CES ifo Working Papers

12853
2026

July 2026

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CES ifo

Imprint:

CESifo Working Papers

ISSN 2364-1428 (digital)

Publisher and distributor: Munich Society for the Promotion
of Economic Research - CESifo GmbH

Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 (0)89 2180-2740

Email office@cesifo.de
https://www.cesifo.org

Editor: Clemens Fuest

A Regressive Shock? The Distributional Consequences of Middle East Conflict-Driven Inflation for German Households

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July 21, 2026

Abstract

The escalation of the conflict in the Middle East in late February 2026 led to a sharp upward revision in inflation forecasts for Germany, which we attribute primarily to the conflict itself. Using microsimulation methods adapted to simulate a commodity price change, we translate this forecast revision into upper bounds on household-specific purchasing-power losses via a compensating variation approach, distinguishing the loss recovered through consumption taxes from the full loss including the pre-tax transfer to producers. Both measures are sizeable and regressive: in 2026, the average household loses 0.25% of income through the tax channel and 1.15% under the full measure, with bottom-decile losses of 0.63% and 2.87% against 0.12% and 0.65% for the top decile. The Gini coefficient rises by up to 0.14 points, and elderly households are disproportionately affected. Our results show that a supply-side shock originating outside Europe can have a sizeable and unequal impact on household living standards.

Keywords: oil price shock; Middle East conflict; household welfare; distributional analysis; microsimulation; inflation.

JEL codes: D31, E31, Q41, H23, C15.

Word count: 5125 (including Appendix)
Figure/table count: 5

1 Introduction

Geopolitical conflict in oil-producing regions has long been recognised as a source of macroeconomic instability (Hamilton, 1983; Kilian, 2008; Noguera-Santaella, 2016; Monge et al., 2017). The escalation of hostilities in the Middle East at the end of February 2026, comprising coordinated military strikes by Israel and the United States, directly disrupted oil supply through the closure of the Strait of Hormuz and damage to critical oil production infrastructure, creating an acute source of supply-side uncertainty for global oil markets. Reflecting this uncertainty, professional forecasters and international institutions substantially revised their oil price projections for 2026 and 2027 upwards relative to pre-conflict baselines. For energy-importing economies such as Germany, these revisions directly translated into inflationary pressure, particularly in the energy-intensive consumption categories in the short-run.

The distributional consequences of commodity price shocks have received growing attention in the applied welfare literature. Energy price increases are typically found to impose a disproportionate burden on lower-income households, especially because energy expenditures represent a larger share of their total budgets (Labandeira et al., 2017; Flues and Thomas, 2015). The 2021–2023 European energy crisis, driven initially by post-pandemic demand recovery and exacerbated by the Russian invasion of Ukraine, generated a large empirical literature documenting these patterns across EU Member States (Amores et al., 2025a,b). That literature has so far focused on price shocks whose counterfactual is defined by *policy* variation – e.g., the presence or absence of price caps, VAT reductions, or other fiscal offsets. We adopt the compensating-variation decomposition of Amores et al. (2025b) without modification to its core equations; our contribution lies in sourcing the price shock itself from a different type of variation – the revision between two macroeconomic forecasts – and in applying it to a supply-side shock of a structurally distinct kind: one originating outside Europe's own energy relationships, and hence outside the reach of the EU-specific policy instruments (e.g., the EU gas price cap) that shaped the policy response to the 2021–2023 crisis.

Germany provides a particularly important case study. As the largest EU economy and a major net importer of fossil fuels, Germany is acutely exposed to oil market disruptions. Following the phase-out of Russian pipeline gas and the associated restructuring of energy import portfolios, the German energy system retains significant exposure to oil-linked price formation in heating fuels, transport and petrochemical inputs (Deutsche Bundesbank, 2022).

We adapt the EUROMOD Indirect Tax Tool (ITT), which was designed to simulate the distributional effects of changes in VAT or excise tax rates, to simulate the welfare consequences of exogenous commodity price changes. The conceptual parallel is direct: in both cases, a change in the consumer price of a good translates into a welfare loss proportional to the household's baseline expenditure on that good, with the distributional pattern depending on how the expenditure shares vary across the income distribution. We implement this adaptation using the compensating variation welfare approach of Amores et al. (2025b), applying commodity-specific price changes derived from the difference between a pre-conflict and post-conflict consumer price inflation forecast made by the ifo Institute for 2026 and 2027 under a no-policy change assumption.[1]

The paper makes three contributions. First, it provides the first micro-simulation-based distributional analysis of the welfare consequences of the 2026 Middle East escalation for German households. Second, we extend the compensating-variation framework of Amores et al. (2025b) – originally developed to evaluate policy-driven price changes – to a setting in which the price shock is instead identified from the revision between two professional macroeconomic forecasts; the underlying ITT/CIA equations are unchanged, and the adaptation lies in the construction of the price-change input π_j rather than in the welfare methodology itself. Third, we document heterogeneity in the welfare loss by household type, beyond the income-decile profile, that has not, to our knowledge, been reported for a geopolitical oil-supply shock of this kind.

The paper is organised as follows. Section 2 reviews the geopolitical context and oil price forecast revisions. Section 3 presents the methodology and data. Section 4 reports the results and Section 5 concludes.

2 The Middle East escalation and oil market dynamics

The geopolitical context for our analysis is the intensification of military operations in the Middle East beginning in late February 2026. These developments raised concerns about damage to oil-producing infrastructure and disruptions to supply routes, particularly through the closure of the Strait of Hormuz, through which approximately 20% of both global oil and liquefied natural gas (LNG) trade transits. According to the International Energy Agency (2026), global oil supply fell by 12.8 million barrels per day since the start of the conflict. Whilst the majority of oil and gas trade passing through the Strait of Hormuz is destined for the Asian market and thus the oil and gas supply to Europe was not directly affected, the global oil and natural gas spot- and futures-prices surged following the attack. Particularly the increase in oil prices translated directly into higher consumer prices through the heating oil and fuels components of inflation. Unlike the 2021–2023 European energy crisis, which originated in the EU's own gas import relationships and was met with EU-coordinated instruments such as the gas price cap, the 2026 escalation constitutes a supply-side shock transmitted through global oil and LNG markets with no equivalent EU-level policy lever, making its household-level incidence and the appropriate

[1] Similarly, the difference in pre-crisis and post-crisis forecast was used by Almeida et al. (2021) to predict the impact of the COVID-19 crisis on household income.

compensatory policy response an open question.

