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Geopolitical shocks and household financial distress in Europe: The Russia–Ukraine war

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ABSTRACT

This paper examines the impact of a major geopolitical risk shock, comparable in scale to the outbreak of the Russia–Ukraine war, on household financial distress in five European countries. We combine a VAR, household survey data, and theoretical insights to develop macro–micro simulations that quantify how such shocks influence household balance sheets. The VAR traces the macroeconomic effects of a surge in geopolitical risk, which we apply to household-level data using the HFCS. We find the shock is associated with elevated inflation, tighter monetary policy, higher mortgage rates, and falling house prices. Our simulations show these dynamics significantly increase financial distress, with variation across countries. We incorporate endogenous consumption responses and show that adjustments driven by interest rate exposure, inflation, and housing wealth play a key role in shaping household resilience. We also document that younger and lower-income households tend to increase consumption following the shock, exacerbating their financial vulnerability.

1. Introduction

Global geopolitical tensions have severely disrupted economic supply chains, driven up energy prices, and heightened uncertainty, all contributing to turbulence in economic growth and macro-financial stability. The outbreak of the war between Russia and Ukraine in 2022, in particular, triggered a sharp rise in energy prices, leading to historically high inflation across European economies (Caldara et al., 2022; Jordà and Nechio, 2023). Consequently, households have faced rising living costs, placing significant strain on their expenditures and finances (Guan et al., 2023; Pallotti et al., 2024),[1] potentially affecting their debt-servicing capacity. These pressures raise the question of how geopolitical risk events of this scale affect household financial resilience in Europe. Understanding the extent to which global geopolitical risks challenge households' financial health in the euro area and identifying the underlying mechanisms is essential for policymakers concerned with macro-prudential policy and the maintenance of financial stability. Yet, this issue remains unexplored in the existing literature.[2]

This paper examines the impact of a major geopolitical risk shock, comparable in scale and intensity to the Russia–Ukraine war, on household financial resilience in Germany, France, Italy, Spain, and Ireland.[3] Our analysis proceeds in two steps. First,

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[1] In particular, Guan et al. (2023) find that total energy costs for households worldwide increased by 62.6% to 112.9%, followed by increases of up to 4.8% in household expenditures. Also, Pallotti et al. (2024) highlight the heterogeneous nature of these inflationary shocks across countries and households.

[2] For a comprehensive literature review on geopolitical challenges and their impact on financial stability, see Hodula et al. (2024).

[3] The sample includes four of the largest euro area economies. Ireland provides an informative small, highly globalized economy. Together, the countries encompass both core and peripheral economies and allow us to assess how different economic settings respond to the war shock.

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we employ structural vector autoregressive (SVAR) models to estimate the effects of a geopolitical risk shock of this magnitude on macroeconomic variables that influence household finances. Second, we construct financial resilience indicators from household survey data and apply the estimated macroeconomic responses to assess how such an event affects household financial resilience across euro area economies. To capture household behavioural adjustments, the simulations also incorporate theoretical insights on the heterogeneous pass-through of aggregate shocks to consumption.

Our study is primarily related to the recently established empirical literature employing partial equilibrium simulation techniques to address the impact of macroeconomic shocks on heterogeneous households (Doepke and Schneider, 2006; Adam and Zhu, 2015; Adam and Tzamourani, 2016; Slacalek et al., 2020; Tzamourani, 2021; De Luigi et al., 2023; Ferreira et al., 2023). These studies are mostly concerned with the impact of interest rate, inflationary, or policy shocks on household balance sheets. The use of survey data in this literature helps uncover heterogeneous impacts across households and countries, that may arise from differences in income distribution, household portfolio allocation, degrees of exposure to inflation, or variations in consumption adjustment mechanisms.

A key distinction in this literature is whether the macroeconomic shock is hypothetical or estimated, with most studies adopting the former approach. Doepke and Schneider (2006) investigate the distributional consequences of ten years of additional 5% inflation, mirroring the US Great Inflation of the 1970s. Adam and Zhu (2015) explore hypothetical deflationary shocks of 10% in the euro area and find substantial wealth redistribution and cross-country variation. Adam and Tzamourani (2016) use the Household Finance and Consumption Survey (HFCS) and impose hypothetical 10% inflation shocks reflecting the European Central Bank's 2012 Outright Monetary Transactions announcements. In a similar framework, Tzamourani (2021) quantifies the interest-rate exposure of euro area households and finds cross-country heterogeneity attributable partly to differences in adjustable-rate mortgage (ARM) holdings. More recently, Ferreira et al. (2023) use bank-level microdata for Spanish households to estimate how the 6.6% rise in local inflation in 2021 affected the distribution of household balance sheets.[4]

Only a few studies using simulation techniques have departed from assuming hypothetical aggregate shocks. These studies mainly identify monetary policy shocks using VARs and local projection (LP) methods feeding the microdata with the models' output. Gross and Población (2017) integrate estimates from a Global VAR to the HFCS to assess the responsiveness of household risk parameters to macro-prudential policy measures. Slacalek et al. (2020) estimate an SVAR and apply the impulse responses of a monetary policy shock equivalent to a fall of 100 basis points to the 3-month nominal interest rate. They apply this shock to survey data (HFCS and EU-Labour Force Survey, LFS) to compare the interest rate exposure of households in different euro area countries, focusing on hand-to-mouth households. More recently, De Luigi et al. (2023), estimate the effects of a Quantitative Easing (QE) shock on housing and financial asset prices using LPs and apply this shock to the HFCS. They find a distributional impact of QE coming from asset price inflation. Regarding inflationary shocks, Del Canto et al. (2025) use estimated impulse response functions of oil and monetary shocks to explore the welfare impact of inflation. Our study belongs to this latter strand of literature, as it identifies a war shock from a VAR model, but it also resembles the former in the sense that it calibrates a specific event, which is uncommon in studies feeding the simulations with information from empirical macro models.

The first contribution of our study is to calibrate a geopolitical risk shock comparable in magnitude to the surge observed during the Russia–Ukraine war. We use the geopolitical risk index developed by Caldara and Iacoviello (2022) to estimate its effect on five euro area economies. The SVAR includes the variables that inform our subsequent simulations: inflation, energy prices, house prices, mortgage rates, household income, and employment. Our approach has two advantages over the existing literature. First, it approximates an event-study design by quantifying the effects of a real-world geopolitical shock of historically significant magnitude rather than imposing an arbitrary hypothetical shock. Second, it assesses the combined effects of simultaneous disturbances across several macroeconomic variables, which are often overlooked in the microsimulation literature.

Our second contribution extends the literature on household financial resilience (see, for example, Jappelli et al., 2013; Dey et al., 2008; Brown and Taylor, 2008; Michelangeli and Pietrunti, 2014; Mustre-del Río et al., 2025) by examining vulnerability to a large-scale geopolitical shock of the type represented by the Russia–Ukraine war, a focus that, to the best of our knowledge, is novel in this field. This literature typically uses resilience indicators such as debt-to-income ratios to stress-test household balance sheets under hypothetical adverse scenarios, but often overlooks living costs. We augment these indicators to account for changes in living expenses, which is important because war-induced energy-price increases and inflation place pressure on household budgets and may reduce their capacity to absorb adverse shocks (Guan et al., 2023). Following Ampudia et al. (2016), our financial margin (FM) indices capture households' ability to meet monthly living expenses under inflationary pressure without falling into financial distress.

The third contribution of the paper is to provide insights into the transmission of large geopolitical shocks to household balance sheets, focusing particularly on endogenous consumption responses. To this aim, we integrate theoretical channels from the literature on heterogeneous-agent household consumption behaviour into our simulations. Determining which channels dominate and thus yield the most significant effects is not possible a priori; assessing the macro-financial repercussions of this geopolitical event requires a thorough examination of the transmission mechanisms. For example, inflationary pressures triggered by the war subsequently led to higher nominal interest rates due to tighter monetary policy. This sequence of events directly impacts financial fragility by increasing households' debt servicing costs and indirectly affects consumption through wealth effects, depending on households' varying levels of inflation and interest rate exposure as well as real estate asset holdings within their portfolios. If net wealth effects are substantially negative, households may reduce their consumption, which could mitigate the overall effect on financial fragility.

[4] Although the shock reflects an empirical event rather than an estimated shock, the authors argue that it was exogenous because it was abrupt, unanticipated by households, and perceived to be short-lived.

Partial equilibrium simulations incorporating endogenous consumption adjustments enable us to quantify the net effect of these channels on financial fragility in each country.

The majority of studies in the relevant literature pay little attention to households' consumption adjustments in response to such adverse shocks.[5] Two notable exceptions are Slacalek et al. (2020) and Ferreira et al. (2023), who rely on Auclert (2019)'s theoretical framework. They distinguish between two broad channels, intertemporal substitution and wealth effects, to measure their respective impact on households' balance sheets in the context of monetary policy and inflationary shocks. We contribute to this strand of the literature by shifting the focus to a different class of shock, namely, a large-scale geopolitical risk shock of the kind exemplified by the 2022 war in Ukraine. In doing so, we also construct financial distress indicators that incorporate endogenous household consumption responses to the simulated shock. The transmission mechanism we consider incorporates four distinct consumption channels: following Auclert (2019) we account for intertemporal substitution effects, wealth effects due to inflation changes (Fisher channel), wealth effects due to interest rate changes (interest rate exposure channel), and following Berger et al. (2018), we incorporate housing wealth effects.

Our main findings are summarized as follows. First, the SVAR analysis indicates that a surge in geopolitical risk comparable to the outbreak of the Russia–Ukraine war is associated with a range of macroeconomic responses across euro area economies. The impulse response functions (IRFs) show that the war shock generates elevated and persistent inflationary pressures, particularly in energy prices. The associated monetary tightening produces significantly higher mortgage rates and pronounced house-price declines in most countries. Some countries experience nominal increases in household income due to wage growth and income-support packages introduced during the cost-of-living crisis. Overall, the macroeconomic responses used in our simulations are consistent with recent euro area developments.

Second, before incorporating endogenous consumption adjustments, we apply these macroeconomic shocks to household survey data. The results show that borrowers' financial resilience deteriorates substantially. Households in Germany and France demonstrate the greatest resilience, while those in Spain, Italy, and Ireland experience the most distress. Our findings are robust across different indicators of financial resilience. By breaking down the index and applying the SVAR shocks to its components, we find that in most countries, the negative effects of inflation and the significant decline in the household sector's debt-servicing capacity are partially offset by increases in household income.

Third, when we incorporate consumption adjustments into our financial distress indicator, we observe the key role these adjustments play in transmitting the effects of geopolitical risk to household finances. The results vary across countries: households in Germany, Spain, and Ireland reduce their non-durable consumption to maintain a cash buffer, which helps mitigate the adverse macroeconomic consequences of the shock and thus improves their financial resilience. Conversely, in France and Italy, households increase their consumption spending, which tightens aggregate financial margins and further strains resilience. Furthermore, a breakdown of the partial equilibrium channels reveals that the consumption cutbacks are primarily driven by the Fisher effect, which arises from the revaluation of net nominal positions due to inflation, and the housing wealth channel, influenced by declines in housing prices.

Finally, we identify substantial heterogeneity in consumption responses across age and income groups. Younger households increase consumption in all five countries. Low-income households also increase consumption in France, Spain, and Italy, while older and higher-income households more often cut back, thereby improving their financial resilience.

The paper is structured as follows. In Section 2 we describe the calibration of the war shock and assess its impact on the five euro area countries using IRFs. Section 3 highlights the key financial margin indicators used in our analysis. It then presents the micro-data employed to simulate the impact of the shock on household financial distress in these countries. Section 4 describes the theoretical insights on endogenous consumption responses, which are used to augment the financial margin indicators presented in the previous section. Subsequently, it discusses the results and illustrates heterogeneities across age and income groups. Section 5 concludes.

2. Calibration of the war shock and its impact on euro area economies

2.1. GPR index

We calibrate a geopolitical risk shock, comparable in magnitude to the one observed during the Russia–Ukraine war, using the geopolitical risk index (GPR) developed by Caldara and Iacoviello (2022), henceforth CI, to estimate its impact on the macroeconomic variables of five euro area economies. This index draws on automated text-search results from the electronic archives of newspapers across several countries and, according to the authors, aims to "capture events with global dimensions and repercussions", rendering it suitable for examining the impact of the outbreak of the war.[6] The GPR index is shown in Figure A1 in the Appendix. Spikes in the graph denote significant geopolitical events. The index surged between January and March 2022, coinciding with the outbreak of the Russia–Ukraine war.

