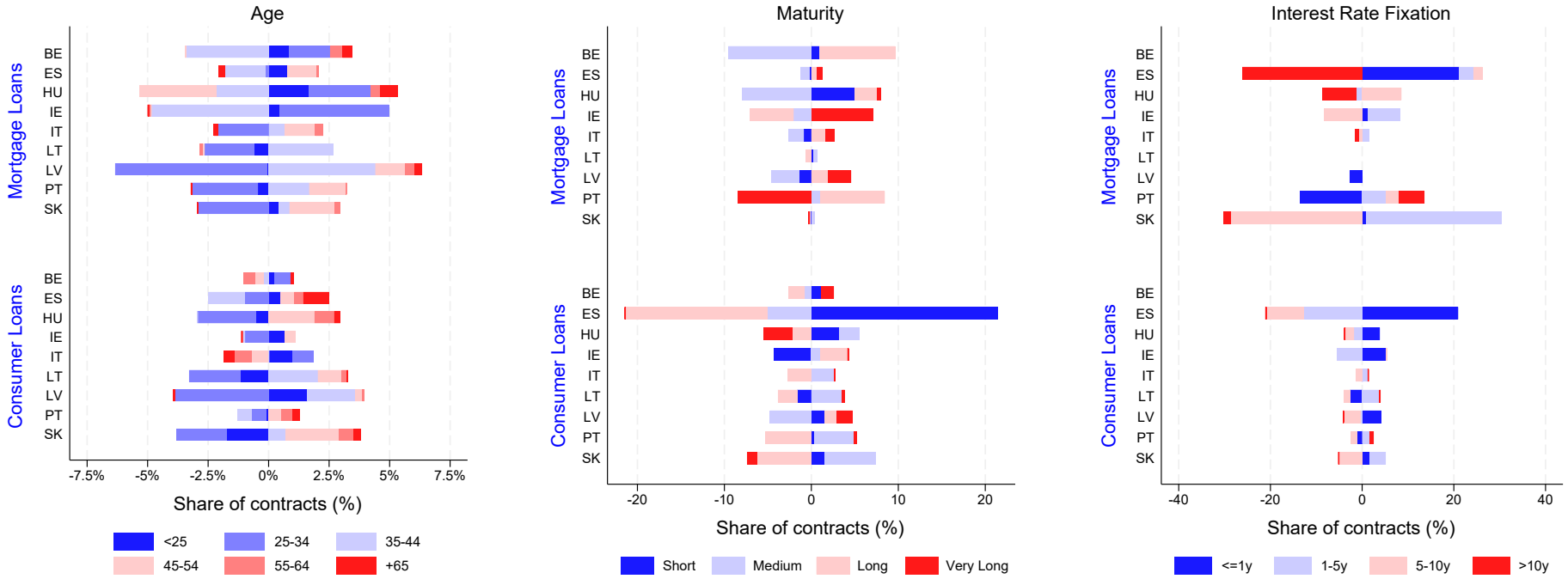
G Stylized Facts: number of contracts (like Fig. 1 and 2)

Figure G.1: Breakdown of new loan contracts (number) by age, maturity and interest rate fixation period



Notes: This figure presents the composition of the **number** of new loan contracts with respect to borrower age (left), loan maturity (middle), and interest rate fixation (right) across two different credit products (Mortgage Loans (top) and Consumer Loans (bottom)) for selected European countries. Each bar represents the percentage distribution of the value of new loan contracts by age/maturity/IRF group. Maturity bins are different for mortgage and consumer credit. For **mortgages**, we distinguish between short-term (≤10 years), medium-term (10–20 years), long-term (20–30 years), and very long-term (>30 years) maturities. For **consumer loans**, the four bins are: short-term (≤1 year), medium-term (1–3 years), long-term (3–10 years), and very long-term (>10 years). The graph is based on new credit contracts initiated between January 2022 and December 2024. The countries included in the analysis are Belgium (BE), Spain (ES), Hungary (HU), Ireland (IE), Italy (IT), Lithuania (LT), Latvia (LV), Portugal (PT), and Slovakia (SK). The graph is based on loan-level data, aggregated by country and credit product.

Figure G.2: Share changes over a tightening episode (number): Breakdown by age, maturity and IRF



Notes: This figure presents the change in the composition of the number of new loan contracts with respect to borrower age (left), loan maturity (middle), and interest rate fixation (right) across two different credit products (Mortgage Loans (top) and Consumer Loans (bottom)) for selected European countries. Each bar represents the percentage change in the share of new loan contracts by age/maturity/IRF group between two time periods (2022H1 and 2023H2). Maturity bins are different for mortgage and consumer credit. For **mortgages**, we distinguish between short-term ($\leq$10 years), medium-term (10–20 years), long-term (20–30 years), and very long-term (>30 years) maturities. For **consumer loans**, the four bins are: short-term ($\leq$1 year), medium-term (1–3 years), long-term (3–10 years), and very long-term (>10 years). The countries included in the analysis are Belgium (BE), Spain (ES), Hungary (HU), Ireland (IE), Italy (IT), Lithuania (LT), Latvia (LV), Portugal (PT), and Slovakia (SK). Positive values indicate an increase in the share of new loan contracts for a given group, while negative values indicate a decline. The graph is based on loan-level data, aggregated by country and credit product, with percentage point changes computed relative to the total number of new loan contracts in each country and product category.