The increase in the raw energy prices also constitutes upwards pressure on the cost of production and provision of non-energy goods and services. For example, oil is an important component for the production of plastic, and higher oil prices are associated with higher transportation costs of products to the end consumer, also implying future upside risk for consumer prices in the manufactured goods and services sectors. Furthermore, 30% of the global trade of urea, and 20% of that of both phosphate and ammonia (all of which are important components of fertiliser) are transported through the Strait of Hormuz; its closure thus represents an inflationary pressure for future food prices through potential constraints on the supply of fertiliser.

Given the significant risk to prices not only in the provision of energy but also for the production and transportation of non-energy goods and services, professional forecasters substantially revised their consumer price projections upwards for the 2026 – 2027 period. In the following, we present the pre- and post-conflict inflation forecast released by the ifo Institute,[2] which we utilise to estimate the welfare loss arising from the energy price shock over a distribution of households in the German economy.

2.1 Pre- and post-conflict inflation forecasts

The pre-conflict forecast was released by the ifo Institute on the 12th of March 2026 (Wollmershäuser et al., 2026b) and is used as the baseline scenario in this analysis. It was made utilising information available up until late February 2026, just before the attack on Iran. The second scenario is the most recent forecast released by the ifo Institute (Wollmershäuser et al., 2026a), which comprises information available up until mid-June. As such, the pre-conflict scenario constitutes a counterfactual path of realised and projected inflation in the absence of the conflict in the Middle East, enabling us to quantify the associated welfare differential.

The main discrepancy between the two forecasts stems from the assumptions made concerning the evolution of the crude oil, natural gas and electricity prices, which were revised greatly following the onset of the conflict and the subsequent development of futures prices. The realised and projected trajectory of the quarterly price of one barrel of crude oil is significantly higher in the post-conflict forecast. The consumer prices for fuels and heating oil, which together constitute 3.4% of the basket of goods in the German CPI, surged from March 2026 onwards and are projected to remain at a level above the pre-conflict forecast over the entire post-conflict forecast horizon[3]. The prices for natural gas and electricity also rose with the onset of the conflict, though significantly

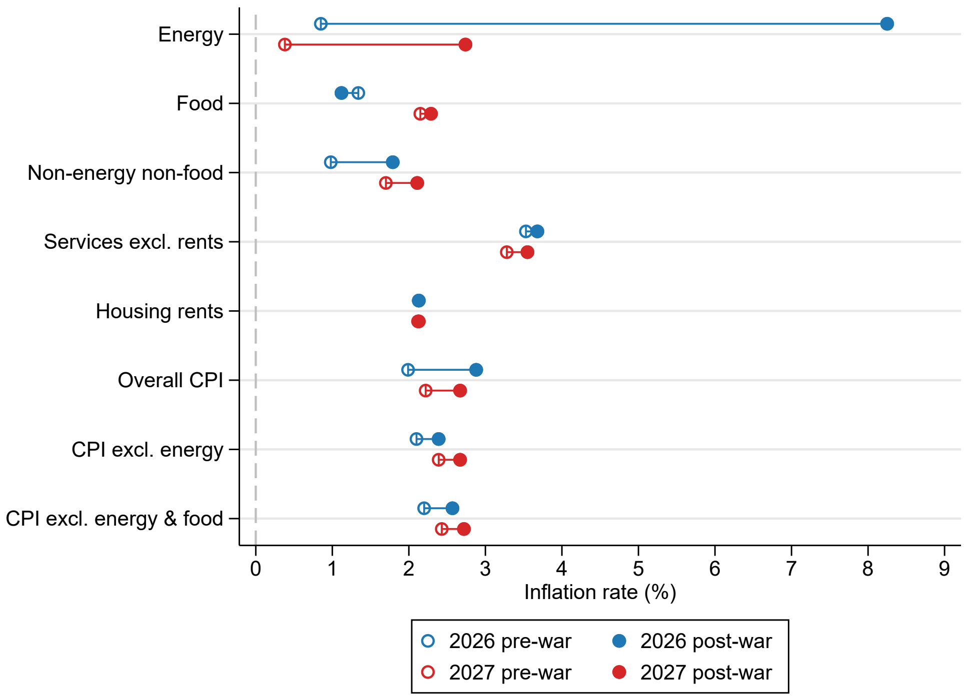
[2]The ifo Institute for economic research is one of Germany's largest think-tanks. The institute provides economic policy analyses and is particularly known for the monthly ifo Business Climate Index for Germany. It also releases quarterly forecasts for the German economy and contributes to the Joint Economic Forecast ("Gemeinschaftsdiagnose") for the German state.

[3]The price assumptions for crude oil can bee seen in Figure 4 in the Online Appendix

less so than in the European energy crisis of 2022. These are expected to pass through to consumer prices particularly over the winter 2026/2027 given the long-term procurement strategies of German energy providers. All in all, whilst the baseline forecast (prior to the escalation) projected a moderate energy price inflation of 0.9% in 2026 and 0.4% in 2027, the post-conflict forecast revised the projected energy inflation significantly upwards to 8.3% in 2026 and 2.7% in 2027.

Given the upside risk to the cost of production and provision of non-energy goods and services, the post-conflict inflation forecast also incorporates indirect effects to inflation via higher food, manufacturing goods and services prices, particularly in 2027, due to the delayed response of prices of these components following an oil price shock. Figure 1 displays the revisions in projected inflation for the sub-components of inflation in the post- versus pre-conflict setting.

Figure 1: Revisions of projected inflation in the pre- versus post-conflict forecasts made by the ifo Institute.



Note: Open markers represent the pre-conflict forecast; filled markers the post-conflict forecast. Horizontal lines connect the pre- and post-conflict values for each component.
Source: Forecasts made by the ifo Institute; authors' calculations.