CI organize the GPR index into eight categories: war threats, peace threats, military buildups, nuclear threats, terror threats, the beginning of war, war escalation, and terror acts. The eight components and their historical evolution are illustrated in Figure

[5] See, for example, Domanski et al. (2016), Adam and Zhu (2015), Adam and Tzamourani (2016), Tzamourani (2021) and De Luigi et al. (2023).

[6] Specifically, CI calculate the GPR index by counting the number of articles related to adverse geopolitical events in each newspaper in each month and expressing this count as a share of the total number of news articles.

A2 in Appendix A.1. The Russia–Ukraine war is the only episode in the sample characterized by a significant combination of geopolitical events, including the onset of war, military buildups, nuclear threats, and war threats. The second notable spike in the sample corresponds to the 2001 terrorist attacks and is driven solely by the terror acts component of the GPR index, underscoring a fundamentally different source of geopolitical risk.

2.2. Method, data and variables for shock calibration

Our simulation focuses on an escalation of geopolitical tensions stemming from a major geopolitical risk shock comparable in scale to the outbreak of the Russia–Ukraine conflict in February 2022. We estimate a separate SVAR for Germany, France, Spain, Italy, and Ireland to evaluate the macroeconomic impact of the shock.

Instead of using the overall GPR, we follow CI and incorporate its two primary building blocks to calibrate the magnitude of the war shock. Specifically, we use the geopolitical threats (GPRT) index and the geopolitical acts (GPRA) index, which constitute the two subcomponents of the overall GPR. The GPRT index is constructed from the following five categories shown in Figure A2: war threats, peace threats, military buildups, nuclear threats, and terror threats. The GPRA index is constructed using the remaining three categories: beginning of war, escalation of war, and terror acts. Thus, GPRT captures concerns about the scope, duration, and ramifications of geopolitical tensions and conflicts, whereas GPRA encompasses realized events such as terror acts and the commencement and escalation of wars. Figure A3 in the Appendix shows both indices over time. Both surged between January and March 2022 and declined thereafter, mirroring the overall GPR index.

It is instructive to contrast the 2022:Q1 episode briefly with other notable GPR shocks in the sample to clarify the distinctive magnitude and composition of the shock we calibrate. As shown in Figure A2, the spike in 2001 (9/11) is almost entirely attributable to the terror acts component of the GPR index, reflecting a sudden, realized shock with no prior warning. This component is captured exclusively by the GPRA index. In that episode, the GPRT component, designed to capture forward-looking risk based on military buildups and war threats, remained largely subdued (Figure A3).[7] In stark contrast, the 2022:Q1 episode reflects a broad-based rise in both GPRA and GPRT, with GPRT exceeding GPRA (Figure A3). As Figure A2 illustrates, the 2022 war episode is driven by sustained increases in components such as military buildups, war threats, and nuclear threats rather than by terror acts or other unanticipated events. These elements are captured in the GPRT index and signal heightened forward-looking geopolitical uncertainty. Moreover, the beginning-of-war component in GPRA is substantial in 2022:Q1, whereas it was effectively zero during the 9/11 episode. Together, these features qualitatively distinguish the 2022:Q1 shock from every other geopolitical event in the sample.[8]

In addition, the 2022 war shock is also quantitatively unique. As shown in the historical decomposition in Fig. 1 (discussed in detail in the following section), the combined contribution of GPRT and GPRA shocks (that is, the overall GPR shock) in 2022:Q1 is the largest across the entire sample period—amounting to an almost six-standard-deviation shock. We calibrate the VAR shock to exactly match this magnitude, based directly on the historical decomposition of the GPR index. This one-to-one calibration allows us to capture the dynamic effects of the most intense and forward-looking geopolitical risk event in the sample, rather than the effects of an average GPR shock.

Our analysis incorporates the following country-specific macroeconomic variables at a quarterly frequency: employment, HICP (Harmonized Index of Consumer Prices), HICP energy, gross household income,[9] the mortgage rate for house purchase,[10] and residential property price indices. The choice of country-specific variables is guided by the partial-equilibrium simulation framework described in Section 4. All country-specific variables are sourced from the ECB Statistical Data Warehouse (SDW), except for the residential property price index, which is taken from the Federal Reserve Economic Data (FRED). Apart from mortgage rates, all variables are transformed into logarithms. Because GPRT and GPRA are global indices, they are common across the country-specific VARs. All series are linearly detrended.

Our VAR model, which includes a constant and two lags of the endogenous variables, is estimated on quarterly data from 2000:Q1 to 2022:Q4 employing Bayesian techniques.[11] The following VAR is estimated:

$$Y_t = c + \sum_{j=1}^{p} Y_{t-j} B_j + u_t \tag{1}$$

where Y is the vector of n endogenous variables, c is the constant term, B is the $n \times n$ matrix of autoregressive coefficients, and $u_t \sim \mathcal{N}(0, \Sigma)$, where Σ is the covariance matrix of the residuals. The estimation procedure is standard in the literature and closely follows Uhlig (2005). Details regarding the estimation of the VAR are provided in Appendix A.3.

[7] Similarly, the Iraq War episode is dominated by GPRA, consistent with a conventional conflict marked by limited anticipatory risk.

[8] As a further robustness check, we use an alternative version of the GPR index provided by CI that excludes the category related to terrorist acts, the principal GPR component of the 9/11 attacks. The results, presented in the Appendix, are largely unchanged.

[9] While the macroeconomic calibration uses aggregate gross household income series available from the ECB SDW, all household-level financial distress indicators in the microsimulation analysis are constructed using disposable (after-tax) household income measures derived from the HFCS.

[10] We use mortgage rates with an initial rate-fixation period of ten years.

[11] The selection of two lags is based on the Schwarz Information Criterion (SIC) lag order selection criterion. This criterion, as advocated by Ivanov and Kilian (2005) is deemed most appropriate for quarterly VAR models with limited sample sizes, as in our case.

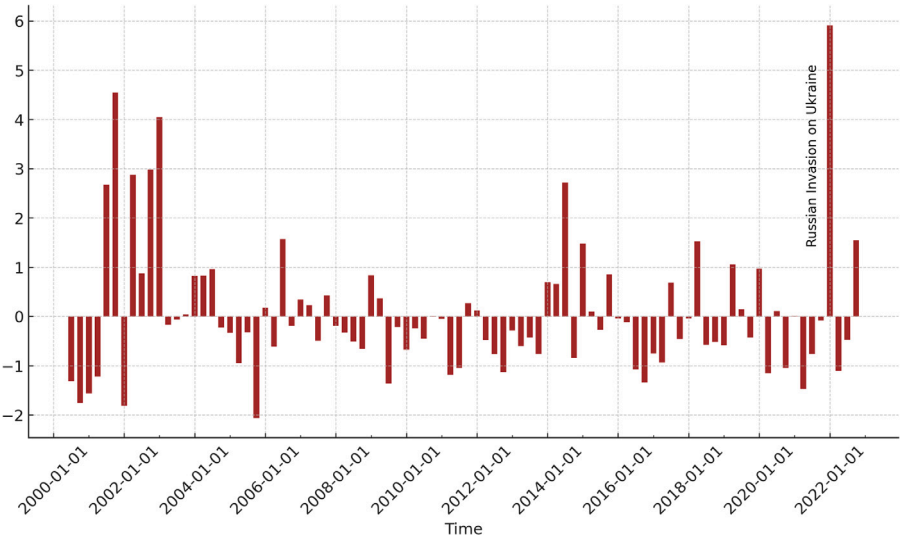


Fig. 1. Historical decomposition: size of the estimated GPRA and GPRT shocks.
Note: The figure illustrates the sum of GPRT and GPRA shocks, expressed in standard deviations and extracted through historical decomposition. The value in 2022:Q1 is used to calibrate the shock associated with the beginning of the Russia–Ukraine conflict in February 2022.

2.3. Calibration of the size of the Russia–Ukraine war shock

We identify a geopolitical risk shock as the most exogenous variable by using a Cholesky decomposition of the covariance matrix of the VAR reduced-form residuals. The covariance matrix of the residuals, Σ, can be decomposed as $\Sigma = A_0 A_0'$, where A_0 represents the contemporaneous impact of the structural shocks ϵ_t: $u_t = A_0 \epsilon_t$. The geopolitical risk indices are ordered first in the Cholesky decomposition (GPRT first, followed by GPRA). This ordering implies that within-quarter fluctuations in geopolitical risk are allowed to affect all other macroeconomic variables contemporaneously, but not vice versa. Under this recursive identifying assumption, contemporaneous correlations between geopolitical risk and macroeconomic outcomes are interpreted as reflecting the effect of geopolitical risk shocks on the economy rather than the reverse.[12] Similar calibrations of geopolitical risk shocks in a macroeconomic setting have been adopted by Caldara et al. (2022) and Caldara and Iacoviello (2022).

Our measure of adverse geopolitical risk enables us to calibrate the size of the shock originating from this specific event. To do so, we derive a historical decomposition from the estimated VAR to isolate the impact of heightened geopolitical risk around the outbreak of the Russia–Ukraine war. Specifically, we construct a simulation using the sequence of geopolitical risk shocks that materialized in the first quarter of 2022. We consider only 2022:Q1 and exclude the second quarter because the positive innovation to geopolitical risk in that period is much smaller.[13]

Fig. 1 presents the sum of the historical decompositions of GPRT and GPRA shocks. The contribution of the combined shock peaks in the first quarter of 2022 and then dissipates rapidly, making it the largest contribution observed over the sample period.[14,15] This ensures that our VAR simulation captures the dynamic effects of a major geopolitical risk episode comparable in scale to the 2022 war shock. Specifically, the historical decomposition returns a scaling factor of six standard deviations in 2022:Q1, which we apply to the war shock in our VAR.[16] The IRFs therefore reflect the impact of a six-standard-deviation geopolitical risk shock, consistent with the spike in geopolitical risk observed in early 2022. Section A.2 of the Appendix provides additional evidence from variance decompositions on the effects of the war shock on euro area economies in 2022:Q1.

[12] The remaining variables are ordered as follows: employment, household income, inflation (HICP and HICP energy), mortgage rates, and house prices. This ordering reflects standard assumptions in the VAR literature, whereby labour-market variables (employment and income) are relatively slow-moving and respond to shocks with a lag, while financial variables (mortgage rates and house prices) are more flexible and respond contemporaneously.