H Robustness: Table 6, including standard errors

Table H.1: Heterogeneity in the pass-through: Robustness

	MORTGAGES			CONSUMER CREDIT		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIATION	no 2024	no BE/IT	no IE	no 2024	no IE	no IE + Collateral
	Dependent variable: Average interest rate on new contract					
Reference Rate	0.874***	0.950***	0.904***	0.686***	0.966***	1.009***
	(0.071)	(0.056)	(0.053)	(0.147)	(0.165)	(0.166)
BE × Reference Rate	0.183**		0.181***			
	(0.069)		(0.055)			
ES × Reference Rate	-	-	-	-	-	-
HU × Reference Rate	0.023	0.063	0.065	-0.295***	-0.260***	-0.255***
	(0.094)	(0.071)	(0.077)	(0.074)	(0.073)	(0.074)
IE × Reference Rate	-0.620***	-0.628***		-0.515***		
	(0.031)	(0.035)		(0.105)		
IT × Reference Rate	0.211***		0.176***			
	(0.044)		(0.037)			
LT × Reference Rate	0.008	-0.036	0.005	-0.430***	-0.453***	-0.437***
	(0.071)	(0.054)	(0.051)	(0.104)	(0.110)	(0.110)
LV × Reference Rate	0.030	-0.049	-0.011	1.016***	0.554***	0.549***
	(0.065)	(0.051)	(0.047)	(0.213)	(0.193)	(0.192)
PT × Reference Rate	0.055	-0.037	0.015	-0.094	-0.066	-0.047
	(0.058)	(0.051)	(0.048)	(0.078)	(0.066)	(0.067)
SK × Reference Rate	0.024	0.085	0.141**	0.382***	0.451***	0.438***
	(0.073)	(0.059)	(0.065)	(0.100)	(0.098)	(0.098)
Age: < 25 × Ref. Rate	0.074***	0.063***	0.064***	0.026	-0.009	-0.014
	(0.022)	(0.015)	(0.020)	(0.064)	(0.076)	(0.076)
Age: 25–34 × Ref. Rate	0.032***	0.026***	0.027***	0.028	0.028	0.026
	(0.011)	(0.006)	(0.010)	(0.017)	(0.022)	(0.022)
Age: 35–44 × Ref. Rate	-	-	-	-	-	-
Age: 45–54 × Ref. Rate	-0.002	0.002	0.000	0.008	0.009	0.010
	(0.008)	(0.006)	(0.008)	(0.021)	(0.025)	(0.025)
Age: 55–64 × Ref. Rate	-0.024	-0.017	-0.017	0.038	0.060*	0.061*
	(0.025)	(0.029)	(0.028)	(0.026)	(0.032)	(0.032)
Age: >=× Ref. Rate	-0.165***	-0.176***	-0.146***	0.138***	0.187***	0.184***
	(0.041)	(0.050)	(0.046)	(0.034)	(0.044)	(0.044)
Short × Ref. Rate	-0.273**	-0.431***	-0.343**	-0.459***	-0.632***	-0.676***
	(0.109)	(0.139)	(0.132)	(0.153)	(0.173)	(0.179)
Medium × Ref. Rate	0.012	-0.003	0.003	-0.144	-0.271**	-0.293**
	(0.010)	(0.012)	(0.012)	(0.095)	(0.123)	(0.125)
Long × Ref. Rate	-	-	-	-	-	-
Very Long × Ref. Rate	-0.027	-0.028	-0.037	0.352*	0.344	0.570**
	(0.021)	(0.022)	(0.025)	(0.199)	(0.229)	(0.276)
IRF: <= 1yr × Ref. Rate	-	-	-	-	-	-
IRF: 1–5yrs × Ref. Rate	0.472***	0.402***	0.416***	-0.085	-0.378***	-0.401***
	(0.128)	(0.083)	(0.092)	(0.125)	(0.125)	(0.119)
IRF: 5–10yrs × Ref. Rate	-0.127	-0.168*	-0.201**	-0.047	-0.356***	-0.383***
	(0.139)	(0.085)	(0.092)	(0.122)	(0.117)	(0.123)
IRF: >10yrs × Ref. Rate	-0.207	-0.284***	-0.209**	-0.427***	-0.671***	-0.763***
	(0.147)	(0.098)	(0.099)	(0.109)	(0.098)	(0.104)
Collateralized × Ref. Rate						-0.265***
						(0.088)
Observations	1949	2071	2623	1775	2380	2380
Adj. R-squared	0.91	0.91	0.92	0.89	0.87	0.87

Notes: This table presents heterogeneity in the pass-through on new household loans, distinguishing between **mortgages** (Columns 1–3) and **consumer credit** (Columns 4–6). The top row indicates how the specification differs from the benchmark. The main independent variable is the reference interest rate, interacted with four sets of characteristics. Variables, weighting, clustering and fixed effects are as in 3 and 4. Statistical significance is denoted as follows: *** p<0.01, ** p<0.05, * p<0.1.

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