Whilst the forecast for food inflation was revised downwards by 0.2 percentage points (pp) in the current year, it is projected to be 0.2pp higher in 2027. The consumer price for manufacturing goods (non-energy) is expected to lie 0.8pp and 0.4pp higher in the current and following year, whilst services inflation is expected to increase more moderately by 0.2 and 0.3pp. Overall, whilst the pre-conflict forecast predicted headline inflation rates of 2.0% and 2.2% in 2026 and 2027, these were increased upwards to 2.9% and 2.7% in the post-conflict setting.[4]

While we cannot formally decompose the forecast revision into conflict-attributable and other components, three considerations support treating it as conflict-driven. First, the revision is concentrated precisely in the categories mechanically linked to oil and gas markets – energy inflation was revised up by roughly 7 percentage points in 2026, an order of magnitude larger than the revisions to non-energy categories (Figure 1) – which is the signature one would expect from a supply-side oil shock rather than a general macroeconomic reassessment. Second, the timing of the post-conflict forecast is such that it plausibly captures revisions primarily related to effects of the conflict in the Middle East. The pre-conflict forecast was finalised using information available just before the attack on Iran in late February, and the post-conflict forecast was estimated in early June. In this time, no other comparably significant global geopolitical shock occurred that could plausibly account for the observed revision in the inflation outlook. Third, the indirect, delayed revisions to food and services inflation in the post-conflict forecast follow the pass-through pattern documented in the oil-shock literature (Hamilton, 1983; Kilian, 2008), rather than a pattern consistent with, for example, an independent domestic demand shock. We cannot rule out that some smaller fraction of the revision reflects routine forecast updating or other concurrent developments unrelated to the conflict; to this extent, our estimates should be interpreted as an upper bound on the welfare cost specifically attributable to the Middle East escalation.

3 Data and Methodology

3.1 Microsimulation model and data

Our analysis uses EUROMOD, the static tax-benefit microsimulation model for the EU (Sutherland and Figari, 2013). EUROMOD computes household-level tax liabilities and benefit entitlements by applying the tax-benefit rules to representative microdata samples. We extend the income-side simulations with the Indirect Tax Tool (ITT) (Akoğuz et al., 2020) and its Consumption Inflation Adjustment (CIA) extension, which are designed to estimate the distributional effect of changes in commodity prices on household purchasing power[5].

The ITT links two data sources that are separately collected: income and socio-demographic data from EU-SILC, and consumption-level data from EU-HBS. Because EU-SILC contains detailed income and labour market information but no consumption data, and EU-HBS records household expenditure at a fine commodity level but lacks

[4]The post-conflict forecast rests on the assumption that the ECB will raise the deposit facility rate by a total of 50 basis points by the end of 2026, in response to the upwards price pressure caused by the conflict in the Middle East.

[5]For additional information, see EUROMOD Dcumentation (2025).

the income and benefit variables needed for distributional analysis, the two datasets are matched through the semi-parametric imputation procedure of Akoğuz et al. (2020). This procedure relates expenditure budget shares to household characteristics including equivalised income, household size and composition, housing tenure and education of the household head. The resulting matched dataset contains expenditure shares over income at the 5-digit COICOP level for approximately 193 commodity categories, providing the disaggregated consumption structure needed to trace how commodity-specific price changes translate into household-level welfare losses.

The input data for Germany is taken from EU-SILC 2024, matched with EU-HBS 2015 as the source dataset for consumption expenditures.[6] The policy baseline for income variables corresponds to the German tax-benefit system in force on 30 June 2025, the most recent policy year available in EUROMOD at the time of analysis. Income values are uprated to the 2026 and 2027 policy year using country-specific uprating factors based on the forecast of the ifo Institute. Wage developments in 2026 and 2027 are also taken from these forecasts.

3.2 The inflation modelling framework

We use the CIA extension of the ITT to translate price forecast revisions resulting from the geopolitical developments into household-level welfare estimates. Within the ITT, consumption expenditure E for household h on good j is computed as the product of the income share of consumption α_{jh} – imputed from the matched HBS data, and household disposable income Y_h produced by EUROMOD:

$$E_{jh} = \alpha_{jh} \cdot Y_h = P_j \cdot C_{jh} \tag{1}$$

where P_j is the price of good j and C_{jh} is the quantity consumed by household h. In the absence of price or income changes, successive simulation years use the same input shares α_{jh} and consumption expenditure grows at the same rate as household disposable income, leaving real consumption quantities unchanged.

The CIA extension modifies this framework to account for differential inflation across goods and, more generally, for any divergence between price and income growth. Let π_j denote the rate of price inflation specific to good j and let μ_t denote the rate of nominal disposable income growth between the reference period and simulation year t, taken from the ifo wage forecast underlying each scenario.[7] If income and prices grew at the same

[6]EU-HBS 2015 predates the 2021–2023 energy crisis, raising the question of whether the imputed energy budget share gradient still holds. National EVS 2023 consumption detail is not yet available, but a regional breakdown by IT.NRW (2026) based on EVS 2023 shows the income gradient in energy spending widened, not narrowed, between 2003 and 2023, consistent with, rather than a threat to, our regressivity result.

[7]We apply a single, economy-wide income growth rate per scenario-year, consistent with the level of

rate ($\mu_t = \pi_j$ for all j), the real consumption quantity C_{jh} would be unaffected and no welfare change would occur. The welfare-relevant case arises when price inflation and income growth diverge. Under the assumption that households maintain their pre-shock consumption quantities (i.e., the Constant Quantity assumption that governs the CIA extension by construction), the income share of consumption for good j of household h is re-scaled to:

$$\alpha_{jh}^{\text{infl}} = \alpha_{jh} \cdot \frac{(1+\pi_j)}{(1+\mu_t)} \tag{2}$$

This re-scaling captures the real erosion of purchasing power: when good j becomes more expensive at rate π_j while aggregate income grows at the lower rate $\mu_t < \pi_j$, households must devote a larger share of income to maintain the same quantity of good j, leaving less for savings and other goods. Because μ_t does not vary across households, all distributional variation in $\alpha_{jh}^{\text{infl}} - \alpha_{jh}$ across households comes from variation in baseline budget shares α_{jh}, not from differential income growth. The post-inflation post-CT disposable income of household h is accordingly:

$$\hat{Y}_h^{\text{infl}} = Y_h - \sum_j \tau_j \cdot \alpha_{jh}^{\text{infl}} \cdot Y_h \tag{3}$$

where τ_j denotes the ad-valorem consumption tax rate on good j, specifically the tax-inclusive VAT share $v_j/(1+v_j)$ for VAT-liable goods (see the footnote to equation (6) for a precise treatment of specific excises), so that $\tau_j \cdot \alpha_{jh}^{\text{infl}} \cdot Y_h$ captures the ad-valorem tax liability on good j under the inflated expenditure share. We define post-CT disposable income as disposable income minus all indirect taxes paid by the household (VAT, ad-valorem excises and specific excises).