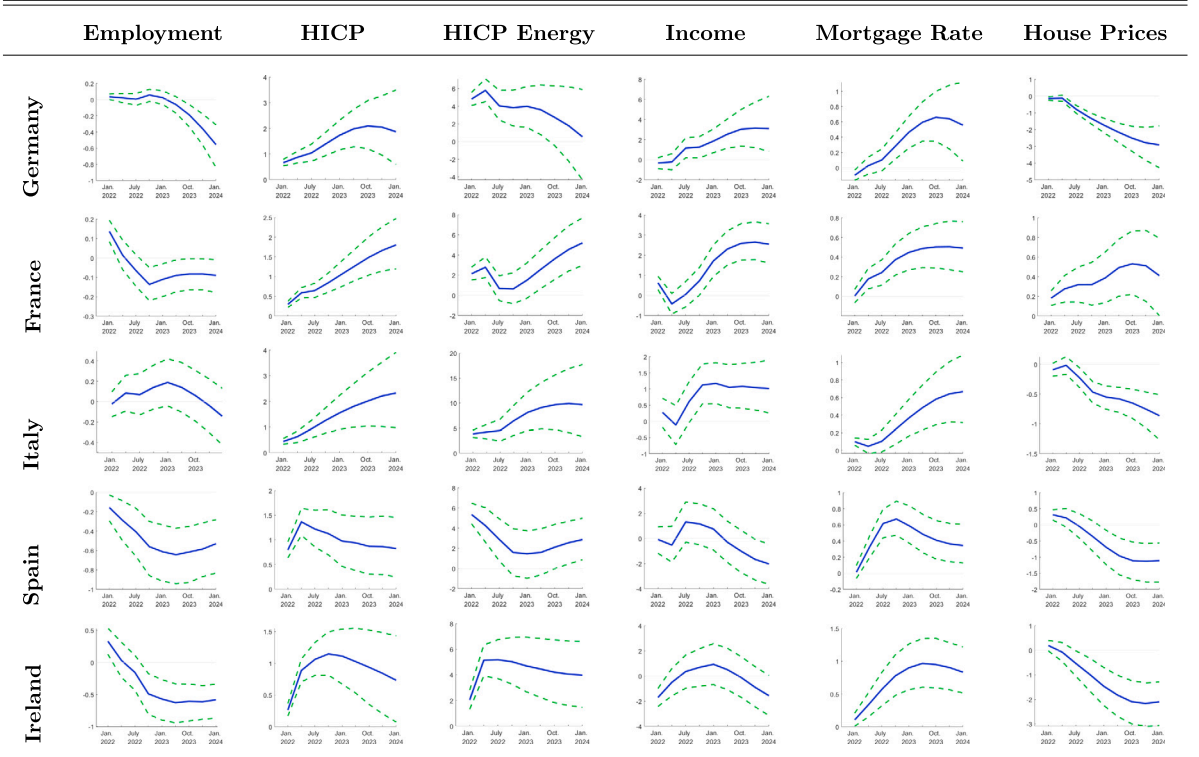
[13] Nevertheless, we run an alternative VAR that includes the second quarter of 2022. The IRFs, available upon request, show minimal variation, indicating that including Q2 has a negligible impact. This is consistent with the decline in the GPR index after 2022:Q1 shown in Figure A1.

[14] The GPRT shock is five standard deviations and the GPRA shock is one standard deviation. Hence, the impulse responses reflect a combination of GPRT and GPRA shocks in a five-to-one ratio.

[15] An alternative VAR specification in the robustness section of the Appendix uses only the GPRT index, which exhibits the largest spike in 2022:Q1, as illustrated in Figure A3. The results remain largely unchanged, which is reasonable because the GPRT shock constitutes the lion's share of the overall GPR shock.

[16] A scaling factor is also used by Caggiano et al. (2020) to calibrate the size of the COVID-19 uncertainty shock; however, their approach differs in two ways. First, the authors estimate the shock size from the difference between the uncertainty index at its peak and one month earlier. Second, their assumption that 90% of this increase is attributable to COVID-19 is externally imposed rather than derived from the model. In contrast, our shock size is derived from the dynamics within the VAR, allowing us to track the effects of the war shock that materialized in 2022:Q1.

Table 1
Impulse responses to the war shock in 2022Q1 in Germany, France, Italy, Spain, and Ireland.



Note: The panel illustrates the responses of all country-specific variables to the war shock in the first quarter of 2022. Solid blue lines represent the median estimates, while dashed green lines indicate the 70 percent confidence intervals. Responses are plotted quarterly, from January 2022 to January 2024, in percent deviation from a no-war baseline.

2.4. IRFs: the impact of the war shock on the euro area countries

Table 1 is a panel of figures illustrating the responses of all country-specific variables to the war shock of Q1 2022. The responses are plotted with a forecast horizon of 8 quarters, from 2022:Q1 to 2024:Q1, in percent deviation from a no-war baseline. The solid blue lines in the figures plot the median estimates. The dashed green lines denote the 70 percent confidence intervals.[17]

Following the outbreak of the Russia–Ukraine war in 2022:Q1, our estimates show that inflation and energy inflation rise significantly across all countries. These pressures are persistent and sizeable, with peak increases ranging from 1.15% in Ireland to 2.32% in Italy. This is consistent with Liadze et al. (2023), who find that the war added about 2% to global inflation in 2022. The impact on energy inflation is much more pronounced, reflecting the severe disruption to energy markets following the outbreak of the war. This is also consistent with ECB estimates showing that energy inflation was by far the most important driver of overall inflation in 2022 (Arce et al., 2023). According to our VAR estimates, peak energy-inflation responses range from 5.14% in Ireland and 6% in Germany to almost 10% in Italy.

Employment declines in Germany, France, Spain, and Ireland. Except in Spain, however, the immediate effects are limited. This aligns with the observation in EC (2022) that the war did not have a substantial immediate effect on the EU labour market. The impact becomes more apparent from the third quarter. One year after the shock, employment falls by up to 0.61% in Spain and 0.57% in Ireland. In Germany, the effect becomes more pronounced in the second year, reaching a decline of 0.55%. France experiences a more moderate decline, while the effect in Italy is negligible. The broad decline in employment also reflects tighter monetary policy in the euro area.

Gross nominal household income gradually increases in Germany, Italy, and France, while the responses in Spain and Ireland are insignificant over most of the forecast horizon.[18] The increases can be explained by nominal wage growth in response to the

[17] Note that in contrast to the frequentist approach, 70% is quite common in the Bayesian VAR literature (see Sims and Zha, 1999; Bańbura et al., 2010; Alessandri and Mumtaz, 2019; Evgenidis and Salachas, 2019, among others).

[18] Incorporating these increases is important because they may offset some adverse effects of the shock and reduce the probability that households become financially fragile.

inflationary consequences of the energy supply shock.[19] The income response is delayed because nominal wage rigidities slow the wage-setting adjustment process (Adolfsen et al., 2024).[20]

Following the escalation of inflation in the euro area, the ECB, along with other major central banks, swiftly tightened monetary policy.[21] Higher bank funding costs associated with policy-rate increases led to significantly higher rates on new household loans. This is reflected in the mortgage-rate responses shown in Table 1, which are positive and persistent across all countries over the forecast horizon.

At the same time, higher borrowing costs discourage many Europeans from home purchases, resulting in a notable decline in demand for mortgages and subsequently driving down house prices. This has been recently highlighted by Bobasu et al. (2024), who attributed the decline in house prices following the war in Ukraine, to the ECB's tightening of monetary policy and the resulting increase in borrowing costs. This trend is reflected in our findings. As shown in Table 1, house prices decline markedly in four of the five countries. Two years after the shock, these declines range from approximately 1% in Italy to 3% in Germany.[22] Tracking the course of house prices is key in our analysis, as they may drive wealth effects which hint upon consumption and financial resilience.

Table 2 summarizes the percentage responses to the war shock used in the partial-equilibrium simulations. The central scenario reports the median response at the end of the two-year horizon shown in Table 1. The adverse scenario is derived from the 90% credible bounds of the VAR posterior distributions. It captures tail risks and approximates potential nonlinearities associated with a shock of this unusual magnitude. The scenario therefore complements the central estimates by providing a plausible upper bound for the shock's effects. Under the 'adverse' scenario, the sharpest increases in overall inflation are observed in Germany and Italy. The impact on energy inflation is particularly severe, reaching double-digit levels in most countries, reflecting the significant and persistent disruption in the energy market. Within the same period, the cost of servicing mortgage debt rises significantly, due to the tightening of ECB's monetary policy. Borrowers experience increases in nominal mortgage interest rates ranging from 1.23% in Spain to 2.54% in Germany. Lastly, the shock triggers a significant decline in house prices in the five countries of the euro area, with decreases of up to 5.03% in Ireland and 7.51% in Germany.[23]

3. The impact of the war shock on household financial resilience

In this section, we analyse how the calibrated war shock, represented by the IRFs derived in the previous section, affects household financial resilience in the five euro area countries of interest. We build on previous research employing VAR or local-projection models to perform similar simulations (Slacalek et al., 2020; De Luigi et al., 2023). Unlike these studies, which concentrate on economic or distributional responses to individual shocks such as inflation or interest-rate shocks, we quantify the combined impact of a war shock on financial resilience through several macro–micro linkages. In particular, we account for changes in macroeconomic variables from the SVAR model and assess their effects on household income, consumption spending, debt-servicing costs, and housing assets. The following subsections describe our partial-equilibrium simulation model and results.

3.1. Household financial resilience indices

There is no single measure that can summarize every aspect of household financial resilience or distress. We therefore use four complementary indicators: two debt-burden ratios, a liquidity coverage ratio, and a financial margin ratio. Together, these measures capture household indebtedness, short-term asset buffers, and the interaction between debt obligations and living costs.

Debt-burden ratios, such as the loan-to-value ratio and the debt-service-to-income ratio, are widely used to quantify indebtedness relative to housing values and income (Jappelli et al., 2013; Dey et al., 2008; Brown and Taylor, 2008; Michelangeli and Pietrunti,

[19] The increases in household income in Germany and France may also reflect discretionary fiscal interventions implemented immediately after the outbreak of the war. Germany introduced a universal lump-sum transfer (Energiepreis-Pauschale) of €300 per person, supplements for children, and a higher minimum wage. France implemented the indemnité inflation, a €100 payment to individuals earning no more than €2,000 per month. Italy introduced an automatic means-tested bonus for households experiencing economic hardship (Blanchard and Pisani-Ferry, 2022; Hemmerlé et al., 2023). Spain relied more heavily on tax rebates, which are not reflected in gross income, and experienced wage growth below the euro area average.

[20] We estimate an alternative VAR in which compensation per employee from the SDW replaces household income as a proxy for nominal wages. The results are reported in Figure A8 in the Appendix. Nominal wages increase by an average of 1% and remain elevated throughout the forecast horizon, although their growth remains below inflation. In the baseline VAR, we retain household income to align the empirical model with the theoretical mechanisms in Section 4. The results imply a decline in real income, consistent with euro area developments following the war (Ferreira et al., 2023).

[21] We estimate an additional VAR using euro area aggregates and include the ECB's main refinancing operations (MRO) rate to proxy the policy-rate response to the war shock. Figure A5 in the Appendix shows a persistent increase of approximately 1.25% by the end of the forecast horizon.

[22] The sole exception is France, where house prices increased in response to the war shock. While this may appear counterintuitive, INSEE (2022) argue that prices continued to rise throughout 2022, driven by supply chain disruptions and increased production costs, which affected various sectors of the economy, including construction and housing. Year-on-year increases reached 7.0% in Q1 and 6.4% in Q3. This trend may reflect persistent supply constraints, shifts in household preferences towards larger living spaces due to remote work, and regional differences in the transmission of monetary policy.

[23] Additionally, we investigate potential nonlinearities by complementing our baseline VAR with panel quantile regressions that examine how the effects of geopolitical risk shocks vary across the conditional distribution of inflation (HICP, one-year changes) across the countries in our VAR. We perform these estimations for the median, the 10th, the 25th, the 75th, and the 90th percentiles of the inflation distribution. Our specification includes country fixed effects and we use the same sample period as in the baseline VAR to ensure comparability. The results (not reported here but available upon request), show significant coefficients at the median, while larger coefficients at the upper quantiles indicate that geopolitical risk raises the likelihood of inflation surges. These patterns highlight a broad-based link between geopolitical risk and inflation, not confined to inflationary periods. Because median coefficients in quantile regressions are less influenced by extremes than OLS estimates, this exercise shows that the inflationary effects of geopolitical risk shocks are robust to the specific estimation method and do not depend on the linear VAR structure.

Table 2
Macroeconomic responses (%) to the war shock in the two-year horizon.

Scenario	Inflation	Energy inflation	Income	Mortgage rate	House prices
	Germany				
Central	1.87	0.94	3.10	0.56	−2.91
Adverse	7.41	19.69	−3.14	2.54	−7.51
	France				
Central	1.80	5.20	2.55	0.49	0.41
Adverse	3.91	13.33	0.10	1.40	−0.73
	Spain				
Central	0.82	2.86	−2.03	0.34	−1.11
Adverse	2.81	9.84	−7.08	1.23	−3.20
	Italy				
Central	2.32	9.68	1.01	0.67	−0.86
Adverse	7.67	36.60	−1.14	2.08	−2.10
	Ireland				
Central	0.73	3.98	−1.56	0.83	−2.10
Adverse	2.87	12.64	−6.26	2.09	−5.03

Note: Central scenario is based on median IRFs in the two-year horizon, while the adverse scenario is based on the bounds of the 90% confidence interval of the posterior distribution of the Bayesian VAR.