3.3 Welfare measures

The natural starting point for measuring the welfare cost of the conflict-driven price shock is the total additional expenditure household h must incur to maintain its pre-shock consumption basket when prices rise:

$$\Delta W_h = \sum_j \left(\alpha_{jh}^{\text{infl}} - \alpha_{jh}\right) \cdot Y_h = \sum_j \alpha_{jh} \cdot \frac{\pi_j - \mu_t}{1+\mu_t} \cdot Y_h \tag{4}$$

This is the compensating variation under the constant-quantity assumption: the income transfer that would leave household h indifferent between the two price regimes.

Welfare Measure 1 – Full welfare loss. Expressed as a proportional loss relative to pre-conflict post-CT household income, and computed from the EUROMOD expenditure

disaggregation available in the ifo forecast used to uprate EUROMOD income variables. All cross-sectional variation in the welfare loss reported below is therefore driven by differences in household expenditure patterns (α_{jh}), not by differences in income growth across households.

variable (x_tot):

$$W_h^{\text{full}} = \frac{x_h^{\text{conflict}} - x_h^{\text{pre}}}{\hat{Y}_h^{\text{pre}}} \times 100 \tag{5}$$

where $x_h^{\text{conflict}} - x_h^{\text{pre}} = \Delta W_h$ is the total change in household expenditure at conflict prices. This measure captures the *real incidence* of the shock: the full share of pre-shock household income eroded by higher prices.

Not all of ΔW_h is observable in the income accounts, however. It decomposes into a fiscal component – additional consumption taxes collected on a larger nominal expenditure base – and a pre-tax price component – additional resources transferred directly to producers and exporters at higher prices:

$$\Delta W_h = \underbrace{\sum_j \tau_j \cdot \left(\alpha_{jh}^{\text{infl}} - \alpha_{jh}\right) \cdot Y_h}_{\Delta W_h^{\text{CT}} \text{ (CT channel)}} + \underbrace{\sum_j (1-\tau_j) \cdot \left(\alpha_{jh}^{\text{infl}} - \alpha_{jh}\right) \cdot Y_h}_{\Delta W_h^{\text{price}} \text{ (price channel)}} \tag{6}$$

The decomposition in equation (6) requires care in interpreting τ_j. For VAT, the relevant rate is the tax-inclusive share $v_j/(1+v_j)$, not the statutory tax-exclusive rate v_j: a pre-tax price increase of ΔP raises the VAT-inclusive price by $(1+v_j)\Delta P$, of which VAT accounts for $v_j \Delta P = [v_j/(1+v_j)] \cdot (1+v_j)\Delta P$. For specific excises (e.g. fuel duty, energy tax), the tax is fixed per unit of quantity; under the constant-quantity assumption the excise liability does not rise with the pre-tax commodity price, so the full pre-tax price increase accrues to the price channel, not the CT-channel ($\tau_j = 0$ for the excise component). VAT is applied at the tax-inclusive rate on inflated expenditure, while specific excises are held at their per-unit statutory values. Omitting this distinction would overstate the CT-channel and understate the price channel for energy-intensive goods such as fuels and heating oil.

Welfare Measure 2 – CT-channel welfare loss. The CT component ΔW_h^{CT} is the only part directly recoverable from the EUROMOD income accounts. Applying equation (3) under the two ifo forecast scenarios yields pre-conflict post-CT income $\hat{Y}_h^{\text{pre}}$ and conflict post-CT income $\hat{Y}_h^{\text{post}}$. Since nominal pre-CT income Y_h is unchanged across scenarios, their difference equals exactly the additional tax extracted: $\hat{Y}_h^{\text{pre}} - \hat{Y}_h^{\text{post}} = \Delta W_h^{\text{CT}}$. Expressed proportionally:

$$W_h^{\text{CT}} \approx \frac{\hat{Y}_h^{\text{pre}} - \hat{Y}_h^{\text{post}}}{\hat{Y}_h^{\text{pre}}} \times 100 = \frac{\Delta W_h^{\text{CT}}}{\hat{Y}_h^{\text{pre}}} \times 100 \tag{7}$$

This measure captures the *fiscal incidence* of the shock: the share of household income absorbed by the government through higher ad-valorem tax receipts. By construction, $W_h^{\text{full}} = W_h^{\text{CT}} + W_h^{\text{price}}$, where $W_h^{\text{price}} = \Delta W_h^{\text{price}} / \hat{Y}_h^{\text{pre}} \times 100$.

Equation (4) makes clear why the distributional impact is expected to be regressive. For a given level of price inflation π_j and a common income growth rate μ_t, household h

suffers a larger proportional welfare loss if it devotes a larger share of its budget to good j (high α_{jh}). Because lower-income households in Germany devote a systematically larger budget share to energy-intensive goods, the shock is regressive through this expenditure channel. Our framework does not incorporate differential income growth across households as a separate driver of regressivity, since the ifo forecast provides a single wage growth assumption per scenario-year rather than income growth disaggregated by household income, employment status or age; the results below should accordingly be read as capturing the expenditure-side channel only.