2014). These ratios capture the income and asset buffers available to households facing an adverse shock. Researchers typically apply thresholds to identify financially distressed households. For example, Michelangeli and Pietrunti (2014) select a 30% threshold for the debt-service-to-income ratio, whereas Dey et al. (2008) classify households with a ratio above 40% as distressed. Although no single standard exists, we choose thresholds commonly used in the literature and in macroprudential policy.[24]

In addition, liquid asset buffers play an important role in households' ability to smooth adverse shocks over time and avoid financial distress (Ampudia et al., 2016). Households holding sufficient liquid assets may temporarily sustain debt repayments and avoid sharp cuts in essential expenditures despite declines in real income or increases in borrowing costs, thereby mitigating short-run financial distress. To capture this dimension of distress, we construct a liquidity coverage ratio (LCR), measured as the number of months of scheduled debt-service payments that a household can cover using its liquid assets:

$$LCR_i^{months} = 12\frac{LA_i}{DS_i}, \tag{2}$$

where LA_i denotes liquid assets, including deposits, mutual funds, bonds, and publicly traded shares, and DS_i denotes annual scheduled debt-service payments. Following Ampudia et al. (2016), households with $LCR_i^{months} \leq 6$ are classified as financially vulnerable. Equivalently, if $\tau = 1/2$ denotes a six-month horizon in years, the vulnerability condition can be written as $LA_i/(\tau DS_i) \leq 1$. The measure therefore captures debt-payment coverage directly; its connection to essential consumption is that a larger liquid buffer reduces the need to cut such expenditure in order to continue servicing debt.

Finally, while debt-burden and liquidity indicators capture households' asset and cash-flow buffers, they do not fully account for the interaction between debt obligations and rising living costs. Financial margin measures (FM) are particularly useful in this context because they explicitly incorporate expenditure-side pressures associated with inflationary shocks (Ampudia et al., 2016; Anderloni et al., 2012; Vatne, 2006; Valderrama et al., 2023). By incorporating expenditure-related variables, these measures provide a more comprehensive assessment of household financial health under systemic or idiosyncratic shocks. In other words, FM indices account not only for overcommitment due to excessive indebtedness but also for an inability to meet monthly expenses, including food, utilities, and housing costs. A higher FM indicates tighter financial constraints. This class of indicators is particularly relevant to the war episode we study because persistent inflation has heightened cost-of-living pressures.

We construct our first FM measure following Valderrama et al. (2023), who introduce a cost-of-living-adjusted debt-servicing-to-income ratio. We adopt their threshold of 70% for comparability purposes.[25]

We define essential consumption as expenditure on food and utility bills and include rent as an additional essential housing cost. These expenditures represent basic, non-discretionary household needs that are difficult to adjust in the short run and therefore capture the minimum cost of maintaining living standards. Consistent with Ampudia et al. (2016), Anderloni et al. (2012), Valderrama et al. (2023) and Bank of England (2023), we classify a household as financially distressed if essential consumption, rent,

[24] Because our research question concerns changes in financial resilience before and after the war shock, alternative thresholds tend to shift the results proportionally without changing our main findings. Results using alternative thresholds are available upon request.

[25] Valderrama et al. (2023) estimate the level of mortgage repayment costs as a share of income at which households become more likely to default on their mortgages to be around 40 percent. This is combined with evidence that households are considered financially distressed when the share of income devoted to non-housing essential expenditures exceeds 30 percent, yielding a combined threshold of 70 percent. The Bank of England also uses a 70% cost-of-living-adjusted mortgage debt-servicing threshold to assess distressed households (Bank of England, 2023).

Table 3
Measures of household financial distress.

Indicator	Threshold value	Definition
LTV	90%	Loan-to-house-value ratio
$DSTI$	40%	Debt-servicing-to-net-income ratio
LCR	6 months	Liquidity coverage ratio
FM_{ess}	70%	Financial margin based on essential consumption and rent

Note: LTV and $DSTI$ follow standard macroprudential thresholds. The LCR threshold identifies households whose liquid assets cover no more than six months of scheduled debt-service payments. The FM_{ess} threshold follows the 70% cost-of-living-adjusted debt-servicing benchmark and includes rent. For FM_{ndur}, the 100% threshold indicates that disposable income is insufficient to cover non-durable expenditure and debt obligations.

and debt-servicing payments together exceed 70% of disposable income. This combined threshold is widely used in the literature cited above and facilitates comparison with existing studies.

The FM ratio is defined as follows:

$$FM = \frac{C_{es} + H + DS}{Y_{disp}} \tag{3}$$

where C_{es} is essential consumption spending on food and utilities, H is rent, DS denotes debt-servicing payments, and Y_{disp} is disposable income. The four metrics and their chosen thresholds are summarized in Table 3.

3.2. Survey data for the construction of financial distress indicators

We use the HFCS to construct our measures of household financial distress. The survey is coordinated by the ECB to ensure comparability across euro area countries and provides detailed information on household assets, liabilities, income, consumption, and demographic characteristics. We use the fourth and most recent wave, with reference years 2020 and 2021, immediately before the Russia–Ukraine war. Because fieldwork took place in either 2020 or 2021, depending on the country, we uprate expenditure components using national HICP inflation between the midpoint of the fieldwork period and 2022:Q1. We uprate liquid and non-liquid assets using national stock-market and house-price indices from the OECD.[26]

All our financial resilience indicators are related to mortgage debt or debt repayments; therefore, we restrict the sample to mortgage borrowers who report positive outstanding balances in the survey. Table 4 presents descriptive statistics for these households across the five euro area economies. The table reveals substantial cross-country heterogeneity.

Concerning income, the HFCS only reports gross household income, with the exception of Italy, where net income is directly available in the original survey data. For the remaining countries, we construct disposable (after-tax) household income following Slacalek et al. (2020).[27] All household financial distress indicators based on income, including DSTI and the financial margin measures, are constructed using this disposable income measure.

Irish households report the highest average net income, while Spanish households report the lowest. With respect to expenditure, the HFCS reports amounts spent on food, utilities, rent, trips and holidays, consumer goods and services, alimony, and charitable contributions. We categorize food and utilities as essential consumption expenditure and add rent separately when constructing the financial margin. The broader expenditure measure is used for non-durable consumption. As shown in Table 4, spending on non-durables varies substantially across countries, with Irish households reporting the highest average expenditure.

On the asset side of the balance sheet, the survey captures the market value of each type of asset class owned by the interviewed households, including deposits, self-employment businesses, stocks, bonds, mutual funds, managed accounts, loans owed to households, and other financial and real assets. We differentiate housing assets from other financial assets, as housing constitutes the largest single asset category in European household balance sheets. As illustrated in Table 4, on average, and conditional on holding debt, Irish households report the highest property values, followed by those in Germany. In terms of financial assets, Italian households report the highest averages, whereas Irish households have the lowest.

On the liability side of the balance sheet, the HFCS provides detailed information on mortgages and various forms of unsecured debt, including credit cards and overdrafts. We sum these components to estimate total household debt. As shown in Table 4, household debt exhibits substantial cross-country variation. Spanish households display the lowest average debt levels, consistent with their lower income and asset levels compared to the rest of the countries in the sample, while Ireland has the highest average debt. Last, the HFCS also reports household debt servicing costs, which we use as an input in the derivation of the DSTI and FM ratios. France and Ireland indicate the highest average monthly payments, while Germany follows closely behind. Italy and Spain have the lowest average payments among the surveyed countries.

[26] Specifically, national inflation rates are sourced from the European Central Bank (ECB), while stock market and house price data are taken from the OECD https://www.oecd.org/en/data/indicators/share-prices.htmlshare prices and https://www.oecd.org/en/data/indicators/housing-prices.htmlhousing prices indicators, respectively. The HFCS fieldwork in Ireland, France, and Spain was conducted in 2020, while in Italy and Germany, it was conducted in 2021. Consequently, we adjust the expenditure data for these countries by 3.2% for Germany, 6.8% for Ireland, 4.5% for France, 4.4% for Italy, and 5.6% for Spain, respectively.

[27] Specifically, we apply the OECD's marginal tax rates to gross income and use a fixed rate of 0.4 for self-employment income. We then add the amount of non-taxable income, which includes social transfers and pension income.

Table 4
Descriptive statistics of key variables in the survey.

	Age	Household size	Net income	Non-durable expenditure	Essential expenditure	Financial assets	Housing assets	Total debt	Debt payment (Monthly)
Germany									
Mean	49	3	255,398	33,650	14,564	147,355	797,741	178,374	1,160
Median	50	3	203,504	29,540	13,500	86,000	510,000	114,000	917
Min	25	1	600	7100	2520	0	10,000	850	0
Max	80	7	3,876,848	153,900	52,800	3,018,000	59,670,995	3,030,000	17,085
Observations	803								
Spain									
Mean	47	3.1	133,787	29,059	10,408	149,457	602,259	107,948	830
Median	45	3	94,163	23,400	9000	17,000	226,600	78,000	575
Min	20	1	528	1800	1080	0	11,500	145	0
Max	85	9	3,492,812	300,012	63,600	16,540,000	41,539,060	1,950,100	46,600
Observations	1,615								
France									
Mean	45	3.1	156,257	36,383	13,882	167,371	735,749	176,494	1,620
Median	45	3	124,431	31,360	12,000	39,300	375,210	121,362	1,180
Min	20	1	132	4940	600	0	6200	553	0
Max	85	10	3,244,903	322,000	144,000	18,612,934	58,438,173	5,025,000	30,800
Observations	3,265								
Italy									
Mean	47	3.2	199,505	36,760	12,710	170,456	685,964	142,661	994
Median	45	3	117,623	30,500	11,000	20,150	326,550	115,000	750
Min	25	1	531	6800	2800	0	58,100	840	0
Max	85	8	4,004,970	242,000	78,000	24,123,526	45,960,000	3,606,000	16,667
Observations	680								
Ireland									
Mean	47	3.4	267,236	46,551	16,529	139,392	1,053,761	219,601	1,559
Median	45	4	190 740	33,600	15,276	26,000	435,000	147,714	1,114
Min	20	1	260	3500	2484	0	2601	923	0
Max	85	9	8,653,200	14,702,752	71,724	7,380,010	302,785,706	6,195,367	30,970
Observations	2,210								

Note: (i) All monetary values are reported in euros. (ii) The sample is restricted to households holding mortgage debt; therefore, the statistics refer exclusively to mortgage borrowers. (iii) Survey fieldwork was conducted in either 2020 or 2021, depending on the country. Fieldwork in Ireland, France, and Spain took place in 2020, while fieldwork in Italy and Germany was conducted in 2021. (iv) The reported mean and median values are not adjusted using sampling weights; these weights are incorporated in the subsequent analysis.

3.3. Simulation results on financial distress

We examine the impact of the calibrated war shock on household financial resilience across the five euro area countries of interest. Specifically, we simulate financial resilience indices by applying shocks to their components, that is income, housing assets, mortgage debt, non-durable consumption and debt repayments, using information extracted from our SVAR in Section 2. Using these estimates, we then compare the financial resilience index at the two-year horizon to its pre-war value.

Our baseline simulation results are shown in Table 5.[28] The table presents the proportion of households falling into financial distress according to four indicators and their respective thresholds. As discussed in Section 3.1, these indicators capture different dimensions of distress associated with indebtedness. We complement the debt-burden indicators, LTV and DSTI, with the liquidity coverage ratio and a financial margin indicator (FM) that captures cost-of-living pressures. Column 1 reports the pre-war values (2021:Q4), calculated directly from the survey data after uprating consumption expenditure by the relevant national CPI between the survey period and the outbreak of the war. In the central scenario (Column 2), we apply the cumulative two-year effects of the war shock on each macroeconomic variable, based on the median IRFs reported in Table 1.[29]

We also report estimates of the four indicators under a worst-case, or adverse, scenario constructed from the 90% confidence intervals of the IRFs (Column 3 of Table 5). This exercise is particularly relevant for assessing financial-stability risks arising from large and unusual geopolitical events such as the 2022 war shock.

[28] Our framework focuses on first-round effects. We do not model potential feedback from household financial fragility to aggregate variables (e.g., through demand channels). These mechanisms may be important over longer horizons but are beyond the scope of this paper.

[29] As in De Luigi et al. (2023) and Mumtaz and Theodoridis (2018), we use cumulative responses at the two-year horizon. The baseline and adverse cumulative responses used in the simulation are reported in Table A1 in Appendix A.6.

Table 5
Percentage shares of financial distress based on simulated distress indicators.

	(1)	(2)	(3)	(4)	(5)
	Pre-war	Central	Adverse	% Change (1) to (2)	% Change (1) to (3)
Germany					
$LTV > 90\%$	6.60	12.24	14.39	85.45	118.03
$DSTI > 40\%$	7.45	9.51	11.90	27.62	59.73
$LCR \leq 6$ months	16.2	22.7	27.5	40.12	69.75
$FM_{essential} > 70\%$	8.84	10.76	13.08	21.72	47.96
Spain					
$LTV > 90\%$	12.12	14.08	15.34	16.17	26.57
$DSTI > 40\%$	6.00	12.47	18.20	107.83	203.33
$LCR \leq 6$ months	32.5	40.8	43.5	25.54	33.85
$FM_{essential} > 70\%$	9.32	14.12	20.00	51.50	114.63
Italy					
$LTV > 90\%$	7.32	8.59	8.92	17.35	21.86
$DSTI > 40\%$	6.81	10.78	15.07	58.26	121.23
$LCR \leq 6$ months	26.3	37.9	39.9	44.11	51.71
$FM_{essential} > 70\%$	8.53	15.19	18.29	78.04	114.47
France					
$LTV > 90\%$	6.06	4.42	5.63	−27.06	−7.10
$DSTI > 40\%$	9.28	12.76	17.99	37.54	93.85
$LCR \leq 6$ months	27.6	33.9	36.6	22.83	32.61
$FM_{essential} > 70\%$	10.55	13.02	16.43	23.42	55.73
Ireland					
$LTV > 90\%$	6.68	10.73	15.18	60.63	127.09
$DSTI > 40\%$	6.69	15.31	20.32	128.85	203.44
$LCR \leq 6$ months	36.4	51.9	54.7	42.58	50.27
$FM_{essential} > 70\%$	8.33	14.77	19.11	77.33	129.33

Notes: This table reports the share of households that fall into distress according to indicators and their respective threshold values defined in Table 3. "Pre-war" shares are based on HFCS data, while 'Central' and 'Adverse' shares in each scenario are simulated over a two-year horizon.

We begin discussing our results with the LTV which captures the net equity buffer possessed by a household borrower.[30] Based on the threshold value of 90%, 6.6% of German borrowers lacked an adequate equity buffer prior to the war. This share doubles in both the central and adverse scenarios, driven by significant declines in property prices in Germany as previously shown in the IRFs. In other countries, borrowers' equity positions deteriorate to varying degrees, except in France, where households experience an improvement in their equity positions. This is consistent with the VAR results, which indicate an increase in house prices during this period.

Next, we examine the simulation results on the DSTI ratio, which classifies households as financially distressed if their debt payments exceed 40% of their net income. Following the war shock, all countries experience a significant decline in the household sector's debt servicing capacity, with the most pronounced effects, as indicated in columns (4) and (5), observed in Spain and Ireland. This deterioration is primarily driven by a sharp increase in mortgage interest rates, although it is partially mitigated by income growth in some countries, such as France and Germany.

The liquidity coverage ratio (LCR) provides additional insights into households' ability to smooth adverse shocks using liquid asset buffers. Across all countries, the share of households whose liquid assets cover no more than six months of scheduled debt-service payments increases substantially following the war shock. The deterioration is particularly pronounced in Ireland and Germany, where the proportion of liquidity-constrained borrowers rises sharply under both the central and adverse scenarios. Italy and Spain also experience significant deteriorations, while France exhibits a comparatively milder increase in liquidity stress. These findings suggest that, beyond the deterioration in debt-servicing capacity, many households also face a significant erosion of their short-term financial buffers, limiting their ability to absorb persistent macro-financial shocks without cutting expenditures or experiencing greater financial distress.

We now turn to the FM, defined in Eq. (3), which is influenced by three macroeconomic variables estimated in the SVAR: CPI inflation, which affects essential consumption; interest rates, which affect debt-servicing costs; and income growth, which affects disposable income. Relative to pre-war levels, the largest increases in the share of financially distressed households are observed in Italy and Ireland, followed by Spain, ranging from 4.80 to 6.66 percentage points. A similar pattern emerges under the adverse scenario, where the distressed shares in Spain and Ireland rise by more than 10 percentage points. Italy follows closely, experiencing

[30] Note that in our simulation, LTV is only affected by house prices. Due to the triennial release of the HFCS survey waves, we maintain the assumption that households did not undertake any further debt from the interview dates until 2022:Q1. Given that aggregate household debt remains largely stable during this period, this assumption is considered reasonable for the scope of this analysis.

Table 6
Sequential impact of the war shock on the financial margin.

Country	Pre-war	+ Inflation	+ Inflation + Income	+ Inflation + Income + Debt servicing
	(1)	(2)	(3)	(4)
Germany	8.84	10.41	8.31	10.76
Spain	9.32	10.36	10.62	14.12
Italy	8.53	13.57	11.77	15.19
France	10.55	11.98	8.94	13.02
Ireland	8.33	9.96	10.18	14.77

Note: This table reports the share of households that fall into distress according to the financial margin indicator $FM > 70\%$. "Pre-war" shares are based on HFCS data, while the post-shock scenarios are simulated over a two-year horizon.

a substantial deterioration in household financial margins. Germany and France have the most resilient household sectors according to this measure.[31]

To enhance the transparency of our simulation results, we provide a step-by-step illustration of how the simulated FM in Column (2) of Table 5 is derived. Table 6 presents the proportion of households with an FM value exceeding 70%, based on the incremental contributions of each affected variable. Specifically, Column (2) reflects the effect of changes in inflation and energy prices on consumption expenditures alone, while Column (3) shows the combined impact of income changes and inflation. The final FM values in Column (4) are derived from the cumulative effects of all these factors, including debt servicing costs.

The results presented in Table 6 are intuitive. For instance, Column (1) shows that at the onset of the war, 8.84% of household borrowers in Germany were financially distressed. According to the central estimate, this share increases to 10.41% when accounting for the war's impact on inflation and energy prices. The negative effects of inflation are partially offset by a significant rise in household incomes, possibly driven by nominal wage growth and government-implemented income support measures. Finally, the inclusion of higher borrowing costs resulting from the war shock, as shown in column (4), leads to a further increase in the share of financially distressed households, as expected.

Overall, the indicators show that mortgage borrowers' financial resilience deteriorates in response to the macroeconomic conditions triggered by a major geopolitical shock comparable in scale to the Russia–Ukraine war. Households in Germany and France remain comparatively resilient, while those in Italy and Ireland experience greater distress. Individual indicators nevertheless reveal important cross-country heterogeneity. Although Germany is least affected according to the FM ratio, it experiences the largest proportional deterioration in the equity buffer measured by the LTV ratio. France has the highest pre-war DSTI distress rate, whereas Spain and Ireland experience the largest post-shock increases in DSTI distress.

4. Consumption adjustments and financial resilience

Section 3 focuses on the direct effects of the war shock on household financial resilience, primarily through higher debt-servicing costs and inflation in essential expenditures. In this section, we extend the analysis by allowing households to adjust their non-durable consumption endogenously in response to the shock. The objective is no longer to measure only the immediate deterioration in financial margins, but also to assess whether behavioural consumption responses mitigate or amplify the financial distress documented in the previous section. Because these endogenous adjustments operate through broader household expenditure decisions, the analysis in this section relies on total non-durable consumption rather than essential expenditures alone.

As we show in Section 2, a geopolitical risk shock, comparable in magnitude to the surge observed during the war in Ukraine, is associated with a wide range of macroeconomic reactions in euro area economies. Specifically, the IRFs indicate that the war shock increases inflation and mortgage rates and decreases house prices in most countries. Consequently, as shown in Section 3, household financial resilience deteriorates to varying extents across each country. This raises the natural question of whether households might offset adverse conditions by adjusting their consumption expenditures to maintain debt-servicing capacity. Indeed, in the wake of the Global Financial Crisis in 2008, households with higher levels of debt tended to cut back their spending disproportionately (Mian et al., 2013; Adrian et al., 2020). This introduces a new dimension of household resilience, in the sense that households might continue paying their debts but at the expense of reducing consumption, which could have broader welfare effects.

There is an extensive theoretical literature studying household endogenous consumption adjustments in response to various shocks to income or wealth (Auclert, 2019; Kaplan et al., 2018; Berger et al., 2018), among others. The pass-through of the war shock to household financial resilience relies on several channels that depend on how households adjust their consumption to the shock. As the shock affects more than one variable at the same time, we expect to see changes in consumption due to income adjustments, wealth effects, but also choices on whether to consume today or tomorrow given the prevailing interest rate. In this section, we explore the impact of these consumption channels on household financial distress.

[31] For completeness, Table A2 in the Appendix reports an alternative financial margin measure based on total non-durable consumption expenditure (FM_{ndur}). The results are qualitatively similar to those obtained using the benchmark specification based on essential expenditure.

We primarily rely on the theoretical insights of Auclert (2019), who derives an analytical decomposition of the effects of a monetary policy shock on household consumption expenditure and highlights two broad mechanisms: substitution and wealth effects. Because the war affected several macroeconomic variables simultaneously, we expect households to adjust consumption through similar mechanisms.[32] Because housing is the most important component of household assets and house-price fluctuations have important consumption-wealth effects (Berger et al., 2018), we also incorporate a housing wealth channel.

Most related studies, with the exception of Slacalek et al. (2020) and Crawley and Kuchler (2023), overlook these behavioural responses. These two studies apply the framework to the transmission of monetary policy shocks; our contribution is to use the same theoretical channels to measure how a war shock affects household financial resilience. Accounting for these indirect responses is important for understanding the broader repercussions of the war on euro area economies.

4.1. Disentangling consumption adjustment channels

In a heterogeneous-agent model, Auclert (2019) shows that the household consumption response to an aggregate shock can be approximated to first order and decomposed into substitution and wealth-effect channels:

$$dc = \underbrace{\psi MPC \times dw - \sigma MPS \times \frac{dR}{R}}_{substitution} + \underbrace{MPC \times d\Omega}_{\text{wealth}} \tag{4}$$

Changes in wages, dw, and the real interest rate, dR, generate substitution effects on consumption with familiar signs. Their magnitudes depend on Frisch elasticities and marginal propensities to consume.[33,34] For example, an increase in the real interest rate induces households to postpone current consumption and save more.

The net wealth effect is summarized by the wealth-revaluation term $d\Omega$, whose effect on consumption is scaled by the MPC. The net wealth change can be decomposed into the Fisher effect and the unhedged interest rate exposure (URE) effect.[35]

$$d\Omega = \underbrace{URE \times \frac{dR}{R}}_{URE} - \underbrace{NNP \times \frac{dP}{P}}_{Fisher} \tag{5}$$

The first term in $d\Omega$ is the wealth effect from the change in the real interest rate. We calculate the URE across countries following Auclert (2019), Slacalek et al. (2020) and Tzamourani (2021). URE is measured as the difference between total income and consumption plus the difference between maturing assets and maturing liabilities,[36] as reflected in the following identity.

$$URE_i = Y_{disp} - C_{ndur} + A - L, \tag{6}$$

The intuition is that households with positive UREs — for which income net of consumption together with maturing assets exceeds maturing liabilities — benefit from an increase in real interest rates. Households with negative UREs, which include many mortgage borrowers with comparatively small short-term asset positions, instead gain from a decline in real interest rates. In our setting, the war shock identified in the VAR raises nominal mortgage rates but increases inflation by more, so the real mortgage rate falls. This generates a positive URE wealth effect for households with negative exposure even though their nominal debt-servicing costs need not decline.