3.4 Simulation design

We implement the CIA framework to identify the welfare differential arising from the onset of the conflict in the Middle East. The full welfare differential between the two ifo forecast scenarios is approximately[8]:

$$\Delta W_h^{\text{conflict}} \approx \sum_j \alpha_{jh} \cdot \frac{\pi_j^{\text{post}} - \pi_j^{\text{pre}}}{1+\mu_h} \cdot Y_h \tag{8}$$

Comparing post-conflict to pre-conflict forecasts rather than to a zero-inflation counterfactual isolates the marginal welfare cost attributable specifically to the geopolitical escalation, net of any inflationary dynamics that would have occurred regardless. Both scenarios use scenario-specific income growth rates μ_h based on the ifo forecast: 3.44% (pre-conflict) and 3.35% (post-conflict) in 2026, and 3.26% (pre-conflict) and 3.23% (post-conflict) in 2027.

We operate under the Constant Quantity (CQ) assumption: households are assumed to maintain their pre-shock consumption basket. This represents the "morning-after" response to a sudden price shock: the static, first-period welfare impact before any adjustment in consumption patterns occurs. It is consistent with the well-documented low short-run price elasticities for energy and food goods (Labandeira et al., 2017) and with the standard static incidence approach in the applied welfare literature (Amores et al., 2025b; Turrini et al., 2025).

It should be noted that the CQ assumption implies an upper bound on the true welfare loss: to the extent that households substitute away from more expensive goods over time, the medium-run welfare loss would most likely be smaller. The static estimates reported in this paper should therefore be interpreted as the immediate distributional impact of

[8] Equation (8) is an approximation. EUROMOD applies the CIA re-scaling separately in each scenario using scenario-specific income growth rates, so the exact differential is: $\Delta W_h^{\text{conflict}} = \sum_j \alpha_{jh} \left[\frac{\pi_j^{\text{post}} - \mu^{\text{post}}}{1+\mu^{\text{post}}} - \frac{\pi_j^{\text{pre}} - \mu^{\text{pre}}}{1+\mu^{\text{pre}}} \right] Y_h$. This reduces to equation (8) only when $\mu^{\text{post}} = \mu^{\text{pre}}$. In practice, income growth rates differ by 0.09 pp in 2026 (3.35% vs 3.44%) and 0.03 pp in 2027 (3.23% vs 3.26%). The notation μ_h in equation (8) should be read as a representative growth rate for the purpose of expressing the price-revision effect; the simulations use the scenario-specific values throughout.

the conflict's price effects, not as a prediction of long-run outcomes.

3.5 Distributional analysis

Both welfare measures are expressed as proportional losses (W_h^{full} and W_h^{CT} from equations (5) and (7)) and averaged by income decile, with households ranked by baseline equivalised disposable income using the OECD-modified equivalence scale. We also report results by household type to capture heterogeneity in energy expenditure behaviour beyond the income-decile profile.

To summarise the aggregate distributional impact on inequality, we compute:

$$\Delta\text{Gini}^{\text{conflict}} = \text{Gini}(\hat{y}^{\text{post}}) - \text{Gini}(\hat{y}^{\text{pre}}) \tag{9}$$

where $\hat{y}_h = \hat{Y}_h/s_h$ denotes equivalised post-CT income and s_h is the OECD-modified equivalence scale. The Gini is computed under both the CT-channel income concept ($\hat{y}_h^{\text{post,CT}} = (\hat{Y}_h^{\text{pre}} - \Delta W_h^{\text{CT}})/s_h$) and the full-shock income concept ($\hat{y}_h^{\text{post,full}} = (\hat{Y}_h^{\text{pre}} - \Delta W_h)/s_h$, where ΔW_h is the euro-valued total expenditure increase from equation (4)). Note that both post-shock income concepts are equivalised euro-valued levels – distinct from the proportional measures W_h^{CT} and W_h^{full} used in the decile analysis. A positive $\Delta\text{Gini}^{\text{conflict}}$ indicates that the conflict escalation is inequality-increasing. All distributional statistics are computed using EU-SILC cross-sectional weights and person-weighting ($w_h \times n_h$) for the Gini.

4 Results

4.1 Baseline consumption tax burden

Before turning to the main results, it is useful to document the consumption tax burden across the income distribution under the baseline (no-conflict) system, separately for the 2026 and 2027 forecast years. Consumption taxes paid as a share of pre-CT (gross) disposable household income by decile, computed on a non-equivalised household basis. The burden falls monotonically from the first to the tenth income decile – from 15.2% (2026) / 15.6% (2027) for the bottom decile to 7.8% (both years) for the top decile – confirming the standard finding that consumption taxation is regressive with respect to income (Flues and Thomas, 2015; Maier and Ricci, 2024). This structural regressivity means that any further, conflict-driven increase in the effective consumption tax base imposes a proportionally larger burden on lower-income households even before any price shock is applied. The detailed information by decile can be seen in Figure 5 in the Online Appendix.

4.2 Aggregate expenditure and fiscal effects

In this section we try to quantify the scale of the aggregate macroeconomic shock related to the conflict. In the 2026 scenario, the conflict-driven inflation revision raises total simulated household expenditure from EUR 1,602.8 billion in the pre-conflict baseline to EUR 1,619.6 billion in the conflict scenario, an increase of approximately EUR 16.8 billion, or 1.05%. This reflects the higher prices households must pay to purchase the same basket of goods and services. In the 2027 scenario, the additional expenditure requirement is considerably smaller, at approximately EUR 10.2 billion (+0.62%), as the price forecast revisions are more moderate in the second year of the projection horizon.

Of the total additional expenditure burden, a significant share goes to the government through higher consumption tax revenues, since VAT and excises are levied on an expanded nominal expenditure base. Simulated consumption tax revenues rise from EUR 213.7 billion to EUR 217.2 billion in the 2026 scenario (+1.65%), and from EUR 221.6 billion to EUR 223.5 billion in the 2027 scenario (+0.86%). These additional revenues represent a purely automatic fiscal gain arising mechanically from the fact that ad-valorem taxes apply to a higher nominal price level.

Accordingly, aggregate post-CT disposable income falls from EUR 1,858.7 billion to EUR 1,855.2 billion in the 2026 scenario, a loss of EUR 3.5 billion (−0.19%), and from EUR 1,900.2 billion to EUR 1,898.3 billion in the 2027 scenario, a loss of EUR 1.9 billion (−0.10%). When the full expenditure increase is accounted for, the implied real income loss is substantially higher with EUR 16.8 billion (−0.90%) in 2026 and EUR 10.2 billion (−0.54%) in 2027.Table 1 summarises these aggregate effects. In the following analysis, we examine the incidence of the aggregate welfare loss across the income distribution and find it to be markedly regressive under both welfare measures.