The second term in $d\Omega$ captures the Fisher effect, which arises from unexpected changes in the price level, $\frac{dP}{P}$. Because many household assets and liabilities are denominated in nominal terms (e.g., bonds and loans), inflation affects their real value. The magnitude of this effect depends on the household's net nominal position (NNP), defined as the present value of net nominal assets. Consequently, the term $NNP \times \frac{dP}{P}$ measures the impact of inflation on household wealth.[37]

Following Doepke and Schneider (2006) and Slacalek et al. (2020), NNP is calculated as the difference between the net financial position and the indirect nominal position. The net financial position is defined as financial assets minus total debt, while the indirect nominal position comprises holdings of mutual funds, non-self-employment private businesses, and publicly traded shares.[38]

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[32] Although Auclert (2019) studies consumption responses to a monetary policy shock, the framework can be applied to other shocks (Kaplan et al., 2014; Bilbiie, 2020; Patterson, 2023).

[33] MPC and $MPS = 1 - MPC$ denote the marginal propensities to consume and save, respectively.

[34] σ and ψ are the local Frisch elasticities of substitution in consumption and labour supply, respectively. Formally, $\sigma = \frac{u'(c_0)}{c_0 u''(c_0)} > 0$ and $\psi = \frac{v'(n_0)}{n_0 v''(n_0)} \geq 0$. Appendix A.8 discusses their calibration.

[35] The original derivation by Auclert (2019) also includes an income component of the wealth effect, expressed as ndw. In this channel, an increase in the aggregate wage raises a worker's net present value of lifetime wealth when hours are held fixed. We exclude this component because it is primarily associated with second-round general-equilibrium feedback and is therefore inconsistent with our partial-equilibrium framework. Including it has a negligible effect on our results; estimates are available upon request.

[36] The asset term, A, contains financial assets that can be repriced within the annual measurement horizon; income enters separately through $Y_{disp} - C_{ndur}$. We include deposits at 100% and the other liquid financial-asset categories at 25%. The liability term, L, includes ARM balances, all non-mortgage credit, and the fraction of fixed-rate mortgage balances with a remaining maturity of less than one year at the survey date.

[37] NNP varies substantially across households. For example, Doepke and Schneider (2006) show that NNP is generally positive for older and wealthier households but negative for younger households with mortgage debt.

[38] To approximate NNP, we follow Doepke and Schneider (2006) and Slacalek et al. (2020) by uprating expenses using annual CPI inflation.

Table 7
Sequential impact of the war shock on adjusted financial margin.

	Pre-war	Central + Inflation	Central + Inflation	Adverse + Inflation
Country	No Shocks	+ Income + Debt Servicing	+ Income + Debt Servicing + End. Consumption	+ Income + Debt Servicing + End. Consumption
	(1)	(2)	(3)	(4)
Germany	10.36	11.64	10.21	13.82
France	15.30	16.47	17.75	21.42
Italy	15.90	18.87	23.36	29.73
Spain	14.03	19.08	17.53	23.08
Ireland	12.48	17.31	15.93	19.39

Notes: This table reports the share of households that fall into distress according to the adjusted financial margin indicator $FM' > 100\%$. "Pre-war" shares are based on HFCS data, while the post-shock scenarios are simulated over a two-year horizon.

Another important consumption response channel is related to changes in housing wealth. Berger et al. (2018) show that the individual response of non-durable consumption to house price shocks can be expressed with the following reduced form equation:

$$dc_{hp} = \underbrace{MPC \times \Delta HP}_{\text{housing wealth channel}} \tag{7}$$

where ΔHP is defined as the net change in housing wealth.

For the simulation, we combine the two consumption-adjustment equations and assume that the components are additive. The resulting level change in consumption, dC, incorporates the housing wealth effect as follows:

$$dC = dc + dc_{hp} \tag{8}$$

To incorporate these endogenous behavioural responses into our measure of financial resilience, we redefine the financial margin measure using total non-durable consumption expenditures.

To enter the financial margin, the level change dC is converted into the household-specific proportional adjustment $g_C = dC/C_{ndur}$. We then construct an augmented financial margin, FM_{ndur}, that incorporates households' endogenous consumption responses to the war shock:

$$FM_{ndur} = \frac{\left(C_{ndur} \times (1 + g_C)\right) + DS}{Y_{disp}}, \qquad g_C = \frac{dC}{C_{ndur}}. \tag{9}$$

Note that in the revised FM measure we use total non-durable consumption, C_{ndur}, which is the sum of essential consumption spending and other non-durable consumption spending reported in the survey.[39]

Unlike (FM_{ess}), which focuses on debt-servicing pressure after accounting only for essential expenditures, FM_{ndur} is intended to capture broader cash-flow pressure once households adjust total non-durable consumption in response to the shock. In this context, the 100% threshold corresponds to a cash-flow exhaustion condition, whereby disposable income becomes insufficient to simultaneously finance debt obligations and non-durable expenditure. We therefore interpret this measure as capturing severe financial strain rather than mortgage default risk per se. To further assess robustness, we additionally report results using an 85% threshold.

4.2. Results

This section re-estimates the financial margin indicator after incorporating behavioural consumption adjustments (FM'). As shown in Section 3.3, financial margins worsen significantly across the euro area economies. On average, the distress rate increases by about 50% and 90% in the central and adverse scenarios, respectively. Table 7 presents the results when consumption adjustments are taken into account. Column 1 reports FM' before the war. Column 2 reports the index after all macroeconomic changes but before endogenous consumption adjustments. Column 3 incorporates consumption adjustments in the central scenario, and Column 4 does so in the adverse scenario.

As illustrated in Column 2, FM' worsens under the war shock. Spain, Ireland, and Italy experience substantial increases in the shares of households brought into a state of financial fragility, driven by increased inflation and debt servicing costs. Column 3

[39] In the HFCS, households report spending on food, utilities, trips and holidays, consumer goods and services, as well as alimony and charity payments. However, the survey does not provide a harmonized measure of durable consumption. Nevertheless, relying on non-durable consumption is appropriate for our analysis, as durable expenditures in survey data are relatively infrequent, lumpy, and substantially more cyclical than non-durable spending (McKay and Wieland, 2021; Kaplan et al., 2020). This creates difficulties for the estimation of wealth effects and consumption responses to macroeconomic shocks, since changes in durable expenditures may reflect timing and financing decisions rather than consumption smoothing as implied by standard inter-temporal consumption optimization mechanisms. For this reason, much of the literature on wealth effects and HANK models relies on non-durable consumption measures (e.g., Campbell and Cocco, 2007; Christelis et al., 2021; Kaplan et al., 2014, 2018, 2020; Fasianos and Lydon, 2022).

Table 8
Endogenous consumption responses by different theoretical channels.

Country	Substitution	URE channel	Fisher	Housing wealth	Total
Germany	0.03	0.15	−0.19	−0.28	−0.29
France	0.02	0.08	−0.07	0.03	0.06
Italy	0.03	0.29	−0.07	−0.05	0.19
Spain	0.02	0.03	−0.05	−0.04	−0.04
Ireland	0.00	0.04	−0.04	−0.12	−0.12
Average effect	0.02	0.12	−0.09	−0.09	−0.04

Notes: Entries are proportional changes in consumption relative to the pre-shock level due to each theoretical channel in the central scenario, two years after the outbreak of the war. For example, −0.29 denotes a 29% decline.

presents a similar picture but also incorporates the endogenous consumption adjustment mechanism discussed earlier. By comparing Columns 2 and 3, we observe that while Germany, Spain, and Ireland end up with lower proportions of financially vulnerable households, the opposite occurs in France and Italy, where consumption adjustments deteriorate financial resilience. In the former group of countries, improvements in financial resilience are attributed to reductions in non-durable consumption spending, which helps maintain an income buffer to shield against the adverse macroeconomic consequences of the war. In contrast, households in France and Italy increase their spending, thereby tightening their financial margins.

Overall, the analysis highlights the crucial role of consumption adjustment mechanisms in how the war shock impacts household financial resilience. The results vary across countries, as the adverse macro-financial repercussions associated with the war shock are either mitigated or exacerbated to different extents through these endogenous mechanisms.[40] The natural question to address is: which consumption channels are the primary drivers of this effect?

Table 8 decomposes the endogenous consumption adjustment into the four partial-equilibrium redistributional channels described in Section 4.1. Across countries, the substitution and URE channels generate positive consumption responses, whereas the Fisher and housing wealth channels generally reduce consumption. Depending on their relative magnitudes, the total response is negative in Germany, Spain, and Ireland but positive in France and Italy. Average consumption falls by approximately 29% in Germany, 12% in Ireland, and 4% in Spain. Consistent with the theoretical mechanisms in Auclert (2019) and Berger et al. (2018), these reductions are driven primarily by the Fisher effect, through the inflation-induced revaluation of NNP, and by declines in housing equity. This is consistent with Pallotti et al. (2024), who also highlight the importance of Fisher effects during the recent inflation episode. In Italy and France, by contrast, the substitution and URE channels produce an overall increase in consumption. Because both channels respond to changes in real interest rates (see Eqs. (4) and (5)), declining real rates benefit net borrowers. This effect is particularly pronounced in Italy.

To summarize, the consumption channels help explain why we observe heterogeneous effects in financial margin indices across countries, with some improving while others decline, as illustrated earlier in Table 7. Endogenous consumption responses can significantly mitigate or amplify the war's negative effects on households' financial resilience. Households in Germany, Ireland, and Spain alleviate these adverse effects by substantially reducing consumption through the Fisher and housing wealth channels. Households may cut back on consumption to protect their financial health, adjusting spending in response to the diminished purchasing power of their nominal assets. Similarly, as house prices decline and households experience a drop in the value of their housing assets, they further reduce non-durable consumption.[41]

4.3. Cross-country heterogeneity in consumption channels

Our analysis reveals substantial cross-country heterogeneity in the transmission of the Russia–Ukraine war shock to household financial resilience. While all economies experience a deterioration in financial conditions, the magnitude and dominant transmission channels differ across institutional settings.

Table 9 combines the country-specific VAR responses with the key features shaping their transmission. These include the prevalence of ARMs, which governs the pass-through of higher rates to debt service; standardized net interest rate exposure

[40] There are two additional consumption channels that are not explicitly incorporated in our analysis (Del Canto et al., 2025; Ferreira et al., 2023). The first is the relative consumption channel, specifically, the possibility that inflation may not affect all goods in the consumption basket symmetrically. Due to data limitations on the classification of goods in the HFCS, we assume only two distinct inflation levels: energy inflation, influencing utility bills, and the national CPI, affecting all other goods and services forming non-durable consumption. This assumption is not overly restrictive for our purposes, as the IRFs demonstrate that energy inflation is the most significant impact of the war event we explore. The second assumption relates to changes in consumption bundles. In response to inflationary shocks, households may adjust their consumption patterns to consuming less of a given good or picking more economical substitutes. However, due to the lack of detailed data on specific goods within the consumer basket and their corresponding price elasticities in HFCS, our simulations assume that these potential shifts in consumption bundles are minimal. As such, we maintain the simplifying assumption that the composition of the consumer bundle remains unchanged, with the primary effects stemming from income and wealth impacts. Relaxing this assumption would likely slightly weaken our results, but, as shown in the literature, different consumption bundles play a smaller role than the main channels we explore, and individual inflation rates during this event were not significantly large (Ferreira et al., 2023).

[41] In Figure A9 in the Appendix, we augment the VAR specification by including non-durable consumption and re-estimate the model to provide an empirical benchmark for our simulation-based results.

from Eq. (6); homeownership, which governs housing-wealth exposure; and country-specific MPCs, which amplify endogenous consumption responses.[42] The standardized URE means are negative because the analysis conditions on mortgage borrowers. This is consistent with Tzamourani (2021): although her full-population estimate for Italy is positive, her Figure 13 shows negative mean URE for Italian owners with a mortgage, as it does for mortgage owners in nearly every country. Her group decomposition further shows that the sign change is driven primarily by the much larger maturing-liability position of mortgage owners, rather than by the income-consumption term.

Germany illustrates why the URE and Fisher channels must be distinguished. Its standardized URE is −1.34 and the 10.44 percentage-point decline in the real mortgage rate produces a positive URE consumption contribution of 0.15. By contrast, the revaluation of nominal positions under inflation operates through the Fisher channel and reduces consumption by 0.19. The large house-price decline generates a further 0.28 reduction through housing wealth. These two negative channels more than offset the positive URE and substitution effects, producing Germany's sizeable total consumption decline.

France exhibits relatively limited deterioration in financial resilience despite a negative standardized URE of −2.35. Its lower MPC and a more moderate 6.50 percentage-point decline in the real mortgage rate keep the URE contribution at 0.08, while the positive house-price response produces a small supportive housing-wealth effect. Moreover, mortgage borrowing in France is overwhelmingly based on fixed-rate contracts, with only 2.5% of mortgage holders exposed to adjustable rates (Table 9), substantially limiting the contemporaneous pass-through of higher nominal mortgage rates to debt service.

Italy's 0.29 URE contribution reflects the joint strength of the three factors identified by the referee, rather than mean URE alone. Italy combines one of the most negative standardized exposures (−2.72) with a relatively high mean MPC (0.44) and a 9.91 percentage-point decline in the real mortgage rate. After accounting for household MPCs and baseline consumption, the underlying exposure effect is almost five times larger in Italy than in Spain, while the decline in Italy's real mortgage rate is almost twice as large. Together, these differences account for the roughly ninefold gap between the two countries' URE contributions. The high liquid-asset share in Italy provides a separate short-run buffer but is not the source of the negative URE. Its high homeownership rate also leaves households exposed to the modest negative housing-wealth response.

In Spain, the less negative standardized URE (−1.04), lower MPC, and smaller real-rate decline explain the much smaller URE contribution. Financial deterioration is instead driven primarily by persistent negative income responses in the VAR and by the combination of high homeownership (approximately 74%) and declining residential property values, which generates a negative housing-wealth response.

Ireland underscores the importance of the macroeconomic shock in addition to exposure. Its standardized URE (−2.69) and mean MPC (0.43) are close to Italy's, but its real mortgage rate declines by only 1.71 percentage points, limiting the URE contribution to 0.045. Its total consumption decline is instead dominated by the sizeable fall in residential property prices and the associated negative housing-wealth effect, amplified by high homeownership and a relatively high MPC.

4.4. Consumption responses across age and income groups

Household heterogeneity has been studied extensively in analyses of the pass-through of aggregate shocks, particularly because of its role in generating different consumption responses (Campbell and Cocco, 2007; Auclert, 2019; Kaplan et al., 2018; Christelis et al., 2021). In this section, we examine in greater detail how demographic groups adjust their consumption in response to the war shock.

Figs. 2 and 3 illustrate the changes in financial margins and consumption before and after the war shock, broken down by age and income for each country.[43] Our age groups are defined as "young" for those aged 16 to 34, "middle" for those aged 35 to 54, and "old" for those 55 and above. For income groups, we divide our sample into terciles, identifying "poor", "middle", and "rich" income groups.

As a general pattern, we observe that changes in the modified financial margin index (FM') decrease across the age distribution. This is either because the elderly reduced their consumption or because they increased it moderately compared to their younger counterparts. The same pattern holds true for the income distribution, with the exception of Germany, which remains resilient across all income groups. In what follows, we link the observed consumption changes with the underlying channels discussed in the previous section, aiming to shed light on the arising heterogeneities across income and age groups.

Younger households increase consumption in all countries, with the largest response in Italy, followed by Germany. As highlighted by Tzamourani (2021), the URE channel can be particularly important for younger households. Table 8 also shows a substantial aggregate URE channel in Italy and Germany. Younger mortgage borrowers generally have fewer accumulated assets, are more likely to be net borrowers, and may have greater exposure to adjustable-rate debt. They consequently benefit from declines in real interest rates, which support consumption. Middle-aged and older households in Germany and Ireland respond more strongly by cutting consumption. This pattern is consistent with housing wealth effects and the erosion of net nominal positions through inflation: both countries experience pronounced house-price declines, and Germany also has a large Fisher channel (Table 8). Households at

[42] For comparability with Tzamourani (2021, Section 2, p. 6; Appendix A, p. 17), Table 9 standardizes URE by dividing its survey-weighted country mean by the corresponding survey-weighted mean gross household income. The reported values refer to the mortgage-borrower sample used in the analysis, which explains some of the larger deviations from Tzamourani's full-population estimates, particularly for Italy. Household-level URE remains expressed in euros in the simulations.

[43] The underlying values of the figures are provided in Table A5 in the Appendix, Section A.9.

Table 9
Cross-country institutional characteristics and transmission channels.

	Macroeconomic response	Institutional characteristics				
Country	Estimated response to the war shock	ARM share	Standardized URE	Liquid-asset share	Homeownership	Mean MPC
Germany	Very high inflation and large house-price decline	17%	−1.34	61%	44.5%	0.47
France	Moderate inflation and positive house-price response	2.5%	−2.35	83%	57.5%	0.35
Spain	Negative income response and moderate house-price decline	74%	−1.04	80%	73.9%	0.35
Italy	Very high energy inflation and rising mortgage rates	40%	−2.72	86%	77.5%	0.44
Ireland	Very high mortgage-rate increase and large house-price decline	69%	−2.69	79%	69.6%	0.43

Notes: Macroeconomic responses summarize the cumulative impulse responses reported in Table A1. ARM shares are estimated using household-level mortgage information from the HFCS. URE denotes household unhedged interest rate exposure, calculated as income less consumption plus maturing assets less maturing liabilities. Following Tzamourani (2021), URE is standardized using survey-weighted country means of URE and gross household income for the same analysis sample. Liquid-asset shares are measured as deposits, mutual funds, bonds, and publicly traded shares relative to total financial assets. Homeownership refers to ownership of the primary residence and proxies for housing-wealth exposure. Mean MPCs are the household-level estimates used in the microsimulation framework, as reported in Appendix A.8.

later stages of the life cycle are more likely to hold positive net nominal positions and housing wealth.[44] Reductions in the value of these assets may therefore generate sharper spending adjustments (Christelis et al., 2021; Calomiris et al., 2013).

Low-income households in France and Spain, and especially in Italy, increase their consumption. In Italy, this pattern is consistent with the particularly strong URE channel shown in Table 8. Because low-income mortgage borrowers are more likely to have negative interest-rate exposure, a decline in real interest rates can have a comparatively large effect on their consumption. Higher-income German households, by contrast, reduce consumption substantially. These households are more likely to hold considerable housing equity and larger net nominal positions, leaving them more exposed to house-price declines and inflation. Both mechanisms contribute to the reduction in consumption among higher-income German households. The corresponding effects in France and Spain are less pronounced.

5. Conclusion

This paper examines how a large-scale geopolitical shock comparable in magnitude to the 2022 Russia–Ukraine war affects household financial resilience in Germany, France, Italy, Spain, and Ireland. By combining structural VAR models, household survey data, and theoretical insights, we document how geopolitical shocks affect household financial distress.

Our findings suggest that war-like geopolitical risk shocks are associated with significant macroeconomic repercussions in the euro area. Impulse response analysis indicates that a shock of this nature leads to elevated and persistent inflationary pressures. Monetary tightening in response to rising inflation raises mortgage rates and reduces house prices in most countries. In our baseline simulations, before incorporating endogenous consumption adjustments, households, on average, experience increased financial distress following the simulated shock. These challenges to financial resilience are particularly pronounced in Spain, Italy, and Ireland, where households exhibit relatively higher levels of risk compared to those in Germany and France, which demonstrate greater resilience.

We also demonstrate that the mechanism of endogenous consumption adjustments is critical in understanding the differential impact of the war shock on household financial resilience. We find that while households in Germany, Spain, and Ireland tend to reduce their non-durable consumption to buffer against financial distress, thus maintaining some degree of financial resilience,

[44] Strong wealth effects for older households are widely reported in the literature; see, for example, Campbell and Cocco (2007) and Christelis et al. (2021).

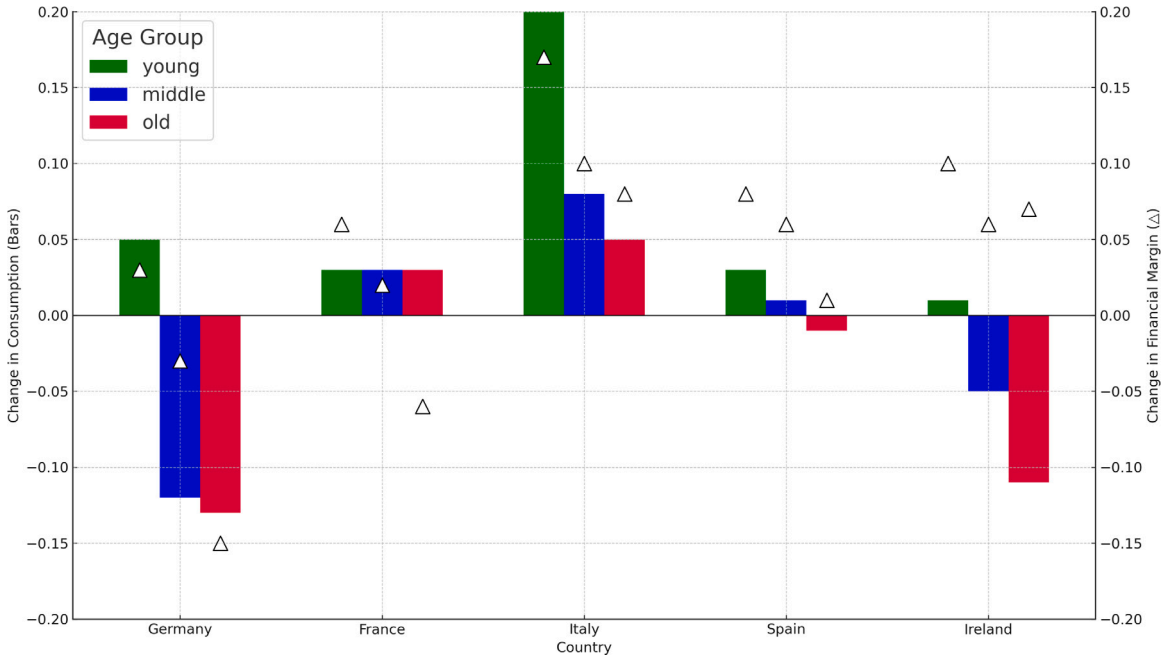


Fig. 2. Breakdown of ΔC and $\Delta FM'$ by age group.

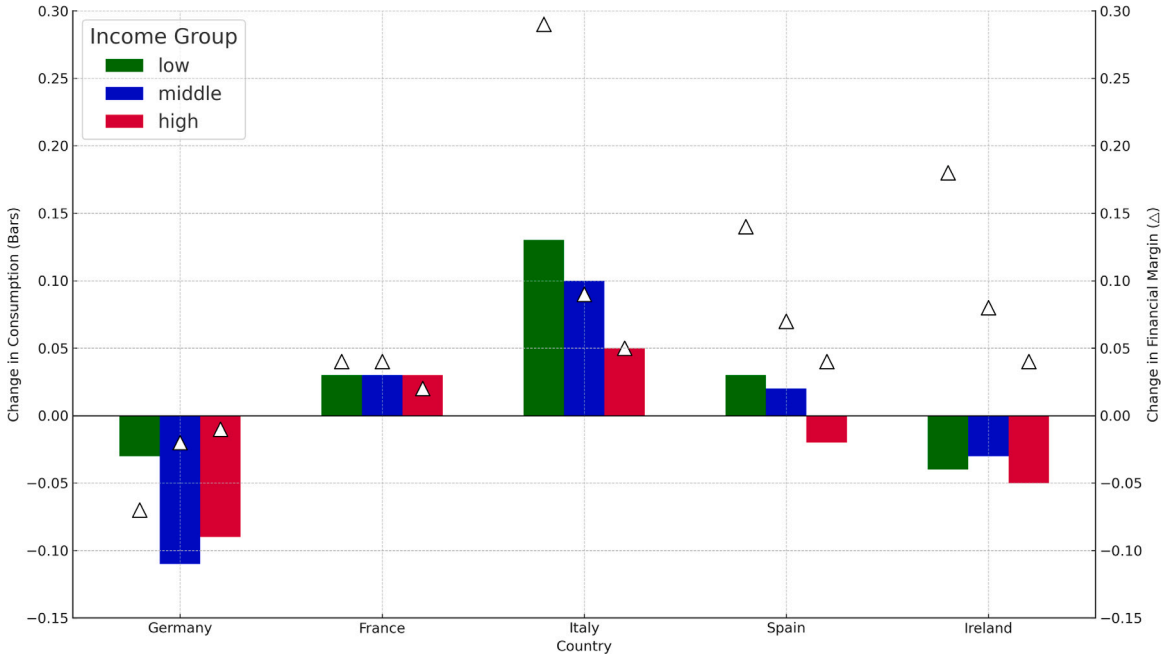


Fig. 3. Breakdown of ΔC and $\Delta FM'$ by income group.

households in France and Italy increase their consumption, exacerbating their financial distress. This contrast highlights the importance of understanding endogenous consumption responses as they can either mitigate or amplify the negative effects of macroeconomic shocks.