Table 1: Aggregate expenditure and fiscal effects of the conflict shock

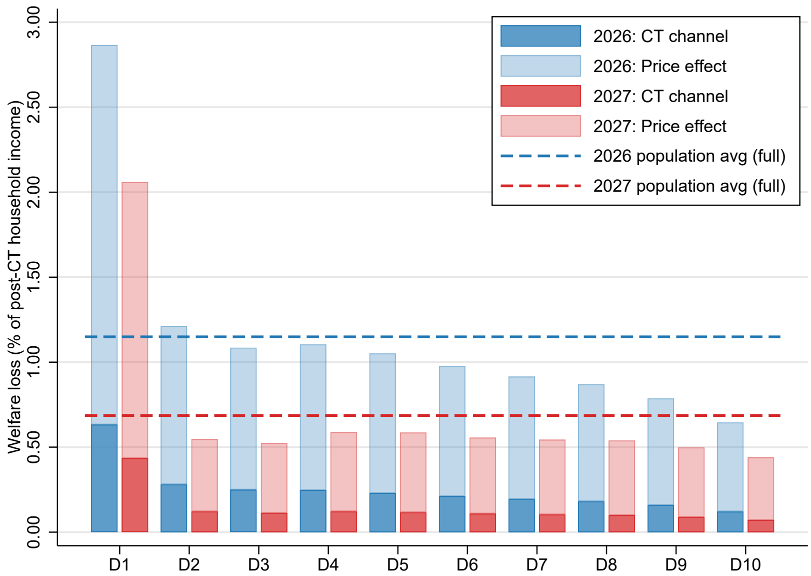
	2026 scenario		2027 scenario	
	Baseline	Conflict	Baseline	Conflict
Expenditure and revenues (EUR billion, annual)				
Household expenditure	1,602.8	1,619.6	1,639.3	1,649.5
Δ vs baseline	+16.8 (+1.05%)		+10.2 (+0.62%)	
Consumption tax revenue	213.7	217.2	221.6	223.5
Δ vs baseline	+3.5 (+1.65%)		+1.9 (+0.86%)	
Post-conflict disposable income (EUR billion, annual)				
CT channel (*ils_dispypct_hh*)	1,858.7	1,855.2	1,900.2	1,898.3
Δ vs baseline	−3.5 (−0.19%)		−1.9 (−0.10%)	
Full shock	1,858.7	1,841.9	1,900.2	1,890.0
Δ vs baseline	−16.8 (−0.90%)		−10.2 (−0.54%)	

Note: Figures in EUR billion (annual). CT-channel income = post-CT disposable income in the conflict scenario; equals pre-conflict income minus the additional CT extracted. Full-shock income = pre-conflict post-CT income minus total additional household expenditure.
Source: Authors' calculations using EUROMOD/ITT.

4.3 Welfare impact of the conflict shock

Figure 2 highlights the distributional impact of the conflict by income decile under both welfare measures, decomposing the full welfare loss into its CT-channel (dark fill) and pre-tax price (light fill) components. The 2026 results reveal a declining welfare loss profile from the bottom to the top of the income distribution under both measures, confirming that the conflict-driven inflation shock is strongly regressive.

Figure 2: Welfare loss by income decile: decomposition into CT channel and price effect, Germany, 2026 and 2027 scenarios.



Note: Households ranked by equivalised disposable income. *Source:* Authors' calculations using EUROMOD/ITT.

Table 2 summarises several key statistics. Bottom-decile (D1) households suffer a full welfare loss of 2.87% of their equivalised post-CT disposable income, of which 0.63% is attributable to higher consumption taxes. The welfare loss declines steadily across the distribution, reaching 0.65% (full) and 0.12% (CT-channel) for the top decile (D10). The D1–D10 proportional welfare gap is 2.22 percentage points under the full measure and 0.51 percentage points under the CT-channel measure. This pattern reflects the energy intensity of lower-income household budgets. Households in the bottom decile devote a substantially larger share of their expenditure to energy-linked COICOP categories. As a consequence, any oil-price-driven inflation revision imposes a larger proportional burden on them.

The 2027 scenario displays a qualitatively identical but quantitatively smaller welfare loss profile. D1 households face a full welfare loss of 2.06% and a CT-channel loss of 0.44%, compared to 0.44% and 0.07% for D10. The difference between years reflects energy price forecast revisions reverting towards a long-run equilibrium, but the regressivity of the shock is visible in both measures and both years.

Three features of the decomposition stand out. First, the price channel dominates throughout: it accounts for approximately three-quarters of the full welfare loss across all deciles, reflecting the fact that only a part of consumer expenditure carries ad-valorem taxes. Second, the full welfare loss is substantially larger than the CT-only measure – decile one faces 2.87% vs 0.63% in 2026, underscoring that income-based simulations materially understate the true purchasing-power cost. Third, the regressive gradient is steeper under the full measure: the D1–D10 gap is 2.22 pp (full) versus 0.51 pp (CT-channel) in 2026, since lower-income households have lower saving rates and thus a larger share of the additional price burden falls on their income. Table 2 also reports the corresponding inequality effects, discussed in the next section.

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4.4 Inequality effects

Panel B of Table 2 reports the impact of the shock on inequality under both welfare measures. Under the full-shock measure, the Gini rises by 0.14 points, with the price channel accounting for 71% of the total inequality increase. Under the CT-channel measure, the Gini coefficient of equivalised post-CT disposable income rises by 0.04 points in 2026 (from 30.64 to 30.68), consistent with the well-established finding that commodity price shocks produce small but statistically meaningful increases in measured inequality (Amores et al., 2025b). In 2027, these effects are lower under both measures (full: +0.04, CT: +0.01), reflecting the lower inflation increase in the price forecast in the second year. Overall, the price channel accounts for 75% of the total Gini change.

Table 2: Distributional and inequality effects of the conflict shock

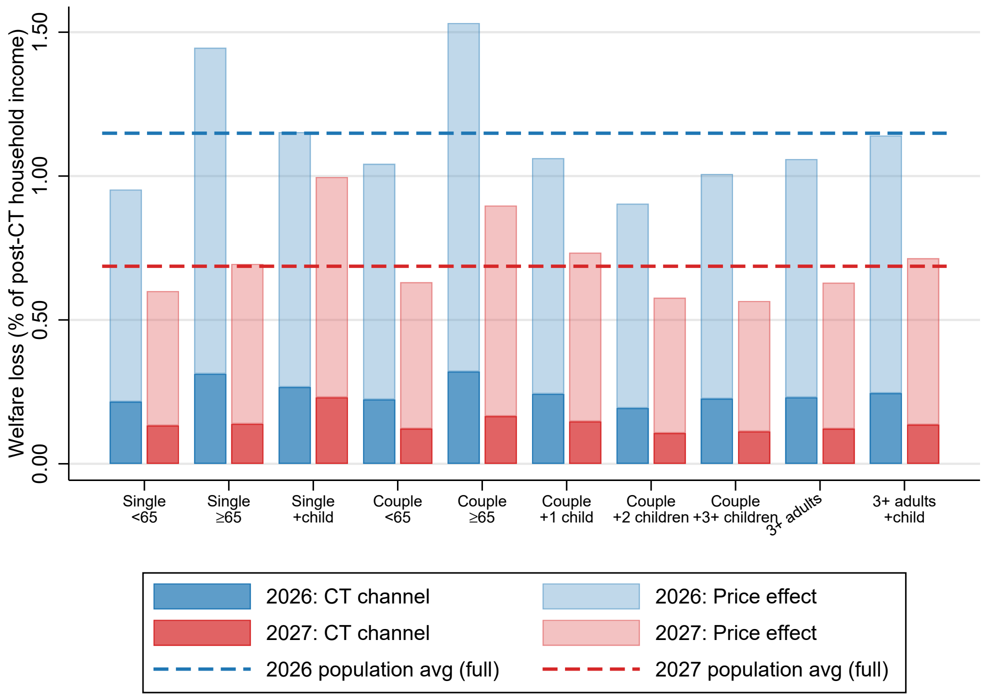
	2026 scenario		2027 scenario	
	CT channel	Full shock	CT channel	Full shock
Panel A: Welfare loss by income decile (% of pre-conflict post-CT household income)				
Bottom decile (D1)	0.633	2.866	0.435	2.060
Top decile (D10)	0.121	0.645	0.072	0.441
D1–D10 gap (pp)	0.512	2.221	0.363	1.619
Population average	0.251	1.149	0.138	0.686
Panel B: Inequality effects (Gini coefficient ×100)				
Δ Gini, total	0.14		0.04	
of which CT channel	0.04 (29%)		0.01 (25%)	
of which price channel	0.10 (71%)		0.03 (75%)	

Note: Panel A: CT-channel welfare loss = (pre-conflict post-CT income − conflict post-CT income) / pre-conflict post-CT income × 100. Full-shock welfare loss = (conflict total expenditure − pre-conflict total expenditure) / pre-conflict post-CT income × 100. Households ranked by equivalised disposable income. Panel B: baseline Gini coefficients are 30.64 (2026) and 30.89 (2027); Δ Gini, total gives the change under the CT-channel and full-shock income concepts respectively; the two rows below decompose this change into the CT and price channel contributions. Gini computed using person weights ($w_h \times n_h$) and the OECD-modified equivalence scale.
Source: Authors' calculations using EUROMOD/ITT.

4.5 Heterogeneity by household type

Figure 3 decomposes the welfare loss by household type under both measures, revealing important heterogeneity beyond the income-decile profile. That is, in addition to the vertical inequality documented in the previous section, horizontal inequality also plays an important role in understanding the distributional effects of the price shock. Two household categories stand out as particularly vulnerable: elderly couples (two adults, at least one aged 65 or over, no children) and elderly singles (one adult aged 65 or over, no children), whose CT-channel losses of 0.32% and 0.31% in 2026 are the highest of any household type and noticeably above the population-wide average of 0.25%. Their vulnerability is consistent with the elevated housing-energy and heating expenditure shares of elderly households documented in the literature (Flues and Thomas, 2015; Labandeira et al., 2017), compounded by the absence of wage income to offset price increases. Under the full-shock measure, elderly couples face 1.53% and elderly singles 1.45%, again the highest in the distribution, with the price channel accounting for roughly three-quarters of their total loss.

Figure 3: Welfare loss by household type: decomposition into CT channel and price effect, Germany, 2026 and 2027 scenarios.



Note: Stacked bars show the CT component (dark fill) and the pre-tax price component (light fill); total bar height equals the full welfare loss W_h^{full}. Dashed lines show the population-average full welfare loss. *Source:* Authors' calculations using EUROMOD/ITT.

Single parents (one adult with children) experience above-average losses of 1.15% (full shock) and 0.27% (CT-channel) in 2026, consistent with the elevated transport expenditure shares of single-parent households (Flues and Thomas, 2015). Working-age singles without children face full-shock losses of 0.95% and CT-channel losses of 0.22%, both below the elderly-household rates. Couples with children fare relatively better: full-shock losses range from 0.90% (CT: 0.19%) for couples with two children to 1.06% (CT: 0.24%) for those with one child; couples with three or more children display losses of 1.01% (CT: 0.23%), slightly above the two-children group. Working-age couples without children (full: 1.04%, CT: 0.22%) and three-or-more-adult households (full: 1.06–1.14%, CT: 0.23–0.25%) display losses close to the population mean under both measures. In the 2027 scenario, single parents become the most exposed group (full: 1.00%, CT: 0.23%), reflecting the persistence of motor-fuel dependence, followed by elderly couples (full: 0.90%, CT: 0.17%) and elderly singles (full: 0.70%, CT: 0.14%); all losses are compressed but the ranking under both measures is very similar.