Furthermore, our results show that demographic heterogeneity is important in shaping consumption responses to a war-like geopolitical shock of the magnitude observed in early 2022. Younger households increase spending in all five countries, while low-income households do so in France, Spain, and Italy. Older and higher-income households more often cut back on consumption, enhancing their financial resilience in response to the macroeconomic turbulence induced by the war shock.

Our analysis provides insights into identifying households and economies that are financially vulnerable to geopolitical shocks in neighbouring regions. Higher debt payments associated with monetary tightening amplify risks to financial resilience. Endogenous consumption adjustments mitigate these pressures in Germany, Spain, and Ireland but amplify them in France and Italy. Income growth, partly reflecting fiscal support, also mitigates some pressures in Germany, France, and Italy. Policy authorities should monitor geopolitical events and assess their potential consequences for financial stability. Doing so can improve the identification of distressed households, deepen understanding of how geopolitical shocks propagate through the economy, and support policy responses that strengthen household resilience to future shocks.

CRediT authorship contribution statement

Anastasios Evgenidis: Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Apostolos Fasianos:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Fang Yao:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.jce.2026.09.003.

References

Adam, K., Tzamourani, P., 2016. Distributional consequences of asset price inflation in the euro area. European Econ. Review 89, 172–192. http://dx.doi.org/10.1016/j.euroecorev.2016.07.005.

Adam, K., Zhu, J., 2015. Price-level changes and the redistribution of nominal wealth across the euro area. J. Eur. Econ. Assoc. 14 (4), 871–906.

Adolfsen, J.F., Minesso, M.F., Mork, J.E., Van Robays, I., 2024. Gas price shocks and euro area inflation. J. Int. Money Financ. 149, 103183.

Adrian, T., Morsink, J., Schumacher, L., 2020. Stress testing at the International Monetary Fund. Dep. Pap. (20/04).

Alessandri, P., Mumtaz, H., 2019. Financial regimes and uncertainty shocks. J. Monet. Econ. 101, 31–46.

Ampudia, M., Van Vlokhoven, H., Żochowski, D., 2016. Financial fragility of Euro area households. J. Financ. Stab. 27, 250–262.

Anderloni, L., Bacchiocchi, E., Vandone, D., 2012. Household financial vulnerability: An empirical analysis. Res. Econ. 66 (3), 284–296.

Arce, Ó., Koester, G., Nickel, C., 2023. One year since Russia's invasion of Ukraine–the effects on Euro area inflation.

Auclert, A., 2019. Monetary policy and the redistribution channel. Am. Econ. Rev. 109 (6), 2333–2367. http://dx.doi.org/10.1257/aer.20160137.

Bańbura, M., Giannone, D., Reichlin, L., 2010. Large Bayesian vector auto regressions. J. Appl. Econometrics 25 (1), 71–92. http://dx.doi.org/10.1002/jae.1137.

Bank of England, 2023. How are the rising cost of living and interest rates affecting households' ability to pay their mortgage. Bank Overground.

Berger, D., Guerrieri, V., Lorenzoni, G., Vavra, J., 2018. House prices and consumer spending. Rev. Econ. Stud. 85 (3), 1502–1542.

Bilbiie, F.O., 2020. The new Keynesian cross. J. Monet. Econ. 114, 90–108.

Blanchard, O., Pisani-Ferry, J., 2022. Fiscal Support and Monetary Vigilance: Economic Policy Implications of the Russia-Ukraine War for The European Union. Technical Report, Bruegel Policy Contribution.

Bobasu, A., Gareis, J., Esposito, D., 2024. Why are euro area households still gloomy and what are the implications for private consumption? Econ. Bull. Boxes 6.

Brown, S., Taylor, K., 2008. Household debt and financial assets: evidence from Germany, Great Britain and the USA. J. R. Stat. Soc. Ser. A: Stat. Soc. 171 (3), 615–643.

Caggiano, G., Castelnuovo, E., Kima, R., 2020. The global effects of COVID-19-induced uncertainty. Econom. Lett. 194, 109392.

Caldara, D., Conlisk, S., Iacoviello, M., Penn, M., 2022. The effect of the war in Ukraine on global activity and inflation. FEDS Notes, Board Governors Reserv. Syst. Wash. May 27, 2022.

Caldara, D., Iacoviello, M., 2022. Measuring geopolitical risk. Am. Econ. Rev. 112 (4), 1194–1225.

Calomiris, C.W., Longhofer, S.D., Miles, W., 2013. The housing wealth effect: The crucial roles of demographics, wealth distribution and wealth shares. Crit. Financ. Rev. 2 (1), 49–99. http://dx.doi.org/10.1561/104.00000008.

Campbell, J.Y., Cocco, J.F., 2007. How do house prices affect consumption? Evidence from micro data. J. Monet. Econ. 54 (3), 591–621.

Christelis, D., Georgarakos, D., Jappelli, T., Pistaferri, L., Van Rooij, M., 2021. Heterogeneous wealth effects. Eur. Econ. Rev. 137, 103805.

Crawley, E., Kuchler, A., 2023. Consumption heterogeneity: Micro drivers and macro implications. Am. Econ. J.: Macroecon. 15 (1), 314–341.

De Luigi, C., Feldkircher, M., Poyntner, P., Schuberth, H., 2023. Quantitative easing and wealth inequality: The asset price channel. Oxf. Bull. Econ. Stat. 85 (3), 638–670.

Del Canto, F.N., Grigsby, J.R., Qian, E., Walsh, C., 2025. Are inflationary shocks regressive? A feasible set approach. Q. J. Econ. 140 (4), 2685–2747. http://dx.doi.org/10.1093/qje/qjaf028.

Dey, S., Djoudad, R., Terajima, Y., et al., 2008. A tool for assessing financial vulnerabilities in the household sector. Bank Can. Rev. 2008 (Summer), 47–56.

Doepke, M., Schneider, M., 2006. Inflation and the redistribution of nominal wealth. J. Political Econ. 114 (6), 1069–1097.

Domanski, D., Scatigna, M., Zabai, A., 2016. Wealth inequality and monetary policy. BIS Q. Rev. March.

EC, 2022. European Commission, Labour Market and Wage Developments in Europe, Annual Review 2022. Publications Office of the European Union, http://dx.doi.org/10.2767/128906.

Evgenidis, A., Salachas, E., 2019. Unconventional monetary policy and the credit channel in the euro area. Econom. Lett. 185, 108695.

Fasianos, A., Lydon, R., 2022. Do households with debt cut back their consumption more? New evidence from the United Kingdom. Bull. Econ. Res. 74 (3), 737–760.

Ferreira, C., Leiva, J.M., Nuño Barrau, G., Ortiz, Á., Rodrigo, T., Vazquez, S., 2023. The Heterogeneous Impact of Inflation on Households' Balance Sheets. Technical Report, (1152), Bank for International Settlements, URL: https://www.bis.org/publ/work1152.htm.

Gross, M., Población, J., 2017. Assessing the efficacy of borrower-based macroprudential policy using an integrated micro-macro model for European households. Econ. Model. 61, 510–528.

Guan, Y., Yan, J., Shan, Y., Zhou, Y., Hang, Y., Li, R., Liu, Y., Liu, B., Nie, Q., Bruckner, B., 2023. Burden of the global energy price crisis on households. Nat. Energy 8 (3), 304–316.

Hemmerlé, Y., Sunel, E., D'Arcangelo, F.M., Kruse, T., Haugh, D., Pina, Á., Pisu, M., Castle, C., Sarcina, G., 2023. Aiming better: Government support for households and firms during the energy crisis. OECD.

Hodula, M., Janků, J., Malovaná, S., Ngo, N.A., 2024. Geopolitical Risks and Their Impact on Global Macro-Financial Stability: Literature and Measurements. Technical Report, (8/2024), Czech National Bank.

INSEE, 2022. War and Prices. Technical Report, INSEE, URL: https://www.insee.fr/en/statistiques/6468638?sommaire=6469195. Economic Outlook - June 2022.

Ivanov, V., Kilian, L., 2005. A practitioner's guide to lag order selection for VAR impulse response analysis. Stud. Nonlinear Dyn. Econom. 9 (1).

Jappelli, T., Pagano, M., Di Maggio, M., 2013. Households' indebtedness and financial fragility. J. Financ. Manag. Mark. Institutions 1 (1), 23–46.

Jordà, Ò., Nechio, F., 2023. Inflation and wage growth since the pandemic. Eur. Econ. Rev. 156, 104474.

Kaplan, G., Mitman, K., Violante, G.L., 2020. Non-durable consumption and housing net worth in the great recession: Evidence from easily accessible data. J. Public Econ. 189, 104176.

Kaplan, G., Moll, B., Violante, G.L., 2018. Monetary policy according to HANK. Am. Econ. Rev. 108 (3), 697–743. http://dx.doi.org/10.1257/aer.20160042, URL: http://www.aeaweb.org/articles?id=10.1257/aer.20160042.

Kaplan, G., Violante, G.L., Weidner, J., 2014. The wealthy hand-to-mouth. Brookings Pap. Econ. Act. 45 (1), 77–138.

Liadze, I., Macchiarelli, C., Mortimer-Lee, P., Sanchez Juanino, P., 2023. Economic costs of the Russia–Ukraine war. World Econ. 46 (4), 874–886.

McKay, A., Wieland, J.F., 2021. Lumpy durable consumption demand and the limited ammunition of monetary policy. Econometrica 89 (6), 2717–2749.

Mian, A., Rao, K., Sufi, A., 2013. Household balance sheets, consumption, and the economic slump. Q. J. Econ. 128 (4), 1687–1726.

Michelangeli, V., Pietrunti, M., 2014. A microsimulation model to evaluate Italian households' financial vulnerability. Bank Italy Occas. Pap. (225).

Mumtaz, H., Theodoridis, K., 2018. The changing transmission of uncertainty shocks in the US. J. Bus. Econom. Statist. 36 (2), 239–252.

Pallotti, F., Paz-Pardo, G., Slacalek, J., Tristani, O., Violante, G.L., 2024. Who bears the costs of inflation? Euro area households and the 2021–2023 shock. J. Monet. Econ. 148, 103671. http://dx.doi.org/10.1016/j.jmoneco.2024.103671.

Patterson, C., 2023. The matching multiplier and the amplification of recessions. Am. Econ. Rev. 113 (4), 982–1012.

Mustre-del Río, J., Sánchez, J.M., Mather, R., Athreya, K., 2025. The effects of macroeconomic shocks: Household financial distress matters. Rev. Financ. Stud. 38 (2), 564–604. http://dx.doi.org/10.1093/rfs/hhae058.

Sims, C.A., Zha, T., 1999. Error bands for impulse responses. Econometrica 67 (5), 1113–1155.

Slacalek, J., Tristani, O., Violante, G.L., 2020. Household balance sheet channels of monetary policy: A back-of-the-envelope calculation for the Euro area. J. Econom. Dynam. Control 115, 103879.

Tzamourani, P., 2021. The interest rate exposure of Euro area households. Eur. Econ. Rev. 132, 103643.

Uhlig, H., 2005. What are the effects of monetary policy on output? Results from an agnostic identification procedure. J. Monet. Econ. 52 (2), 381–419.

Valderrama, L., Gorse, P., Marinkov, M., Topalova, P.B., 2023. European Housing Markets at a Turning Point–Risks, Household and Bank Vulnerabilities, and Policy Options. Technical Report, (2023/076), International Monetary Fund, http://dx.doi.org/10.5089/9798400237782.001.

Vatne, B.H., 2006. How large are the financial margins of Norwegian households? An analysis of micro data for the period 1987–2004. Econ. Bull. 77 (4), 173–180.