5 Conclusion

This paper analyses the household welfare consequences of the oil price shock triggered by the escalation of the Middle East conflict at the end of February 2026. Following the conflict, the ifo Institute revised its inflation forecast for Germany upwards for 2026 and 2027, largely on account of higher expected oil, natural gas and electricity prices, with knock-on effects for food, manufacturing and services prices. We treat the difference between this post-conflict forecast and the earlier, pre-conflict forecast released in March 2026 as attributable to the conflict itself.[9]

Using EUROMOD's Indirect Tax Tool we are able to simulate a commodity price change rather than a change in tax rates, and translate this forecast difference into a household-level measure of purchasing-power loss for Germany, distinguishing between the part of the loss that is recovered by the government through higher consumption tax revenue and the full loss including the pre-tax transfer to producers due to higher prices.

Three results stand out. First, the shock is not negligible in aggregate: it raises household expenditure by around EUR 16.8 billion in 2026, of which only a small part (EUR 3.5 billion) is recovered by the government through higher consumption tax revenue, meaning most of the loss is absorbed directly by households as higher spending on the same basket of goods. Second, the loss is clearly regressive. Bottom-decile households lose several times more, as a share of their income, than top-decile households, in both the tax-channel and full-shock measures, and the gap is wider once the full price effect is taken into account. Third, the burden is not fully summarized by the income-decile pattern alone: elderly households, both single and in couples, are among the most affected household types, reflecting their higher exposure to home heating costs.

These results should be read with some caveats. Our estimates rely on the constant-quantity assumption, meaning that households are assumed not to adjust their consumption in response to higher prices; to the extent that some substitution is possible even in the short run, our figures represent an upper bound on the true welfare loss. We also rely on a single set of professional forecasts, and alternative price scenarios could yield somewhat different magnitudes, although the qualitative distributional pattern is unlikely to be sensitive to this choice. A further limitation is that our framework applies a single, economy-wide income growth rate to all households, so that the regressive pattern we document is driven entirely by differences in expenditure shares across the income distribution rather than by any potential differential income growth across households. Incorporating income growth disaggregated by employment status or income group, where the underlying forecast data permit, is a natural extension for future work.

More broadly, our analysis illustrates that existing microsimulation infrastructure

[9]Section 2 discusses the evidence supporting this attribution (the concentration of the revision in oil-linked categories, the precise timing overlap, and the pass-through pattern across categories) and we note that the resulting estimates should be read as an upper bound on the conflict-specific welfare cost.

built for tax policy evaluation can be repurposed, with a fairly direct methodological adaptation, to assess the household-level consequences of exogenous price shocks originating in commodity markets. Given that geopolitical disruptions to oil supply are likely to recur, this type of framework can be applied quickly to future episodes, and could usefully be extended to consider potential policy responses, such as targeted transfers to the households most exposed to energy price increases.

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Funding Statement

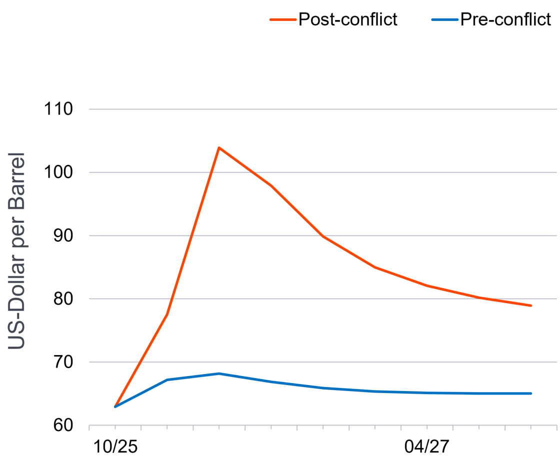
No funding was received.

AI Statement

Generative AI (Claude) was used for drafting, editing and grammar checking.

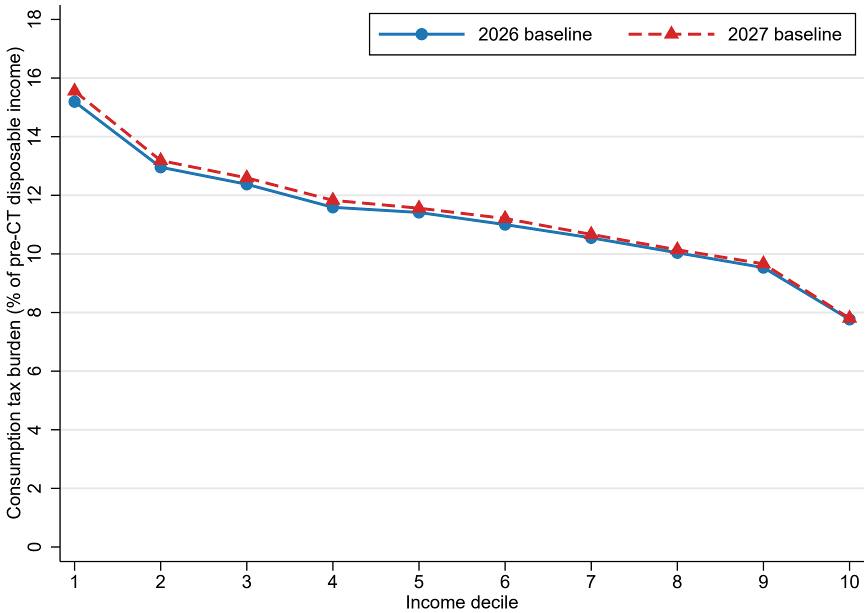
Appendix

Figure 4: Assumptions regarding the evolution of the quarterly price for one barrel of crude oil under the baseline and post-conflict scenarios.



Note: The blue (red) line displays the realised and expected trajectory of the quarterly USD price for one barrel of crude oil in the baseline (post-conflict) scenario underlying the forecasts released by the ifo Institute. The assumptions are based on the oil futures prices at the time of the forecast release.
Source: Intercontinental Exchange (ICE), projections made by the ifo Institute.

Figure 5: Baseline consumption tax burden as a percentage of (non-equivalised) household disposable income by income decile, Germany.



Note: Baseline = pre-conflict ifo Frühjahrsprognose 2026 (released 12 March 2026, using information up to late February 2026). Burden = consumption taxes paid / (post-CT income + consumption taxes). Households ranked by non-equivalised household disposable income.
Source: Authors' calculations using EUROMOD/ITT.